

Vienna Township

Comprehensive Plan

Military Compatibility Element

The Military Compatibility Element of the Vienna Township Comprehensive Plan addresses military and community compatibility planning and long-term sustainability of military operations at Youngstown ARS. This Element is organized by the following subsections:

- Section 1 - Introduction
- Section 2 – Youngstown ARS Joint Land Use Study
- Section 3 – Installation Setting
- Section 4 – Planning Issues
- Section 5 – Implementation Measures
- Section 6 – Key Terms

1. Introduction

Sustainment of the mission at Youngstown Air Reserve Station (ARS) is an overarching goal of Vienna Township. To reflect this commitment, Vienna Township participated in a Joint Land Use Study (JLUS), a compatibility planning process intended to identify existing and future compatibility issues between the base and the community. The Youngstown ARS Joint Land Use Study was completed in 2019 and was the result of a collaborative process between the Vienna Township, Youngstown ARS, Youngstown - other partner jurisdictions, businesses, industry and other diverse stakeholder groups. The resulting Joint Land Use Study defined a shared strategic plan for area jurisdictions, Youngstown ARS, and Youngstown-Warren Regional Airport to work cooperatively and collaboratively to reduce and/or eliminate compatibility issues which can negatively impact the mission of the base, and compatibility issues created by the base which can negatively impact the surrounding communities.

Youngstown ARS is in Vienna Township in Trumbull County Ohio. It is nearly equidistant from the major cities of Cleveland, Ohio and Pittsburgh, Pennsylvania. Youngstown ARS is situated in a rural setting and is 11 miles north of the City of Youngstown and 10 miles east of the City of Warren and includes approximately 320 acres. The cantonment area consists of 230 acres while 90 acres surround the assault landing runway. The map on the following page shows Youngstown ARS and the surrounding vicinity.

Specific operations Youngstown ARS carries out in support of their mission include:

- **Tactical airlift** – Airdrop delivery of personnel, equipment, and supplies to combat environments, or for humanitarian support.
- **Aerial spray** – DoD unique capability to control disease-carrying insects, pest insects, undesirable vegetation and to disperse oil spills in large bodies of water. Missions may be executed in combat areas, on DoD installations or in response to disasters / emergencies.
- **Aerial port** – Prepares and recovers the airdrop loads flown by the 910th AW aircrews for training.
- **Aeromedical training** – Support the AFRC aeromedical mission through annual, joint training exercises out of Youngstown ARS and Westover ARB.
- **Air assault** – Fly air assault landing training on the Youngstown ARS LZ. Training is necessary for combat delivery of supplies and services to ground-based personnel in theater.
- **Arms training** – Conduct arms training in support of the installation’s readiness mission.
- **Installation ops, aircraft maintenance and wing mobility** – Aircraft maintenance, personnel training, logistics, supply, and deployment processing in support of other mission areas.

Youngstown-Warren Regional Airport

The Western Reserve Port Authority owns and operates the Youngstown-Warren Regional Airport. The airport is co-located with Youngstown ARS and shares its main runways with the military. Trumbull and Mahoning Counties oversee administration of the airport via an eight-member board. There are two runways at the facility, runway 14 / 32 that is a 9,003-foot long asphalt runway that is CAT I ILS capable for precision instrument landings. The other 5 / 23 runway is a 5,002-foot-long asphalt runway that has less capabilities for aircraft operations. The airport has multiple taxiways and aprons to support aircraft operations. The airport also has a 24,000 square foot cargo facility designed to support a cargo hub operation. A third runway is used exclusively by Youngstown ARS for military operations. This assault runway is leased to the military and not available for airport operations.

Youngstown ARS Mission Footprint

Mission activities conducted on and around Youngstown ARS can generate potential impacts on areas within the Vienna Township if incompatible uses can develop. Examples of potential mission impacts include noise and vibration from overhead flights and the risk of an aircraft accident. Conversely, the military mission is susceptible to hazards and other incompatibilities created by certain types of private development or activities, such as obstructions to airspace and frequency interference or location of noise sensitive uses in high noise zones. The overlapping spatial patterns of these “mission footprints” was essential for promoting compatible and informed decision making. The elements that make up the mission footprints that extends outside the Youngstown ARS boundaries are: Airfield Safety Zones, Noise Contours, Flight Tracks, Imaginary Surfaces, Part 77 Vertical Obstructions, and Bird / Wildlife Aircraft Strike Hazards (BASH). These essential elements play a key role in the installations viability for sustaining current and future mission operations.

Camp Garfield Joint Military Training Center

The 910th AW combat mission includes the tactical airlift and airdrop in support of theatre operations. To maintain proficiency in this critical wartime capability, the AW conducts airdrop training at a drop zone on Camp Garfield. Camp Garfield is located approximately 25 miles southwest of Youngstown ARS and encompasses over 21,600 acres in Portage and Trumbull Counties. Aircraft are flown from Youngstown ARS to Camp Garfield to conduct the airdrop training and return to the base once the operations are complete.

Youngstown ARS Demographics

Youngstown ARS employs approximately 1,900 personnel according to the 2017 Economic Impact Analysis. The table below provides a breakdown of the employee numbers:

Youngstown ARS Employees

Employee Category	Number Employed
Active Duty	194
AGR	61
Reserve	1,132
Appropriated Fund Civilian	362
Non-Appropriated Fund Civilian / Contractor	111
TOTALS	1,860

Source: 910th Airlift Wing 2018 Economic Impact Analysis

4. Planning Issues

The JLUS process involved the identification of planning issues related to compatibility between the installation and the surrounding community, including Vienna Township. The primary planning issues have been grouped below by the following community topics:

- Capital Improvement Projects
- Communication and Coordination
- Economic Development
- Housing
- Lighting
- Military Compatibility Areas
 - Noise
 - Land Use
 - Airfield Safety
 - BASH
 - Vertical Obstruction

Goal #10 **Create a Military Compatibility Area Overlay District (MCAOD).** Vienna Township should amend the Vienna Township Zoning Resolution to add a Military Compatibility Area Overlay District (MCAOD) containing Military Compatibility Areas that reflect the types and intensity of compatible uses and map them for the public on an online platform. The MCAOD is the collective geographic area of all of the MCAs combined. The MCAs established should be used by Vienna Township to identify areas where specific compatibility issues are more likely to occur and address ways to avoid compatibility issues. The MCAs should include:

- **Airfield Safety MCA.** Includes the Clear Zone and Accident Potential Zones I and II (APZs I and II).
- **Noise MCA.** Includes areas within the aircraft noise contours.
- **Noise Awareness Area.** Includes a boundary beyond the Noise MCA comprising the Inner Horizontal Imaginary Surface, approximately 1.5 miles from the runways where aircraft flight is lowest surrounding the Youngstown-Warren Regional Airport.
- **Vertical Obstructions MCA.** Includes the estimated Inner Horizontal Surfaces and Approach-Departure Clearance Surfaces for the runways at Youngstown-Warren Regional Airport and Youngstown ARS.
- **BASH MCA.** Includes areas within a five-mile radius around the airfield with the highest concentrations of wildlife or wildlife-attractant uses.

Where appropriate, Vienna Township should incorporate the MCAOD and MCA boundaries on the zoning map and future land use maps and include the zone regulations in the Zoning Resolution and on their official maps (hardcopy, electronic and web based as applicable) for easy access and understanding by the public.

G. Noise

Noise is often a concern for members of the public in areas surrounding military installations with flying missions. The Noise MCA includes all land located off-installation within the 2025 Youngstown-Warren Regional Airport noise contours associated with military aircraft activities. Residential developments and other noise-sensitive land uses within this MCA may be subject to sound attenuation measures to reduce interior noise impacts.

Areas near the Youngstown-Warren Regional Airport that are outside the noise contours but are in a location where there are reasonable expectations of some amount of aircraft noise impacts, are included in the Noise Awareness Area (NAA). The NAA promotes awareness and understanding of potential noise impacts. In lieu of the implementation of formal regulations, the NAA delineates a geographic area where strategies are recommended to support compatible planning and are applied with a focus in communication and coordination.

The NAA is contained within the Inner Horizontal imaginary surface where aircraft operate at lower altitudes around the airfield. The Inner Horizontal surface extends out to 7,500 feet, or approximately 1.5 miles from the airfield runways in all directions.

Although there is no documented information that establishes specific noise levels in the NAA, the proximity to the airfield and the fact that aircraft operations will generate some levels of noise, may make certain land uses incompatible. An example of a potentially incompatible land use is where

sensitive receptors may be located such as schools, churches, and medical facilities. The NAA is not intended to dictate any regulatory requirements such as sound attenuation for buildings, but instead promote actions such as notification of potential aircraft noise impacts to those located or planning to locate in the area.

The following is a summary of land use compatibility within the 65-69 dB noise zone:

- Residential buildings are considered incompatible and discouraged within the 65-69 dB DNL noise contours; however, they may be acceptable when no other development options are available, provided NLR measures achieve a 25 dB reduction in outdoor to indoor noise. Mobile homes are considered incompatible in all noise contours.
- Commercial uses are compatible within the 65-69 DNL dB noise contour.
- Healthcare uses, such as hospitals and medical facilities and education facilities including childcare services, are conditionally compatible within the 65-75 dB DNL noise contours provided they achieve NLR in the design and construction of buildings.
- The compatibility of cultural, entertainment and recreation use vary depending on type of use and whether there are indoor versus outdoor elements. Most of these uses are compatible or conditionally compatible within the 65-69 dB DNL noise contour except for outdoor amphitheatres, which are incompatible in all noise contours.
- Light and heavy industrial manufacturing uses are compatible within the 65-69 dB DNL noise contour.
- Agricultural uses (without livestock) are conditionally compatible in all noise contours, provided any associated residential uses incorporate NLR measures in the dwelling.

Aircraft Noise

Aircraft noise is produced from flight operations (overflight, take-offs, landings, touch-and-go operations) and engine maintenance run-ups. An engine run-up is a maintenance procedure performed on the airfield to test for proper engine performance.

Federal Aviation Regulation Part 150 is the primary federal regulation that governs airport noise compatibility at civilian airports. FAA AC 150 / 5020-1 provides guidance for noise control and compatibility planning at civilian airports. These regulations recommend that airports develop airport noise exposure maps (NEM) and noise compatibility plans (NCP).

The Youngstown-Warren Regional Airport produced a NEM in 1994 and projected the noise contours out to 2025 based on projected future airport operations. The 1994 noise contours include 65, 70 and 75 dB contours, while the 2025 noise contours include 60, 65, 70, and 75 dB DNL noise contours.

Goal #11 **Noise Sensitive Land Uses.** Vienna Township should require compatible development that is considerate of noise sensitive land uses and greater land use intensities within noise contours that have the potential to impact the flying mission at the Youngstown ARS. Additionally, noise from activities at the Youngstown-Warren Regional Airport has the potential to affect noise sensitive land uses in the surrounding area.

Policy 11-1 **Incompatible Development within Noise Zones.** Vienna Township should regulate noise sensitive land uses and greater land use intensities within noise contours that have the potential to impact the flying mission at the Youngstown ARS.

- Policy 11-2** **Sound Attenuation in New Construction of Noise Sensitive Land Uses.** Vienna Township should amend the applicable Building Code to require sound attenuation measures for all new construction of noise sensitive land uses located within the 65 dB noise contour of the Noise MCA. These structures should be designed and constructed so as to limit their interior noise level to no greater than 45 dB Ldn certified by an accredited acoustical engineer.
- Policy 11-3** **Include Noise Awareness in Real Estate Disclosures.** Vienna Township should adopt requirements for Residential Property Disclosure Forms to ensure property buyers are aware that they are within an area impacted by noise from military operations.
- Policy 11-4** **Increase Public Understanding of Noise Sources.** Vienna Township should increase community awareness of military operations at Youngstown ARS area of influence using the township website and other methods available to the township.
- Policy 11-5** **Develop MOU with Local Law Enforcement. Vienna Township should support and adopt an MOU** that establishes a POC at Youngstown ARS and notification procedures to the installation when noise complaints are received by Vienna Township. The military POC should be the same representative that receives noise complaints when Youngstown ARS is contacted directly by the public. The MOU should outline procedures on noise complaint information to be collected by Vienna Township police and the process to be followed to pass on to the Youngstown POC.

H. Land Use

The basis of land use planning and regulation relates to the government’s role in protecting the public’s health, safety, and welfare. Local jurisdiction comprehensive plans and zoning codes can be the most effective tools for preventing or resolving land use compatibility issues. These tools ensure the separation of land uses that differ significantly in character. Land use separation also applies to properties where the use of one property may adversely impact the use of another. For instance, industrial uses are often separated from residential uses to avoid impacts from noise, odors, and lighting.

Compatibility is based on land use and not the zoning district since each zoning district allows multiple land uses. An assessment of land uses in the zoning districts within Vienna Township and the Youngstown ARS safety zones is necessary to establish land use compatibility.

Land development and supporting projects that occur in areas where Youngstown ARS conducts operations have the potential to impact the ability of the military to be successful. The combination of the military footprints makes up the military compatibility areas (MCA) for Youngstown ARS. Any development within the MCA that has the potential to affect Youngstown ARS operations may impact the military mission. Types of development that may impact the Youngstown ARS MCA include but are not limited to:

- Residential / commercial development
- Renewable energy projects such as solar arrays or wind turbines
- Tall structures and towers such as buildings, communication towers, water towers, etc.
- Development of water resources that may attract birds

In addition, changes in land use plans or zoning codes that affect how land could be used in the future within the MCA has the potential to impact Youngstown ARS operations.

- Policy 12-1** **Establish Regional Response Capabilities.** Vienna Township and Youngstown ARS and should collaborate to develop response plans that enable a regional response capability for emergencies resulting from shale gas operations. Response procedures should focus on health and safety as priority one, along with provisions to protect property, equipment and minimize impacts to ongoing military operations.
- Policy 12-2** **Establish a Road Use and Maintenance Agreement.** Vienna Township should cooperatively develop a Road Use and Maintenance Agreement to minimize impacts from shale gas operations truck traffic on local roadways. The agreement should also ensure the shale gas operations are held responsible for any road maintenance needs resulting from their activities.
- Policy 12-3** **Establish an Interlocal Agreement.** Youngstown ARS and Vienna Township should develop an interlocal agreement for communications and coordination of emergency management activities in the event of an emergency resulting from shale gas operations.
- Policy 12-4** **Implement Best Lighting Practices in Zoning Codes.** Vienna Township should identify and implement best practices for lighting through zoning regulations based on the findings and conclusions gathered in Strategy LU-4A to protect the favorable lighting conditions currently experienced around Youngstown ARS and the Youngstown-Warren Regional Airport.

I. **Airfield Safety**

Airfield Safety zones are areas in which development should be more restrictive in terms of use and concentrations of people due to the higher risks to public safety.

Military installations often engage in activities or contain facilities that require special consideration by local jurisdictions when evaluating compatibility due to public safety concerns. It is important to regulate land use near military airfields to minimize damage from potential aircraft accidents and to reduce air navigation hazards. To help mitigate potential issues, the Department of Defense (DoD) has delineated Clear Zones (CZ) and Accident Potential Zones (APZ) in the vicinity of airfield runways. APZs are usually divided into APZ I and APZ II. Each zone was developed based on the statistical review of aircraft accidents. Studies show that most mishaps occur on or near the runway, predominately along its extended centerline.

The proposed Airfield Safety MCA addresses compatible land use types and densities / intensities within the Accident Potential Zone II (APZ II) of the runways at the Youngstown-Warren Regional Airport. Each of these safety zones is a subzone of the Airfield Safety MCA. The location of each safety subzone is based on the airfield layout and current air operations.

The Airfield Safety MCA is designed to prevent the development of incompatible land uses in areas with the greatest potential for an aircraft mishap. These safety zones were identified through Air Force guidance that defines safety zones as areas where an aircraft accident is statistically most likely to occur (in the unlikely event that one was to occur at all). The safety zones follow departure and arrival flight tracks and are based on the analysis of historical data. Safety zones are areas in which development

should be more restricted regarding the use and concentrations of people, due to the higher risks to public safety. Issues to consider include aircraft accident potential zones.

The Bird / Wildlife Aircraft Strike Hazard (BASH) MCA extends 5 miles in all directions from the air operations areas at the Youngstown-Warren Regional Airport. This MCA is meant to include areas near the airfield with the highest concentrations of birds, wildlife, or attractants. Bird strikes with aircraft can pose serious safety concerns, including the potential for loss of life or aircraft. Even minor bird strikes can cause costly repairs to aircraft and interfere with training missions. The five-mile distance associated with the BASH MCA is a Federal Aviation Administration (FAA) recommended standard for managing bird attractants around airports. The plan documents that there is a bird strike hazard at the Youngstown-Warren Regional Airport and in its vicinity due to resident and migratory bird species. Daily and seasonal bird movements create various hazardous conditions for military flying operations.

Airfield Safety Zones

The two runways (14 / 32 and 5 / 23) at the Youngstown-Warren Regional Airport used by Youngstown ARS along with the assault landing zone 143 / 323 LZ are governed by FAA and DoD requirements.

Per Air Force regulations, Airfield Safety Zones are developed to assist planners in developing land uses that are compatible with airfield operations, thereby protecting health and safety. Within these zones, there are recommended types, densities, and intensities of land uses. While the likelihood of an aircraft mishap occurring is remote, the identified zones provide the best practical solution for fostering public safety.

There are three safety zones that extend from each end of a runway: Clear Zone (CZ), Accident Potential Zone I (APZ I), and Accident Potential Zone II (APZ II). These three zones occur on each end of Runways 14 / 32 and 5 / 23. The CZ begins at each end of the runway. The CZ for the runway measures 3,000 feet wide by 3,000 feet long. This is the area that has the highest potential of an aircraft incident. It is recommended that no development occur in the CZ unless it is a use that is needed for safe operations of aircraft. The APZ I area begins at the end of each CZ at a width of 3,000 feet extending a length of 5,000 feet. The APZ II area begins at the end of APZ I at a width of 3,000 feet extending a length of 7,000 feet.

This area has a lower potential for accidents and therefore has less restrictive development restrictions recommended. The APZ II is an area that begins at the end of each APZ I and is 3,000 feet wide by 7,000 feet long. The accident potential in this area reduces further, and some additional development types are allowed.

The DoD Unified Facilities Criteria 3-260-01, Airfield and Heliport Planning and Design, establishes APZ criteria associated with the assault landing zone 143 / 323 LZ located at Youngstown ARS. The APZ for the LZ is different than typical runways as it has one overall APZ area. The dimensions of the APZ for the LZ are 500 feet wide by 2500 feet long.

Goal #13 **Airfield Safety MCA Land Use Guidance.** Compatible land uses in Clear Zones and Accident Potential Zones is ensured through the Airfield Safety MCA land use guidance adopted by Vienna Township.

Policy 13-1 **Establish Airfield Safety MCA Overlay District.** Vienna Township should create a Airfield Safety MCA Overlay District in planning documents that would include compatible land uses, residential densities and nonresidential intensities for land within Safety Zones (CZ, APZs I and II) and prohibit incompatible land uses within these areas.

J. Bird / Wildlife Aircraft Strike Hazard (BASH)

The proposed Bird / Wildlife Aircraft Strike Hazard (BASH) MCA extends 5 miles in all directions from the air operations areas at the Youngstown-Warren Regional Airport. This MCA is meant to include areas near the airfield with the highest concentrations of birds, wildlife, or attractants. Bird strikes with aircraft can pose serious safety concerns, including the potential for loss of life or aircraft. Even minor bird strikes can cause costly repairs to aircraft and interfere with training missions. The five-mile distance associated with the BASH MCA is a Federal Aviation Administration (FAA) recommended standard for managing bird attractants around airports. The plan documents that there is a bird strike hazard at the Youngstown-Warren Regional Airport and in its vicinity due to resident and migratory bird species. Daily and seasonal bird movements create various hazardous conditions for military flying operations.

Bird / Wildlife Aircraft Strike Hazard (BASH) Relevancy Area

Travel paths of birds and animals can present a significant hazard to military flight operations.

While fatal accidents resulting from bird or wildlife strikes have been limited, impacts can be a safety concern. Youngstown ARS prepared the most recent 910th AW Bird Aircraft Strike Hazard Reduction Plan 91-212 (910th AW BASH Plan) in 2017.

The plan documents that there is a bird strike hazard at the Youngstown-Warren Regional Airport and in its vicinity due to resident and migratory bird species. Daily and seasonal bird movements create various hazardous conditions for military flying operations.

Goal #14 **Bird/Wildlife Aircraft Strike Hazard (BASH).** Vienna Township should reduce bird aircraft strikes through the development and implementation of strategies and action steps to limit/reduce bird attractants located on and around Youngstown ARS.

Policy 14-1 **Establish Bird/Wildlife Aircraft Strike Hazard (BASH) MCA Overlay District.** Vienna Township should adopt a BASH MCA that would preclude future incompatible land uses, as recommended by FAA Advisory Circular 150 / 5200-33B, within five statute miles of the Youngstown-Warren Regional Airport and Youngstown ARS.

K. Vertical Obstruction

Vertical obstructions are created by buildings, trees, structures, or other features that may encroach into the navigable airspace or line of sight radar signal transmission pathways used by the military. These obstructions can be a safety hazard to both the public and military personnel and potentially impact military readiness.

Vertical obstructions can compromise the value of low-level flight training by limiting the areas where such training can occur. These obstructions can include a range of items from man-made, such as telephone poles, utility transmission towers, and radio antennas, to natural, such as tall trees and land features. Vertical obstructions can also interfere with radar transmissions, compromising the integrity of data transmission between the transmitter and receiver. Though most critical near the transmitter, the geographic area impacting the transmissions, or radar viewshed, can be broad depending on the distance between the transmitter and receivers.

The purpose of the Vertical Obstruction MCA is to regulate the height of all structures within the area that is defined by FAA guidance and Air Force instruction using criteria known as “imaginary surfaces.” The imaginary surfaces are 3-dimensional geospatial areas comprising approach and departure airspace corridors and surrounding navigable airspace. Vertical obstruction heights are a major concern for flight operations and training due to the potential for a structure to extend into navigable airspace, which

could impede safe flight operations and put both pilots and citizens on the ground at risk of an aircraft mishap. County and township zoning codes do not regulate the height of structures within airfield imaginary surfaces for Youngstown-Warren Regional Airport which could lead to potential vertical obstructions to pilot navigation.

Part 77 Vertical Obstruction Compliance

The 500-foot rule, promulgated by the FAA, states that every citizen of the U.S. has “a public right of freedom of transit in air commerce through the navigable air space of the United States.” The rule was formally announced in the 1963 Court of Claims ruling in *Aaron v. United States* and declares that flights 500 feet or more Above Ground Level (AGL) do not represent a compensable taking because they enjoy a free right-of-passage without liability to the owners below.

Another important outcome of the Act is Federal Aviation Regulation Title 14, Part 77, which provides the basis for the evaluation of vertical obstruction compatibility. This regulation provides information to assess the potential for a vertical obstruction based on the elevation of the airfield, the height and resulting elevation of the proposed structure or facility, and the location of the structure or facility relative to the airfield in question. This regulation determines compatibility based on the height of proposed structures or natural features, relative to their distance from the ends of a runway. Using a distance formula for this regulation, local jurisdictions can easily assess the height restrictions near airfields.

Policy 15-1 Establish Vertical Obstruction MCA Overlay District. Vienna Township should consider creating a VO MCA Overlay District in planning documents to regulate the height of structures within FAA Imaginary Surfaces surrounding the Youngstown ARS and Youngstown-Warren Regional Airport.

Policy 15-2 Ensure Federal Aviation Regulation (FAR) Part 77 Compliance. Vienna Township should require a determination Finding of No Significant Impact from the FAA subject to the requirements of Part 77 to be submitted with a development application for local government approval to demonstrate that a proposed structure will not create a vertical obstruction within the navigable airspace.

5. Implementation Measures

This section identifies the recommended courses of action (strategies) for responding to the compatibility issues identified in the proceeding section. The strategies were developed through a collaborative effort among representatives of local jurisdictions, Youngstown ARS, state and federal agencies, local organizations, the public, and other stakeholders that own or manage land and resources in the region.

The JLUS strategies incorporate a variety of actions that promote compatible land use and resource planning. Upon implementation, existing and potential compatibility issues arising from civilian / military interactions can be avoided, significantly mitigated, or removed. These strategies are the heart of the JLUS Study and are the culmination of the entire planning process.

A critical variable for the implementation of strategies is the establishment of the JLUS Implementation Coordination Committee to oversee the execution of the JLUS. It is through this committee that local jurisdictions, the installation, and other stakeholders can enhance their collaboration and adjust actions over time to ensure resolution of the key issues is achieved well into the future through the implementation of realistic and applicable strategies.

The key to successful implementation is balancing the needs of all involved stakeholders. To produce a balanced plan, several guidelines were used as the basis for strategy development. These guidelines are listed below.

Recommended strategies must not result in a taking of property value, as defined by state law. In some cases, the recommended strategies can only be implemented with new enabling legislation.

To minimize regulation, many of the strategies are only recommended for within a specific geographic area where a compatibility issue has been identified (e.g., within noise contours) instead of for the whole JLUS Study Area.

To meet the needs of all parties, it was determined that strategies without 100% buy-in from all stakeholders may be expanded and tailored to individual circumstances. These strategies ultimately constitute multiple strategies that address one issue in different ways.

Since state and federal regulations are subject to change, the party responsible for implementation should ensure there are no conflicts between the strategy and existing state or federal laws before executing any of the suggested strategies.

In addition to the primary guidelines listed above, consideration was given to the 2018 National Defense Strategy (NDS) when developing recommendations. The NDS is used to establish objectives for military planning regarding force structure, force modernization, business processes, supporting infrastructure, and required resources.

Implementation Measures, identifies the implementation measures Vienna Township should take to implement the goals and policies of the Military Compatibility Element. The implementation program lists each specific implementation measure, a reference to the policy it is implementing, who is responsible to implement the program, and the timeframe for implementation.

Implementation Measures Table

#	Implementation Measure	Policy	Partnerships	Timeframe			
				2023 - 2024	2025 - 2026	2026 - 2028	On-going
Capital Improvement Projects							
1	Incorporate Compatibility Planning in Master Plans	Policy 1-1	All JLUS partners and Youngtown ARS				■
2	Coordinate Infrastructure Expansion Plans	Policy 1-2	All JLUS partners and Youngtown ARS				■
Communication and Coordination							
3	Emergency Service Radio Communications	Goal #2	All JLUS partners and Youngtown ARS		■		
4	Upgrade to Digital Radio Compliant with MARCS Network	Policy 2-1	All JLUS partners and Youngtown ARS		■		
5	Intergovernmental Agreement for Single-Use Frequency	Policy 2-2	All JLUS partners and Youngtown ARS	■			
6	Emergency Management Coordination	Goal #3	All JLUS partners and Youngtown ARS				■
7	Memorandum of Agreement for Planning and Cross-Training	Policy 3-1	All JLUS partners and Youngtown ARS	■			
8	Identify Need for and Consider Executing a Mutual Aid Agreement for Law Enforcement Resources	Policy 3-2	All JLUS partners and Youngtown ARS	■			
9	Emergency Management Forums	Policy 3-3	All JLUS partners and Youngtown ARS	■			
10	Development Review Coordination	Goal #4	All JLUS partners and Youngtown ARS				■
11	Memorandum of Agreement for Notification to Youngstown ARS	Policy 4-1	All JLUS partners and Youngtown ARS, Ohio Department of Transportation, Local Utility Providers	■			
12	Adopt Development Notification Checklist	Policy 4-2	All JLUS partners and Youngtown ARS, Youngstown Warren Regional Chamber, NEO Development and Finance Authority	■			
13	Coordination with the Military Aviation and Installation Assurance Siting Clearinghouse	Policy 4-3	All JLUS partners and Youngtown ARS	■			

#	Implementation Measure	Policy	Partnerships	Timeframe			
				2023 - 2024	2025 - 2026	2026 - 2028	On-going
Communication and Coordination continued							
14	Adopt Military Notification Procedures for Development Projects through Tax Abatement Process	Policy 4-4	All JLUS partners and Youngtown ARS		■		
15	Planning Issue Coordination	Goal #5	All JLUS partners and Youngtown ARS				■
16	Create a JLUS Implementation Coordination Committee to Oversee Implementation of JLUS Strategy Recommendations	Policy 5-1	All JLUS partners and Youngtown ARS	■			
17	Provide Mutual Briefings	Policy 5-2	All JLUS partners and Youngtown ARS, Youngstown Warren Regional Chamber, NEO Development and Finance Authority				■
18	Foster Enhanced Public Awareness Through Accurate Mapping	Policy 5-3	All JLUS partners and Youngtown ARS	■			
19	Outreach and Awareness	Goal #6	All JLUS partners and Youngtown ARS	■			
20	Need for Public Education Regarding the Youngstown Mission	Policy 6-1	All JLUS partners and Youngtown ARS		■		
21	Create and distribute educational / informational brochures	Policy 6-2	All JLUS partners and Youngtown ARS, Youngstown Warren Regional Chamber, NEO Development and Finance Authority, YARBCC		■		
22	Promote Social Media Outlets for General Public	Policy 6-3	All JLUS partners and Youngtown ARS, YARBCC				■
23	Installation and Community Events Partnership	Policy 6-4	All JLUS partners and Youngtown ARS				■
24	Seek Funding to Support Public Outreach	Policy 6-5	All JLUS partners and Youngtown ARS				■
25	Educate the Real Estate Industry and Development Community	Policy 6-6	All JLUS partners and Youngtown ARS Youngstown Warren Regional Chamber, NEO Development and Finance Authority		■		
26	Partnership Opportunities	Goal #7	All JLUS partners and Youngtown ARS				■
27	Continue to Leverage Opportunities through the AF Community Partnership Program	Policy 7-1	All JLUS partners and Youngtown ARS, AF Community Partnerships Program Management Office				■

#	Implementation Measure	Policy	Partnerships	Timeframe			
				2023 - 2024	2025 - 2026	2026 - 2028	On-going
Amendments to Regulations/ Agreements/Future Studies							
28	Lighting Impacts	Goal #8	All JLUS partners and Youngtown ARS				■
29	Future Land Use Impacts on Youngstown ARS Night Flying Mission	Policy 8-1	All JLUS partners and Youngtown ARS			■	
30	Assess Future Ambient Lighting Impacts on Night Flying Operations	Policy 8-2	All JLUS partners and Youngtown ARS			■	
31	Compatibility Regulations	Goal #9	All JLUS partners and Youngtown ARS		■		
32	Potential Light and Glare Impacts on Pilot Visibility from Solar Projects	Policy 9-1	All JLUS partners and Youngtown ARS	■			
33	Implement the Military Aviation and Installation Assurance Clearinghouse Coordination Procedures	Policy 9-2	All JLUS partners and Youngtown ARS	■			
34	Require Use of Solar Project Siting Tools	Policy 9-3	All JLUS partners and Youngtown ARS	■			
35	Create a Military Compatibility Area Overlay District (MCAOD)	Goal #10	All JLUS partners and Youngtown ARS		■		
36	Noise Sensitive Land Uses	Goal #11	All JLUS partners and Youngtown ARS		■		
37	Incompatible Development within Noise Zones	Policy 11-1	All JLUS partners and Youngtown ARS				■
38	Sound Attenuation in New Construction of Noise Sensitive Land Uses	Policy 11-2	All JLUS partners and Youngtown ARS		■		
39	Include Noise Awareness in Real Estate Disclosures	Policy 11-3	All JLUS partners and Youngtown ARS, State of Ohio Department of Commerce		■		
40	Increase Public Understanding of Noise Sources	Policy 11-4	All JLUS partners and Youngtown ARS	■			
41	Develop MOU with Local Law Enforcement	Policy 11-5	All JLUS partners and Youngtown ARS				■
42	Establish Regional Response Capabilities	Policy 12-1	All JLUS partners and Youngtown ARS		■		
43	Establish a Road Use and Maintenance Agreement	Policy 12-2	All JLUS partners and Youngtown ARS, Eastgate Regional COG	■			
44	Establish an Interlocal Agreement	Policy 12-3	All JLUS partners and Youngtown ARS	■			
45	Implement Best Lighting Practices in Zoning Codes	Policy 12-4	All JLUS partners and Youngtown ARS			■	
46	Airfield Safety MCA Land Use Guidance	Goal #13	All JLUS partners and Youngtown ARS				■

#	Implementation Measure	Policy	Partnerships	Timeframe			
				2023 - 2024	2025 - 2026	2026 - 2028	On-going
Amendments to Regulations/ Agreements/Future Studies continued							
47	Establish Airfield Safety MCA Overlay District	Policy 13-1	All JLUS partners and Youngtown ARS	■			
48	Bird/Wildlife Aircraft Strike Hazard (BASH)	Goal #14	All JLUS partners and Youngtown ARS				■
49	Establish Bird/Wildlife Aircraft Strike Hazard (BASH) MCA Overlay District	Policy 14-1	All JLUS partners and Youngtown ARS		■		
50	Establish Vertical Obstruction MCA Overlay District	Policy 15-1	All JLUS partners and Youngtown ARS		■		
51	Ensure Federal Aviation Regulation (FAR) Part 77 Compliance	Policy 15-2	All JLUS partners and Youngtown ARS	■			

6. Key Terms

Accident Potential Zones. These zones are designated at the end of each runway and are referred to as the Clear Zone (CZ), Accident Potential Zone I (APZ I) and Accident Potential Zone II (APZII). Each zone was developed based on a statistical review of aircraft accidents. The Air Force provides guidance on land uses considered to be consistent within these zones as part of their AICUZ studies.

- **Clear Zone.** A trapezoidal area lying immediately beyond the end of the runway and outward along the extended runway centerline for a distance of 3,000 feet.
- **Accident Potential Zone I (APZ I).** A rectangular area beyond the Clear Zone, which has measurable potential for aircraft accident relative to the Clear Zone. APZ I is typically 3,000 feet wide by 5,000 feet long and may be rectangular or curved to conform to the shape of the predominant flight route.
- **Accident Potential Zone II (APZ II).** A rectangular area beyond APZ I which has a measurable potential for aircraft accidents relative to APZ I or the Clear Zone. The dimensions of the APZ II are typically 3,000 feet wide by 7,000 feet long and may be curved to correspond to the predominant flight route.

Aircraft Noise Contours A graphic representation of the calculated average-weighted noise level measured as a day-night average A-weighted sound level (DNL). Noise levels are depicted graphically as noise contours that connect the points of equal value. These noise contours are drawn on five decibel (dB DNL) increments from 65 dB DNL up to 80 dB DNL and are overlaid on a map. The 80 dB DNL is the “loudest” contour line computed and the 65 dB DNL is the “quietest”.

Airfield Approach and Departure Flight Tracks. Graphic representation to indicate the primary flight corridors that military aviation operations will use. These flight tracks provide guidance to planners about the typical area of operations that occur at the installation.

Area Operations Area (AOA). The Area Operations Area (AOA) is an area that encompasses the entire airport's approach or departure airspace including the circling space.

Avigation Easement. An easement that grants one or more of the following rights: the right of flight; the right to cause noise, dust, etc. related to aircraft flight; the right to restrict or prohibit certain lights, electromagnetic signals, and bird-attracting land uses; the right to unobstructed airspace over the property above a specified height; and the right of ingress/egress upon the land to exercise those rights.

Bird / Wildlife Aircraft Strike Hazard (BASH). Bird / Wildlife Aircraft Strike Hazard (BASH) refers to the likely occurrence for a collision between an airborne animal (usually a bird) and a human-made vehicle, particularly aircraft.

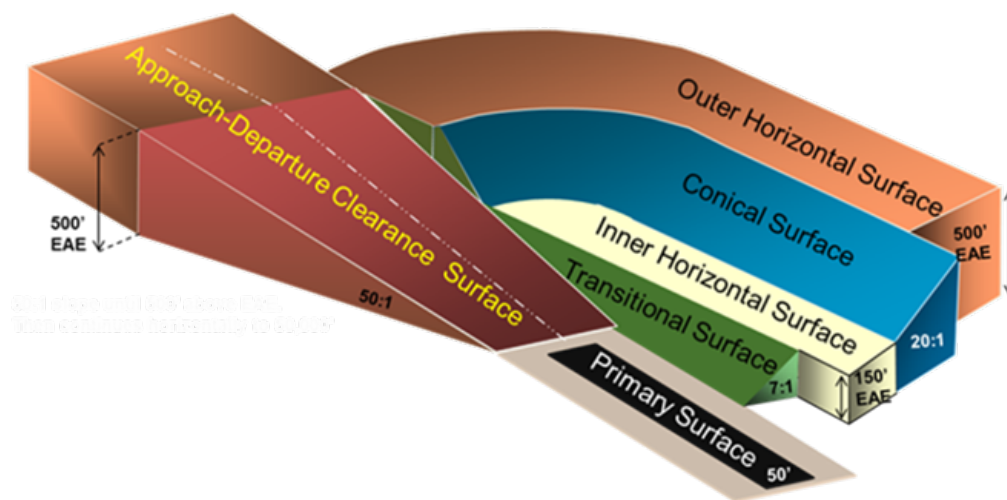
Bird/Wildlife Aircraft Strike Hazard (BASH) Relevancy Area. An area that has been determined to have a high-risk profile associated with aircraft collisions with birds and wildlife due to aircraft flying at lower altitudes and slower speeds.

Day-Night Average Sound Level (DNL). DNL represents an average sound exposure over a 24-hour period calculated from the hourly nighttime period (10:00 p.m. to 7:00 a.m.) and increased by 10 dB to reflect the greater disturbance potential from nighttime noises.

Decibel. A decibel (dB) is the physical unit commonly used to describe noise levels. It is a unit for describing the amplitude of sound, as heard by the human ear.

Decibel, A-weighted (dBA). A unit of measurement for noise having a logarithmic scale and measured using the A-weighted sensory network on a noise measuring device. An increase or decrease of 10 decibels corresponds to a tenfold increase or decrease in sound energy. A doubling or halving of sound energy corresponds to a 3-dBA increase or decrease.

Imaginary Surfaces. Federal Aviation Regulation Part 77, adopted by the Department of Defense, specifies a series of imaginary height surfaces surrounding a military installation. The imaginary surfaces of an active runway are used to define the required airspace that must remain free of vertical obstructions in the vicinity of aviation operations to ensure safe flight.



NOT TO SCALE

Joint Land Use Study (JLUS). A Joint Land Use Study is a planning process accomplished through the collaborative efforts of stakeholders in a defined area to identify compatible land uses and growth/development guidelines for application to areas adjacent to military installations. Joint Land Use Studies are primarily funded by the Department of Defense (DoD), Office of Local Defense Community Cooperation (OLDCC).

Military Compatibility Area (MCA). A formal designation of a geographical area where military operations may impact local communities, and conversely, where local activities and uses may affect the military's ability to conduct its mission. An MCA delineates a geographic area where strategies are recommended to support compatibility planning between local governments and the military installation.

Military Notification Area. The Military Notification Area is a geographic area where jurisdictions notify the military of a proposed action, prior to approval of that action, due to its potential to impact operations at Youngstown ARS or the airspace surrounding it.

Noise Contour. Noise contours consist of noise impact lines constructed by connecting points of equal noise levels, measured in dB. They identify areas on a map that will experience particular dB noise levels.

Noise-Sensitive Uses. Noise-sensitive uses are locations and uses typically more sensitive to noise, including residential areas, hospitals, convalescent homes and facilities, schools, libraries, churches, recreational areas, and other similar land uses.

NOISEMAP Program. The Department of Defense (DoD) noise models are based on NOISEMAP technology, using linear acoustics and an integrated formulation to determine the impact of noise.

Part 77 Vertical Obstruction Compliance. FAA Regulation Title 14 Part 77, commonly referred to as Part 77, provides the basis for evaluation of vertical obstruction compatibility. This regulation provides information to evaluate the potential for vertical obstruction based on an evaluation of the airfield, the height and resulting elevation of the new building or structure, and the location of the building or structure relative to the airfield in question.

Vertical Obstructions. Buildings, structures, trees, or other features that may encroach into the navigable airspace or in the line-of-sight radar signal transmission pathways used by the military.