Brookfield Township

Comprehensive Plan

Military Compatibility Element

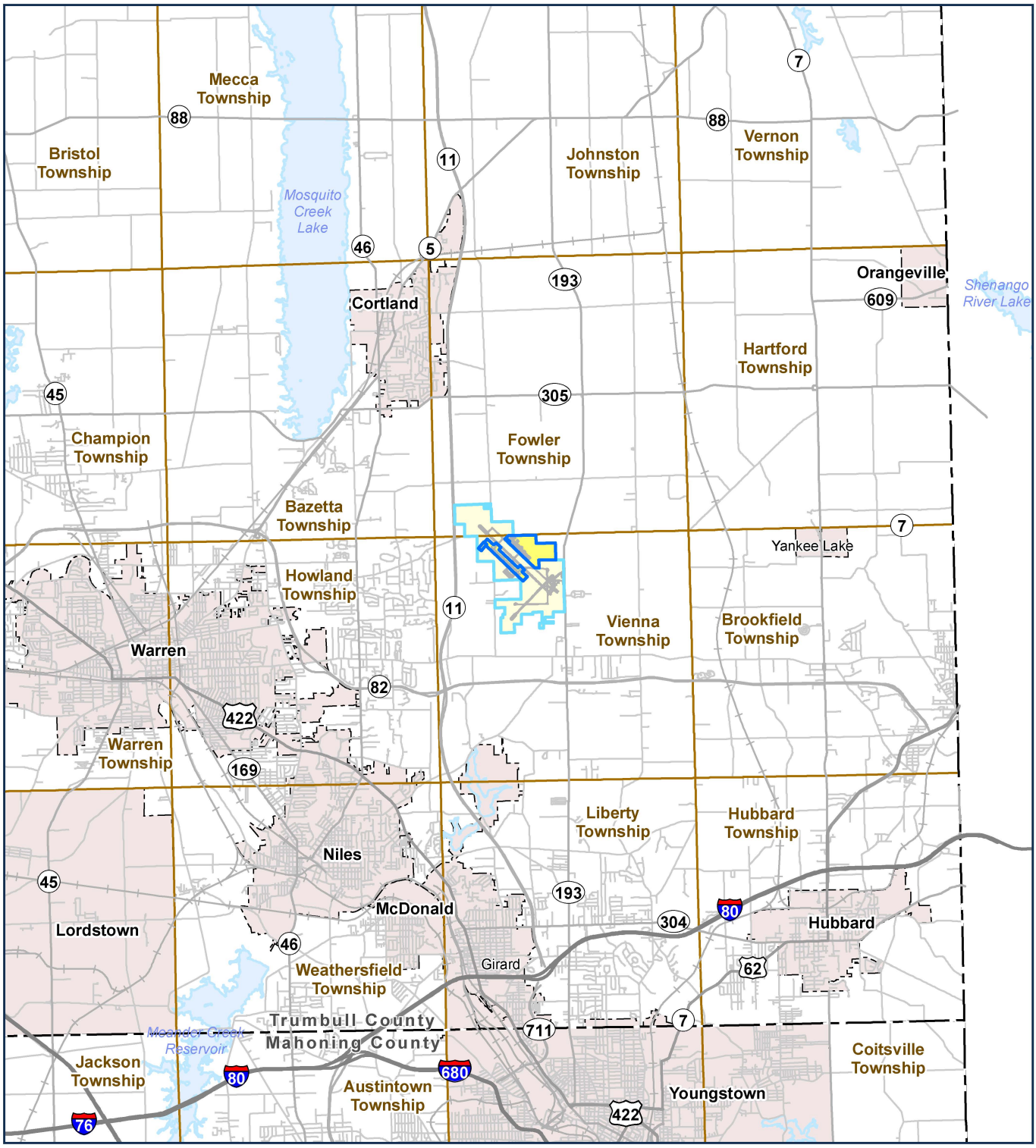
The Military Compatibility Element of the Brookfield Comprehensive Community Plan addresses military and community compatibility planning and long-term sustainability of military operations at Youngstown ARS. This Element is organized by the following subsections:

- 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 Brookfield Township. To reflect this commitment, Brookfield 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 Youngtown ARS Joint Land Use Study was completed in 2019 and was the result of a collaborative process between the Brookfield 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 Brookfield 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.



Youngstown ARS
Youngstown-Warren Regional Airport
County
Township
City

Interstate
US Route
State Route
Local Roads
Railroad
Airfield Surface / Runway
Waterbody

Matrix

0 1 2 Miles

Source: Youngstown ARS, 2017. Matrix Design Group, 2018.

Youngstown ARS Joint Land Use Study

YARS Vicinity Map

Youngstown ARS is the proud home of the 910th Airlift Wing. The 910th AW, provides the only Air Force fixed-wing aerial spraying capability as well as airlifting military supplies to troops on the field. In wartime, the 910th AW mission is to employ the C-130 Hercules aircraft in combat tactical airlift operations. These operations include low-level infiltration into a combat environment, where aircrews can deliver personnel and materials by airdrop and air-land techniques.

The Military Compatibility Element of the Brookfield Township Comprehensive Community Plan incorporates and implements applicable recommendations from the approved Joint Land Use Study through the establishment of goals, policies, and a implementation program defining specific actions to be taken by Brookfield Township, the installation, and other stakeholders to achieve the broad objective of community and military compatibility.

As an urban area in proximity to a vital military installation, development decisions by adjacent jurisdictions have the potential to impact the installation, resulting in land use conflicts that can have negative impacts on community safety, economic development, and sustainment of the mission at Youngstown ARS. Nationwide, incompatible development has been a factor in curtailing training operations, moving (realigning) mission –critical component to other installations. In extreme cases, incompatibilities have resulted in the ultimate closure of numerous military installations across the Nation over the past thirty years. The overarching goal of compatibility planning is to define and preserve the long-term mission of the military installation through implementation of measures intended to reduce and/or eliminate compatibility issues.

The purpose of the Military Compatibility Element is to demonstrate Brookfield's commitment to and support of current and future missions at Youngstown ARS and ensure a compatible environment for Brookfield Township. This Element considers impacts of new growth on military readiness activities and the protection of the current and future mission of the base, balanced against the ability for Brookfield Township to grow and prosper.

The intent of this Element is to define methods, strategies, and approaches to reduce and/or eliminate compatibility issues and to provide a framework for informed decision making by Brookfield Township in relation to compatibility impacts to Youngtown ARS and the community.

2. Youngstown ARS Joint Land Use Study (JLUS)

To address compatibility issues, Brookfield Township participated in a Joint Land Use Study (JLUS), funded with a grant by the Department of Defense (DoD), Office of Economic Adjustment (OEA) to develop and implement a Joint Land Use Study (JLUS). A JLUS is a planning process accomplished through the collaborative efforts of stakeholders to identify compatible land uses and growth management guidelines within jurisdictions adjacent to an active military installation.

Although interaction between Brookfield Township and Youngstown ARS is very positive, the activities or actions of one entity can inadvertently impact the other and result in conflict. As communities develop and expand in response to growth and market demands, land use decisions can push urban development closer to military installations and operational areas. This can result in land use and other compatibility issues, often referred to as encroachment, which can have negative impacts on community safety, economic development, and sustainment of military activities and readiness.

Military activities can negatively impact the surrounding community through factors such as noise, limits to renewable energy infrastructure, and the use of local governmental services (i.e. roads, housing and schools). A number of factors influence whether community and military plans, programs and activities are compatible or in conflict. A Joint Land Use Study utilizes 24 compatibility factors to comprehensively assess and characterize local issues as illustrated below.

JLUS Compatibility Factors

COMPATIBILITY FACTORS			
AQ	Air Quality	LAS	Land / Air Space Competition
AT	Anti-Terrorism / Force Protection	LU	Land Use
BIO	Biological Resources	LEG	Legislative Initiatives
CC	Changing Climate	LG	Light and Glare
COM	Communication / Coordination	NOI	Noise
CR	Cultural Resources	PS	Public Services
DSS	Dust / Smoke / Steam	PT	Public Trespassing
ED	Energy Development	RC	Roadway Capacity
FSC	Frequency Spectrum Capacity	SA	Safety Zones
FSI	Frequency Spectrum Impedance / Interference	SNR	Scarce Natural Resources
		VO	Vertical Obstructions
HA	Housing Availability	V	Vibration
IE	Infrastructure Extensions	WQQ	Water Quality / Quantity

The adopted JLUS recommends policies, actions, strategies and guidelines that should be incorporated into the Brookfield Township Comprehensive Community Plan, regulations and plans to address existing and future compatibility issues between the base and the township. The Military Compatibility Element is intended to incorporate the policies, actions, strategies and guidelines recommended by the Youngstown ARS Joint Land Use Study.

3. Installation Setting

Military Strategic Importance

The 910th AW is the host command at Youngstown ARS and is supported by multiple organizations under the Wing's direct command authority. The 910th AW mission is to "provide a current, qualified mission-ready force" with a supporting vision to "provide unrivaled tactical airlift, aerial spray and agile combat support - always ready to answer our nation's call". In wartime, the 910th AW mission is to employ the C-130 Hercules aircraft in combat tactical airlift operations. These operations include low-level infiltration into a combat environment, where aircrews can deliver personnel and materials by airdrop and air-land techniques.

A Youngstown ARS modified C-130 Hercules aircraft simulates spraying pesticides during a field exercise
Source: https://www.youngstown.afrc.af.mil/

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 Brookfield Township if incompatible uses are allowed to 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 Brookfield 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
    - Land Use
    - BASH
    - Vertical Obstruction

This section also provides Goals and Policies specifically related to the balance of community and military needs and the overall protection of public health and safety. The Vision and other elements of

the Brookfield Comprehensive Community Plan and the Youngstown ARS JLUS were used as the basis for the Goals and Policies within the Military Compatibility Element, providing the impetus for community action and the foundation of decision-making by Brookfield Township relative to land use compatibility. The Goals and Policies were defined in conjunction with development of the JLUS and have been included under each related Planning Issue provided below.

A. Capital Improvement Projects (CIP)

Infrastructure plays an important role in land use compatibility. Infrastructure can enhance the operations of an installation and community by providing needed services, such as sanitary sewer treatment and transportation systems. Conversely, infrastructure can create encroachment issues if expanded without consideration of the consequences of future development. The extension or expansion of community infrastructure to a military installation or areas proximate to an installation has the potential to induce growth, potentially resulting in incompatible uses and conflicts between a military mission and communities. Within comprehensive planning, infrastructure extensions can serve as a mechanism to guide development into appropriate areas, protect sensitive land uses, and improve opportunities for compatibility between community land uses and military missions.

Infrastructure refers to public facilities and services such as sewers, water, electric, and roadways that are required to support existing and proposed development. Public facilities and services should be appropriate for the type of urban or rural development they serve, but also limited to the existing and planned needs and requirements of the area. For example, the provision of a safe transportation system, including all modes of transportation (automobile, mass transit, railway, highway, bicycle, pedestrian, air, water, etc.), is an important infrastructure component. Adequate transportation infrastructure contributes to local, regional, and state accessibility.

Policy 1-1 **Incorporate Compatibility Planning in Master Plans.** Brookfield Township should Incorporate military compatibility planning concepts into their Capital Improvement Plans / Infrastructure Master Plans for infrastructure extensions and improvements.

Policy 1-2 **Coordinate Infrastructure Expansion Plans.** Brookfield Township should notify, and coordinate infrastructure expansion plans with the Youngstown ARS Public Works Department and the Western Reserve Port Authority.

B. Communication and Coordination

This section addresses the programs and plans that promote interagency communication and coordination. Interagency communication serves the general welfare by promoting a more comprehensive planning process, inclusive of all affected stakeholders. Interagency coordination also seeks to develop mutually beneficial policies for both communities and the military to include in local planning documents, such as the Brookfield Comprehensive Community Plan.

In sparsely populated areas with multiple jurisdictions, coordinated emergency responses are critical to ensure adequate and necessary resources are deployed in a timely manner.

Trumbull County is one of only four of 88 counties in Ohio that has yet to transition to a radio communication system capable of communicating easily across public safety agencies. While Trumbull County maintains a centralized emergency management response system, the system is analog and incompatible across all public safety departments within the county. Because not all public safety departments are on the same system, the use of differing equipment using different frequencies results in crowded communication bandwidth, degraded communication quality and gaps in coverage. This can delay the transmission of critical information and affect interagency coordination and response efforts.

While the Youngstown ARS and local communities may engage in verbal and electronic communication on certain matters, there is no formal agreement establishing delineated points-of-contact assigned to critical positions, associated contact information, or the roles and responsibilities for each affected local government within the JLUS Study Area. Without formal procedures, informal communication and coordination is based on personal relationships. Staffing changes may result in the loss of this communication pipeline, with new staff lacking the relationships or institutional knowledge of previous communications.

It is important that the surrounding jurisdictions include the Youngstown ARS in the review of proposed development plans, especially when near the installation. Development reviews allow for the evaluation of impacts that proposed development could have on the military missions at Youngstown ARS. Local governments may be unaware that a proposed development or elements of a proposed development are incompatible, which could impact the future missions. Consulting the Youngstown ARS during the development review stage provides an early opportunity to proactively discuss concerns and mitigate impacts on mission activities before development plans are finalized or costly changes are required after construction has begun.

Goal #2 **Emergency Service Radio Communications.** Brookfield Township should use the same radio frequency used by surrounding communities and Youngstown ARS, improving regional coordination of emergency services.

Policy 2-1 **Upgrade to Digital Radio Compliant with MARCS Network.** Brookfield Township should invest in a digital radio system capable of communicating through the Ohio MARCS (Multi-Agency Radio Communication System) network that would allow for the use of a single radio frequency for emergency services within the region and statewide. Brookfield Township should apply for the MARCS Grant through the Ohio Department of Commerce Division of State Fire Marshal to offset the cost of radios and monthly service agreements.

Policy 2-2 **Intergovernmental Agreement for Single-Use Frequency.** Brookfield Township, Youngstown ARS and other surrounding law enforcement agencies should establish an Intergovernmental Agreement (IGA) regarding the use of a single radio frequency for emergency services.

Goal #3 **Emergency Management Coordination.** Brookfield Township and other jurisdictions provide local Fire, EMS and law enforcement services in a comprehensive and coordinated manner for emergency incidents, including regular meetings for emergency management planning and cross-training opportunities.

Policy 3-1 **Memorandum of Agreement for Planning and Cross-Training.** Brookfield Township should participate and support implementation of a Memorandum of Agreement (MOA) between Youngstown ARS and local Fire, EMS and law enforcement agencies for enhanced communications and coordination of emergency management planning and cross-training opportunities.

Policy 3-2 **Identify Need for and Consider Executing a Mutual Aid Agreement for Law Enforcement Resources.** Brookfield Township should consider collaborating with Youngstown ARS security forces to execute a mutual aid agreement that will provide for the coordination of law enforcement resources and identify opportunities for resource sharing.

Policy 3-3 **Emergency Management Forums.** Brookfield Township should participate in regular emergency management forums dedicated to sharing information between Youngstown ARS and local Fire, EMS and law enforcement agencies.

Goal #4 **Development Review Coordination.** Brookfield Township should adopt appropriate regulations to require and ensure development proposals for property in the vicinity of Youngstown ARS are reviewed for mission impact and consistency with all applicable compatibility factors, including lighting, BASH, and vertical obstructions.

Policy 4-1 **Memorandum of Agreement for Notification to Youngstown ARS.** Brookfield Township, in conjunction with Trumbull County and Brookfield and Brookfield townships should work with Youngstown ARS to develop and support implementation of a formal Memorandum of Agreement (MOA) that delineates the roles and responsibilities for each community to collaborate on proposed development and land use planning matters. By resolution, each jurisdiction should appoint a military liaison.

Policy 4-2 **Adopt Development Notification Checklist.** Brookfield Township should work with Youngstown ARS to develop, adopt and implement a development notification checklist that will assist the township, developers, residents and the military with identifying development types that could potentially be incompatible with the installation missions.

Policy 4-3 **Coordination with the Military Aviation and Installation Assurance Siting Clearinghouse.** Brookfield Township should adopt appropriate regulations requiring the Clearinghouse review of renewable energy project proposals for military mission compatibility. The Brookfield Township regulations shall require conformance with the Clearinghouse requirements and standards published in Title 32, Code of Federal Regulations, Part 211, and provide process guidance to facilitate the early submission of renewable energy project proposals to the Clearinghouse for comprehensive and efficient military mission compatibility review.

Policy 4-4 **Adopt Military Notification Procedures for Development Projects through Tax Abatement Process.** Brookfield Township should adopt formal requirements for notification and review of development by Youngstown ARS per the checklist identified Strategy COM-5B of the Final JLUS document. As part of the tax abatement application process, Brookfield Township should require transmittal of a copy of the application to Youngstown ARS at the time of application to ensure comprehensive, timely and efficient review of the development proposal by the installation prior to the final public hearing and approval by Brookfield Township.

Goal #5 **Planning Issue Coordination.** Brookfield Township should creatively leverage and maximize resources with Youngstown ARS to ensure mission compatible development in Brookfield Township through regular meetings and community partnership initiatives.

Policy 5-1 **Create a JLUS Implementation Coordination Committee to Oversee Implementation of JLUS Strategy Recommendations.** Brookfield Township should formalize through a resolution that the Youngstown ARS JLUS Policy and Technical Committees will transition to a JLUS Coordination Committee and be responsible for monitoring the achievement of the recommended JLUS strategies and act as a forum for continued communication and sharing of information and current events associated with military compatibility.

Policy 5-2 **Provide Mutual Briefings.** Brookfield Township should reinforce the partnership with Youngstown ARS, and accommodate and support annual presentations from installation leadership, a "state of the installation" briefing including strategic goals, operational changes, and proposed construction projects that may impact the township and township trustees. Brookfield Township should present an annual "state of the township" briefing to installation leadership outlining strategic goals of relevance to the installation.

Policy 5-3 **Foster Enhanced Public Awareness Through Accurate Mapping.** Brookfield Township should receive from the Youngstown ARS personnel an accurate geographic information system (GIS) data layer or geodatabase of the installation boundaries and military footprints that extend outside the installation for inclusion, analysis and use in planning documents.

Goal #6 **Outreach and Awareness.** The installation and Brookfield Township benefit from community efforts, initiatives, programs and services focused on promoting compatible development.

Policy 6-1 **Need for Public Education Regarding the Youngstown Mission.** Brookfield Township should promote public education about Youngstown ARS flight operations, including low-level flight tracks, the use of Camp Garfield, and the use of night vision equipment. Although there is broad community support for Youngstown ARS, additional educational efforts could enhance public awareness and appreciation of installation's value to local communities.

Policy 6-2 **Create and distribute educational / informational brochures.** Brookfield Township should develop and distribute educational / informational brochures that highlight community and military compatibility and economic incentives for development and redevelopment including programs and grants. Brochures can be used to educate property owners, real estate industry and development community on compatibility issues and opportunities to promote community development while supporting the military mission.

Policy 6-3 **Promote Social Media Outlets for General Public.** Brookfield Township should provide links to Youngstown ARS social media outlets on the Brookfield Township website.

Policy 6-4 **Installation and Community Events Partnership.** Brookfield Township should support and participate in the sponsorship, organization, execution, and/or promotion of such events such as the Thunder Over the Valley airshow, and public tours and open houses at the installation. Brookfield Township should establish and promote shared events with Youngstown ARS to educate the public about the value of the installation and highlight community support for the installation.

Policy 6-5 **Seek Funding to Support Public Outreach.** Brookfield Township should apply funding, annually, to conduct public outreach activities that focus on information about and advocacy for the mission.

Policy 6-6 **Educate the Real Estate Industry and Development Community.** Brookfield Township should participate in an annual training forum for the real estate industry and development community to educate them about military compatibility and economic incentives for development and redevelopment. Economic incentives should include existing programs and grants.

Goal #7 **Partnership Opportunities.** Brookfield Township benefits from participation in partnering opportunities that have complementary and synergistic objectives and mutually beneficial interests.

Policy 7-1 **Continue to Leverage Opportunities through the AF Community Partnership Program.** Brookfield Township should participate in the Air Force Community Partnership Program to pursue and implement mutually beneficial initiatives including public-public and public-private partnerships.

C. Economic Development

Development of energy sources, including alternative energy sources (such as solar, wind, geothermal, or biofuels) could pose compatibility issues related to glare (solar energy), or vertical obstruction and radar operations (wind generation). It is in both the installation's interests as well as the community to support alternative energy development for both energy security and economic reasons. Understanding communities' energy pursuits, the opportunities sought by alternative energy developers and the intersection with the military footprint, enhances the likelihood that these activities can exist in mutual compatibility.

Any infrastructure extensions for sanitary sewer, potable water or other utilities that are likely drive development around Youngstown ARS should be coordinated with the installation to help minimize the potential for incompatible development. Uncoordinated development around Youngstown ARS has the potential to impact mission footprints including:

- Flight safety within the runway imaginary surfaces

In addition, uncoordinated development can create impacts to roadway capacity and other compatibility factors that can affect the ability of Youngstown ARS to carry out its operations.

D. Housing

Local housing availability addresses the supply and demand for housing in the region, the competition for housing that may result from changes in the number of military personnel, and the supply of military family housing provided by the installation. There were no issues identified for Housing Availability for the Youngstown ARS JLUS.

E. Lighting

This factor refers to man-made lighting (streetlights, airfield lighting, building lights) and glare (direct or reflected light) that disrupts vision. Light sources from commercial, industrial, recreational, and residential uses at night can cause excessive glare and illumination, impacting the use of military night vision devices and air operations. Conversely, high intensity light sources generated from a military area (such as ramp lighting) may have a negative impact on the adjacent community.

Goal #8 **Lighting Impacts.** Brookfield Township protects the long-term viability of night training missions from lighting impacts from adjacent development through appropriate regulation.

Policy 8-1 **Future Land Use Impacts on Youngstown ARS Night Flying Mission.** Brookfield Township protects the long-term viability of the Youngstown ARS flight training mission through regulation of nighttime light sources.

Policy 8-2 **Assess Future Ambient Lighting Impacts on Night Flying Operations.** Brookfield Township should participate in an assessment of ambient lighting impacts under different future development scenarios on the Youngstown ARS night flying training mission and nighttime operations at the Youngstown-Warren Regional Airport.

Goal #9 **Compatibility Regulations.** Brookfield Township protects the flight mission of the installation with adoption of regulations and standards that are based on the intent to mitigate shared impacts and produce compatibility between Brookfield Township and the Youngstown ARS.

Policy 9-1 **Potential Light and Glare Impacts on Pilot Visibility from Solar Projects.** Brookfield Township should adopt appropriate regulations to prevent solar array impacts to pilots' vision during approaches and low-level flight maneuvers.

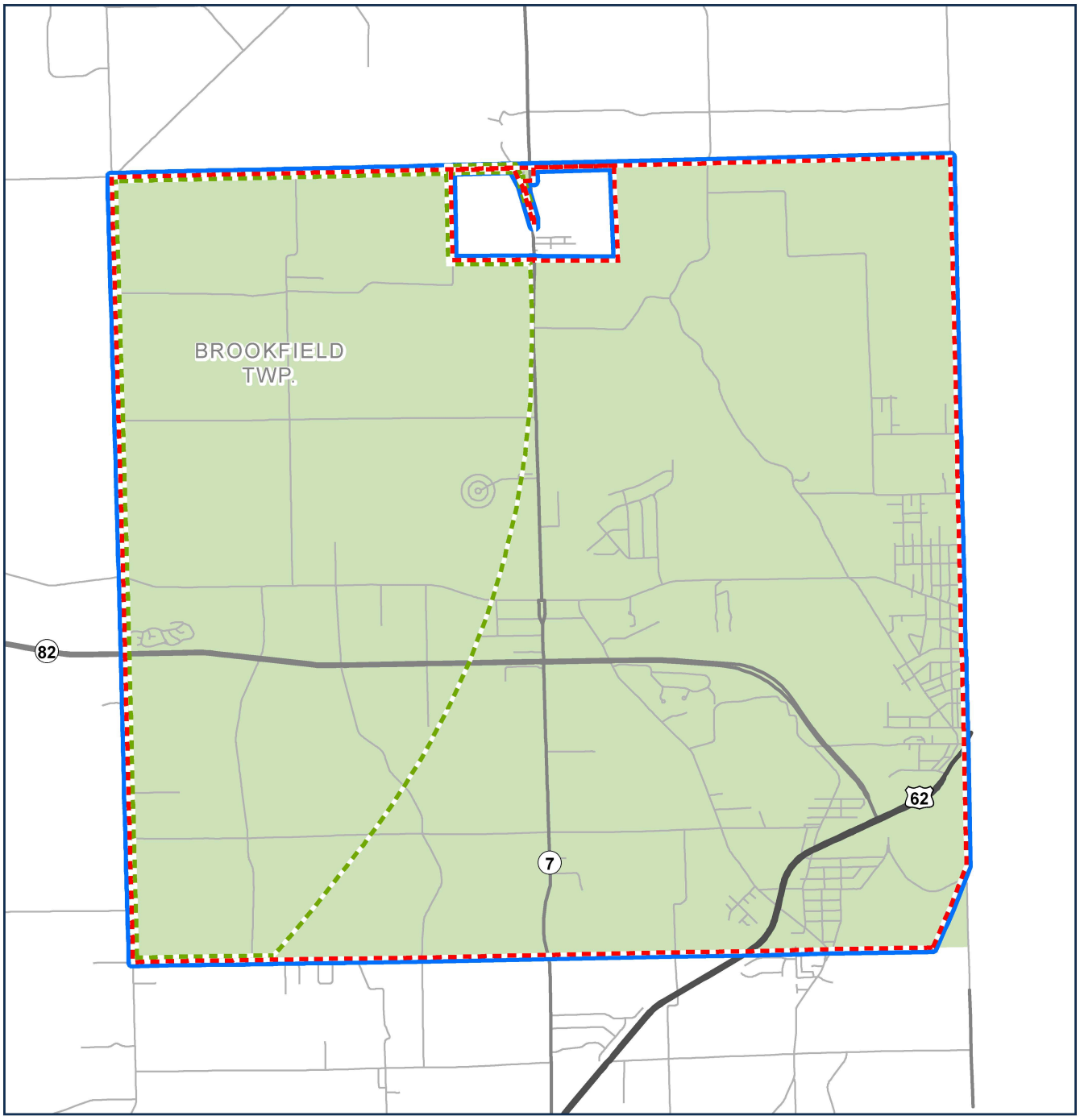
Policy 9-2 **Implement the Military Aviation and Installation Assurance Clearinghouse Coordination Procedures.** Brookfield Township should require applicants of renewable energy projects to coordinate with the Clearinghouse and demonstrate that coordination occurred at the time application submittal to a local government for approval.

Policy 9-3 **Require Use of Solar Project Siting Tools.** Brookfield Township should require developers proposing large solar energy projects to demonstrate as part of their development application for local government approval that the siting of proposed facilities will not produce adverse impacts on military and other aircraft operations such as glare using tools such as the Sandia National Laboratories Solar Glare and Flux Mapping Tools and Solar Glare Hazard Analysis Tool.

F. Military Compatibility Areas

Youngstown ARS can generate potential impacts on areas within the Brookfield Township if incompatible uses are allowed to develop, including 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 combined and contained within the boundaries of the Military Compatibility Area Overlay District (MCAOD) that extend outside the Youngstown ARS boundaries are characterized as military compatibility areas (MCAs): Vertical Obstruction MCA and Bird / Wildlife Aircraft Strike Hazards (BASH) MCA. These essential elements play a key role in the installations viability for sustaining current and future mission operations.

The MCAOD is the collective geographic area of all of four (4) MCAs for Youngstown ARS. The MCAOD is defined by the outmost MCA boundary of the largest MCA, which is the Vertical Obstruction MCA. The MCAOD and two (2) MCAs depicted on the Brookfield MCAOD Overlay map on the following page, illustrate influence of the Youngstown ARS on the region, and the various compatibility areas that should be considered by the Brookfield Township when planning growth and development.



MCAOD Overlay
Vertical Obstructions MCA
BASH MCA
Brookfield
Interstate
US Route
State Route
Local Roads

This map is for planning purposes only and should not be considered legally accurate

Matrix

0 ¼ ½ ¾ 1 1¼ Miles

Source: U.S. Geographic Survey, 2019; Ohio Dept. of Transportation, 2019; Youngstown Air Reserve Station, 2018.

Youngstown ARS
Military Installation Sustainability (MIS) Project

Brookfield Township MCAOD Overlay

Goal #10 **Create a Military Compatibility Area Overlay District (MCAOD).** Brookfield Township should amend the Brookfield Township Zoning Ordinance 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 Brookfield Township to identify areas where specific compatibility issues are more likely to occur and address ways to avoid compatibility issues. The MCA's applicable to Brookfield Township include:

- **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, Brookfield 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 Ordinance and on their official maps (hardcopy, electronic and web-based as applicable) for easy access and understanding by the public.

G. 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 jurisdictions' comprehensive community plans and zoning ordinances 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 Brookfield 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 mission compatibility areas 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:

- 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 ordinances that affect how land could be used in the future within the MCA has the potential to impact Youngstown ARS operations.

Policy 11-1 **Establish Regional Response Capabilities.** Brookfield 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 11-2 **Establish a Road Use and Maintenance Agreement.** Brookfield 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 11-3 **Establish an Interlocal Agreement.** Youngstown ARS and Brookfield 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 11-4 **Implement Best Lighting Practices in Zoning Ordinances.** Brookfield 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.

H. 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 #12 **Bird/Wildlife Aircraft Strike Hazard (BASH).** Brookfield 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 12-1 **Establish Bird/Wildlife Aircraft Strike Hazard (BASH) MCA Overlay District.** Brookfield 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.

I. 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 13-1 **Establish Vertical Obstruction MCA Overlay District.** Brookfield 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 13-2 **Ensure Federal Aviation Regulation (FAR) Part 77 Compliance.** Brookfield 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 Brookfield 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 Measure	Goal/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				■

#	Implementation Measure	Goal/Policy	Partnerships	Timeframe			
				2023 - 2024	2025 - 2026	2026 - 2028	On-going
Communication and Coordination continued							
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	■			
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	Policy 5-1	All JLUS partners and Youngtown ARS	■			
17	Provide Mutual Briefings between Youngstown ARS and Township Trustees	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		■		

#	Implementation Measure	Goal/Policy	Partnerships	Timeframe			
				2023 - 2024	2025 - 2026	2026 - 2028	On-going
Communication and Coordination continued							
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				■
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	■			

#	Implementation Measure	Goal/Policy	Partnerships	Timeframe			
				2023 - 2024	2025 - 2026	2026 - 2028	On-going
Amendments to Regulations/ Agreements/Future Studies continued							
33	Implement the Military Aviation and Installation Assurance Siting 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		■		
40	Establish Regional Response Capabilities	Policy 11-1	All JLUS partners and Youngtown ARS		■		
41	Establish a Road Use and Maintenance Agreement	Policy 11-2	All JLUS partners and Youngtown ARS, Eastgate Regional COG	■			
42	Establish an Interlocal Agreement	Policy 11-3	All JLUS partners and Youngtown ARS	■			
43	Implement Best Lighting Practices in Zoning Codes	Policy 11-4	All JLUS partners and Youngtown ARS			■	
46	Bird/Wildlife Aircraft Strike Hazard (BASH)	Goal #12	All JLUS partners and Youngtown ARS				■
47	Establish Bird/Wildlife Aircraft Strike Hazard (BASH) MCA Overlay District	Policy 12-1	All JLUS partners and Youngtown ARS		■		
48	Establish Vertical Obstruction MCA Overlay District	Policy 13-1	All JLUS partners and Youngtown ARS		■		
49	Ensure Federal Aviation Regulation (FAR) Part 77 Compliance	Policy 13-2	All JLUS partners and Youngtown ARS	■			

6. Key Terms

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.

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 Economic Adjustment (OEA).

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.

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.

Unmanned Aerial Systems. Unmanned aerial systems (UAS) are aircraft that are capable of operating without an internal pilot; are tethered by a radio control link; and can be preprogrammed for both flight and payload operations.

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.