

FORT KNOX

IMPLEMENTATION PLAN



Lincoln Trail

Area Development District
~ established 1968 ~





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The local stakeholders served a key role in the development of the Fort Knox Compatible Use Implementation Plan. They provided the overall technical support, review, and guidance of the plan. The stakeholders was comprised of the following individuals who represented local communities and regional stakeholders.

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Photo Courtesy of Fort Knox Army Installation

The Executive Summary offers an abstract of the Fort Knox Compatible Use Implementation Plan, highlighting key recommendations and best practices for local and state governments to consider for adoption.

The Fort Knox Compatible Use Implementation Plan was developed under contract with the Lincoln Trail Area Development District (LTADD), with financial support from the Department of Defense's Office for Local Defense Community Cooperation (OLDCC), with additional matching funds and in-kind contributions from LTADD. The plan's content is reflective of the views of the participating organizations and may not necessarily align with the opinions of OLDCC.

During this process, the Lincoln Trail Area Development District, in partnership with Fort Knox, local governments, and regional and state stakeholders, engaged in collaborative planning meetings and contributed to the Fort Knox Compatible Use Implementation Plan Subcommittees, offering oversight throughout the process.

Effectively implementing the strategies outlined in this plan will strengthen land use compatibility in the designated focus areas by fostering improved communication between partners, enhancing coordination, streamlining technical reviews, and facilitating the approval processes for future land use developments.

This plan evaluates the Fort Knox Army Installation, focusing on its recent increase in training personnel due to the addition of the \$56 million Digital Air-Ground Integration Range (DAGIR).¹ Given this significant federal investment and its associated military airspace, the Fort Knox Compatible Use Implementation Plan seeks to strengthen the region's approach to military/community compatibility in long-term land use planning.

The implementation plan discusses regional military compatibility concerns that are inadequately covered or not addressed by existing state and/or local policy. This plan evaluates policies to determine whether gaps in law hinder compatible land use planning. By analyzing these compatibility issues and these strategies proposed in the 2022 Compatible Use Plan Study, three (3) broad goals were established. These goals, along with their objectives, aim to guide regional efforts

toward achieving military and community compatibility and sustainable development. The outlined goals envision a future where military and community interests align, fostering preparedness, capacity, and economic efficiency - each essential for enhancing the region's military capabilities in the region. ²

The plan concludes with the 31 recommendations designed to address recurrent land use conflicts between military and community interests, supporting the goals established in this plan. These recommendations aim to promote greater compatibility between military operations and the surrounding communities, both regionally and across the Commonwealth. The compatible land use goals are organized into three broad categories: enhancing communication and coordination between state, regional, and local partners, adopting and implementing compatible land use policies; and the continuance of conservation efforts. The specific objectives for each goal, along with proposed implementation recommendations, are detailed in Section 3.

Alongside the recommendations is the development of a Housing Study for Fort Knox and the surrounding counties of Hardin, Meade, Bullitt, Nelson, and LaRue. This study examines the gaps in housing needs, availability, and affordability within the region. The region faces a housing shortage driven by recent and significant economic development and related population growth, resulting in a substantial demand for housing near Fort Knox. Communities within a short commuting distance of Fort Knox, are expected to see increased residential development to meet the housing demand, emphasizing the significance of limiting further encroachment near the installation's boundaries. The study outlines potential strategies to mitigate encroachment while increasing affordable housing options.

Finally, the natural hazards identified as most prevalent in the region, along with strategies to mitigate these risks, highlight the importance of conservation within the 1 and 5-mile buffers surrounding Fort Knox. Reengagement in Readiness and Environmental Protection Integration (REPI) agreements and achieving Sentinel Landscape Status are two such focus areas. The presence of natural hazards, critical facilities, and a lack of conservation or agricultural land use in the immediate buffers could potentially hinder current and future missions at Fort Knox.

Cumulatively, these elements underscore the central goal of this plan: to support community growth while simultaneously promoting military operations and training activities at Fort Knox. Recognizing the interdependence, it is essential to foster communication and collaboration to ensure compatible land use and protect public well-being.

Best Practices for Local Governments for Implementation:

Appendices 4.5 and 4.6 include a Compatibility Planning Toolbox, organized into four categories: Acquisition, Conservation, Development Restrictions, and Best Practices addressing Compatibility Challenges. Together with the practices and draft policies outlined in Appendix 3, this document will serve as a framework for implementation options and actionable steps to support Fort Knox's military missions.

- ❖ **Communication and Coordination:** State and local governments utilize regulatory tools to address land use planning, allowing them to permit, limit, or shape development. The responsibility for managing growth around military installations rests with the state and local governments, making collaboration with Fort Knox essential to implementing effective land use policies. For recommendations, refer to Section 5, and for policy examples, see Appendix 3.
- ❖ **Environmental:** Continuous collaboration between the military and state/local governments is pivotal for developing resiliency strategies that address and mitigate environmental factors. This partnership should also focus on the responsible management of natural resources, including endangered species, preservation of military missions, support of national security, and the safeguarding of the welfare of neighboring communities. For recommendations, refer to Section 5, and for policy examples, see Appendix 3.
- ❖ **Light Emissions:** Fort Knox conducts training and testing vital to its missions and national defense strategy. These activities may generate nuisances, such as elevated noise, vibration, dust, smoke, or steam. Similarly, the surrounding communities can present challenges for the military, such as excessive nighttime lighting and glare, which can interfere with military night vision devices (NVD) and air operations. To mitigate these issues, refer to the recommendations in Section 5, and for policy samples see Appendix 3 for effective strategies to minimize impacts.
- ❖ **Safety:** Safety considerations must be integrated into land use decisions to safeguard military missions from external threats and address general safety concerns related to community activities, both on and off post. By prioritizing safety, Fort Knox and its neighboring communities can protect the well-being of both personnel and civilians while ensuring mission readiness.
- ❖ **Infrastructure:** Strong infrastructure is essential for both community and military success. Without reliable transportation systems, telecommunication networks, energy infrastructure, and water systems, a community risks undermining its economy, failing to

attract military-related support and businesses, and losing the ability to provide vital services that ensure a high quality of life for its residents. Investing in resilient infrastructure fosters economic growth, improves community well-being, and bolsters military readiness.

- ❖ **Compatible Use:** Fort Knox and its surrounding communities are deeply interconnected and must collaborate to address issues that could affect both community objectives and military operations. State and local governments, private citizens, and Fort Knox representatives need to understand each other's concerns, needs, and planning processes to assess how their decisions might impact one another. Effective cooperation on land use planning and a shared commitment to addressing challenges are essential for ensuring compatible land use. For strategies to foster compatibility, refer to the recommendations in Section 5 and policy examples in Appendix 3.
- ❖ **Economic Development:** Fort Knox is a key economic driver for both the region and the Commonwealth, delivering significant benefits through employment, salaries, and wages. The installation supports local businesses by offering contracts and procurement opportunities, contributes notably to tax revenue, and generates indirect economic impacts through the consumer spending of post personnel. Together, these contributions strengthen the regional economy, foster business growth, and improve the quality of life for residents.

Land Use Planning Process

The land use planning process follows a structured sequence of steps, ensuring that military considerations are integrated into decision-making. Each stage builds upon the information gathered in the previous one, enhancing the effectiveness and cohesiveness of the overall plan. The steps are outlined below, as detailed in the 2016 California Advisory Handbook for Community and Military Compatibility Planning Update: ³

- 1) Participation
- 2) Define Planning Area
- 3) Identification of Existing Conditions/ Issues
- 4) Evaluation
- 5) Plan Development
- 6) Implementation
- 7) Review and Revise

A list of recommendations categorized by the responsible party (state, local, and/or Fort Knox) for consideration for implementation is found below. The checked box denotes the primary party for implementation. The absence of a checked box indicates a supporting role in implementation.

Goal #	Category	Timeline	Recommendation	Commonwealth/ State Agencies	Local Governments/ Agencies	Fort Knox
1	Enhance ongoing communication & coordination among the Commonwealth of Kentucky, local communities, and Fort Knox.					
R1.1	Regional	O	Conduct a housing market analysis within the CUP Study Area.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R1.2	Regional	S	Form coalition group to meet on regular basis to review issues with respect to compatible use.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
R1.3	Regional	M	Revisit or create new inter-local agreements regarding emergency response to natural or man-made hazards.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
R1.4	Regional	S	Access to Fort Knox Management Plans	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
R1.5	Regional	O	Expand or create separate Fort Knox Community Information Exchange (CIE) to topics and issues that "cross the fence".	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
R1.6	Regional	M	Work with local builders and developers to understand and include materials with STC Ratings to provide noise attenuation in areas of increased risk of exposure.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R1.7	Regional	L	Create or adopt standardized GIS mapping standards for consistency across datasets with regards to parcels, zoning, land use, structure points, and boundary records.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R1.8	Regional	M	Create education components with regard to the use of lasers and drones. Publish through website, local media, and make available to education facilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R1.9	Local	M	Add notice to construction permitting process to make applicants aware of proximity to active military installations and the various issues that might entail.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R1.10	Regional	M	Create standardized compliant and response forms and a clearing house to compile data in order to track and facilitate appropriate entity to respond to issue. (noise, encroachment, overflights, pollution).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
R1.11	Local	L	Create online building permit tracking database to facilitate understanding of growth and potential issues.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R1.12	Local	S, O	Establish MOU's between Planning Organizations and Fort Knox.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
R1.13	Regional	M	Create a one-stop online website for information regarding Compatible Use.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R1.14	State/Regional	S, O	Review options to highlight military training issues on real estate disclosure forms.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Goal #	Category	Timeline	Recommendation	Commonwealth / State Agencies	Local Governments/ Agencies	Fort Knox
2	Adopt community and military planning compatible land use policies & planning guidelines for implementation at the local and regional level.					
R2.1	R	S	Perform risk analysis and assessment on the one and five mile buffers to determine areas most at risk for incompatible use and land most favorable for conservation easements or other types of mitigation efforts.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R2.2	L	S	Modify comprehensive plans to acknowledge the concepts of compatible use and cooperation with Fort Knox on future land use planning.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R2.3	L	M	Creation of overlay zones or districts around Fort Knox to promote compatible uses.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R2.4	L	M	Create an air installation compatible use zone and/or air safety zone as part of comprehensive plan and zoning ordinances.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R2.5	S	M	Creation of a state level guidebook dealing with economic development, preservation, and compatible use concepts as they relate to military installations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R2.6	L	O	Evaluate annexations with compatible use as a factor. Understanding the long-term cost of infrastructure extension.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R2.7	L	M	Create zoning ordinances reflecting the need to attenuate noise, restrict types of outdoor lighting.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R2.8	L	M	Update subdivision regulations to promote noise and light abatement to minimize the impacts of each.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R2.9	L	M	Update zoning or other applicable ordinances to reflect ability for Transfer Development Rights, create programs, and policies to promote this alternate where appropriate.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R2.10	L	M	Creation of "Dark Skies" ordinances to mitigate light pollution.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R2.11	L	O	Conduct review of existing plans of areas within the one-mile buffer for compatible use.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R2.12	L	M,O	Reevaluate future land use maps with regards to compatible use.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R2.13	L	S	Implement buffer zones similar to the KY313 Corridor Buffer to lessen density of development in the one-mile buffer zone. Corridors to review include portion of KY Highways in Bullitt (44,61,251,434), Hardin (361), Meade (1238, 1500, 1638, 1816, 1882), and Nelson (61).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
R2.14	L	M	Create a Frequency MOU between Fort Knox and local jurisdictions to define potential issues with frequency interference.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Goal #	Category	Timeline	Recommendation	Commonwealth/ State Agencies	Local Governments/ Agencies	Fort Knox
3	Continue conservation efforts across the region between Fort Knox and surrounding communities.					
R3.1	R	S,O	Establish a consortium to apply for Sentinel Landscape status.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
R3.2	R	S	In conjunction look to REPI (ACUB, et al) program in the interim if more immediate results are possible to facilitate creation of additional buffer lands.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
R3.3	R	M	Coordinate with KY Dept. of Agriculture, local Natural Resources Conservation Service offices, and the KY State Conservationist to promote and facilitate use of the dollars available for USDA ACEP and KY's PACE programs for preservation of agricultural lands.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

1

HOW TO READ THIS PLAN



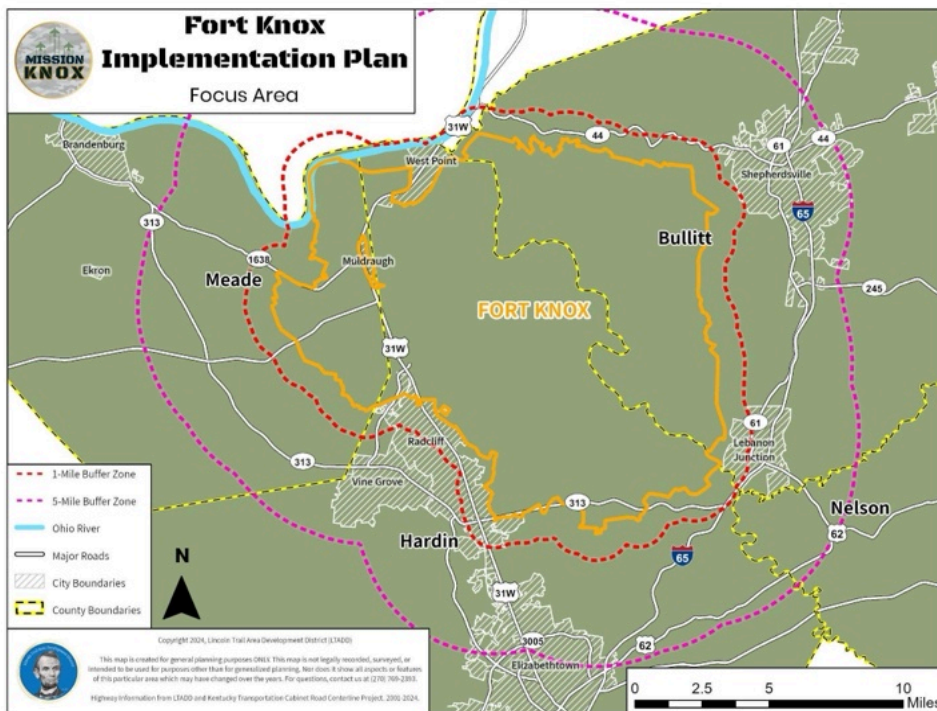


Photo courtesy of Fort Knox Army Installation

This section provides an overview of how to interpret and navigate the Fort Knox Compatible Use Implementation Plan.

1.1 Implementation Plan Overview

A Compatible Use Implementation Plan is a planning initiative designed to foster compatibility between military installations and their neighboring communities. This effort involves collaboration among federal, state, and local stakeholders across the focus area of Hardin, Meade, Nelson, and Bullitt Counties, in addition to LaRue County incorporated in the housing study. A map of the Focus Area is provided below.



Map 1.1: Fort Knox Implementation Focus Area

Recognizing the value of a strong partnership between military installations and their surrounding communities, the Department of Defense (DoD) and the Office of Local Defense Community Cooperation (OLDCC) established the Compatible Use Program to address existing and potential future land use conflicts, whilst fostering improved communication and coordination among all stakeholders. ¹ Collaboration between Fort Knox officials, neighboring communities, and federal, state, and local agencies is essential for ensuring the long-term sustainability of both current and future military missions. By promoting coordination and collaboration, this approach enhances the resilience and growth of local economies.

The Fort Knox Implementation Plan is a compilation of advisory tools aimed at strengthening compatibility between the Fort Knox Military Installation and its contiguous communities. This plan is intended as a guidance document rather than a regulatory framework, its primary objective is to safeguard the long-term viability of current and future military missions at Fort Knox, while balancing the growth and development of adjacent jurisdictions. In doing so, the plan supports the region's environmental and economic resilience, and protects public welfare.

1.2 Section Overview

Section 1: How to Read This Plan

Section 1 offers guidance on how to interpret the Fort Knox Compatible Use Implementation Plan.

Section 2: Introduction

Section 2 offers contextual information and a framework for the Fort Knox Compatible Use Implementation Plan, including an overview of the implementation process and an executive summary.

Section 3: Compatibility Goals & Objectives

Section 3 presents the assessment of compatibility factors for Fort Knox, drawing on data from the Compatible Use Plan Study. Additionally, this section outlines the goals and objectives for ensuring land use compatibility in the communities surrounding Fort Knox.

Section 4: Analysis & Findings

Section 4 reviews current state and local policies and ordinances, along with an assessment of communication, land use, and conservation practices that influence compatibility planning. The gap analysis highlights the policy discrepancies that could either support compatible land use or obstruct efforts to prevent incompatible development.

Section 5: Regional Implementation Strategies Recommendations

Section 5 presents the recommendations derived from the policy analysis and findings in Section 4. These recommendations are based on the analysis and assessment of compatibility factors conducted in Sections 3 and 4. The strategic goal of this plan is to establish a streamlined, cohesive approach for addressing shared community and military compatibility issues across the region and Commonwealth of Kentucky.

Section 6: Housing Study

Section 6 delivers a Housing Study for Fort Knox and the surrounding counties of Hardin, Meade, Bullitt, Nelson, and LaRue. This study will examine the gaps in housing availability and needs within the region.

Section 7: Conservation & Land Risk Analysis

Section 7 identifies the most prevalent natural hazards in the Lincoln Trail Region and strategies for mitigation of these hazards based on the land risk assessment. This section also highlights the importance of conservation within the 1 and 5-mile buffers around Fort Knox's boundaries,

detailing conservation strategies that support compatible land use initiatives. The presence of natural hazards, critical facilities, or the absence of conservation or agricultural land use within these buffers can impede the missions at Fort Knox.

Section 8: Appendices

Section 8 provides sample policies and draft ordinance templates for consideration and approval by local governments, along with supplementary documents and information referenced throughout this plan.

2

INTRODUCTION



2

INTRODUCTION

Photo Courtesy of Fort Knox Army Installation

This introduction provides a synopsis of the Fort Knox Compatible Use Implementation Plan. Section 2 details the plan's strategic goals, outlines the implementation process, offers an overview of the Fort Knox Army Installation and its surrounding communities, and a summary of the work approach and plan structure.

2.1 Strategic Intent of Fort Knox Compatible Use Implementation Plan

A Compatible Use Plan (CUP) is a collaborative land use planning initiative between Fort Knox, the surrounding communities of: Hardin, Meade, Nelson, and Bullitt Counties, as well as state and federal agencies. The goal of the CUP Study was to identify compatible land uses and growth management strategies that would minimize and mitigate encroachment, supporting military readiness and mission sustainability, while still allowing for the continued growth and development of communities near Fort Knox¹. This effort laid the groundwork for improved communication and coordination between the installation, local authorities, and various stakeholders. The Compatible Use Plan Study represents Phase I of the grant-funded program, sponsored by the Department of Defense (DoD) Office of Local Defense Community Cooperation (OLDCC), and was completed in 2022.

As Phase I of the program provides recommendations for implementation, Phase II - the Compatible Use Implementation Plan- builds upon those recommendations by creating a proposed framework and action plan for local governments to follow. The objective of the implementation plan is to identify potential land use compatibility concerns with regional and/or local impacts and to highlight gaps that present opportunities for local jurisdictions and the Commonwealth to take policy actions. These actions are designed to encourage collaboration in addressing the identified gaps through compatibility planning.

Phase II, the Compatible Use Implementation Plan was developed to foster cooperation, coordination, and communication among the stakeholders mentioned above. Its primary goal is to address the compatibility issues and concerns identified in the 2022 Compatible Use Plan Study, focusing on achieving progress toward desired regional and state outcomes. When evaluating the impact of the military, it is crucial to consider the military mission footprint at Fort Knox and how various areas may be affected by training activities during the implementation of these recommendations. Key factors to consider include: noise zones, airfield imaginary surfaces, flight path overlay districts, military ranges, and military training locations. ²

The primary objectives of the Compatible Use Implementation Plan for local and state government: ³

- Safeguard civilian quality of life.
- In areas adjacent to Fort Knox, ensure compatible development so as to not hinder military missions and operations.
- Balance economic, environmental, and social considerations to promote sustainable, regional growth.
- Sustain the region's economic resiliency.
- Strengthen communication and coordination between the local communities and Fort Knox.

The primary objectives of the Compatible Use Implementation Plan for the military: ³

- Preserve the public welfare of both military and civilian personnel.
- Protect the value of Fort Knox and preserve its capacity to execute current and future missions and training activities, ensuring military readiness to support national defense.
- Protect Fort Knox's ability to adapt and evolve its mission.

The Compatible Use Implementation Plan serves as a toolbox for Fort Knox and the surrounding local jurisdictions. Each entity is responsible for selecting and applying the compatibility planning tools that best address their specific needs, issues, and concerns, ensuring effective collaboration throughout the process.

The intent of the implementation plan is not to be a static document but rather a tangible framework with proposed actionable recommendations and strategies for local governments to implement. *The plan is **NOT** intended to impede the growth and development of surrounding communities. Instead, its purpose **IS** to ensure local jurisdictions' growth is intentional and COMPATIBLE with military training and missions, while simultaneously minimizing operational impacts on lands near Fort Knox. The plan also aims to support continued economic development, and protect the welfare of residents.*

2.2 CUP Implementation Process Overview

The Office of Local Defense (OLDCC) is the agency responsible for overseeing the Compatible Use Program, which includes both the Compatible Use Plan Study (Phase I) and Compatible Use Implementation Plan (Phase II). The goal of the Compatible Use Program is to create a comprehensive and collaborative approach whilst addressing community and military compatibility challenges. The Compatible Use Implementation Grant Program, administered by OLDCC, enables local jurisdictions to develop implementation plans to align with the program's goals: ⁴

- Safeguarding military readiness and defense capabilities while supporting the economic development of adjacent communities.
- Promoting a cooperative, community-driven planning process that leverages resources of state and local governments to address resiliency and encroachment.
- Protecting and enhancing the public welfare of individuals living and working near active military installations; recognizing that, on average, 70% of an installation's personnel resides in the surrounding communities.
- Strengthening communication and collaboration between civilians and the military.

To achieve the aforementioned outlined goals and objectives, a thorough outreach effort is required to engage both interested and affected communities and stakeholders. Surrounding communities can adopt and implement growth management strategies to ensure land use compatibility, helping to preserve and protect Fort Knox's current and future missions and training activities. This effort also works to sustain the region's environmental and economic vitality, while safeguarding public welfare. The purpose of this process is to establish and strengthen partnerships between local communities, agencies, and Fort Knox. To support this goal, three (3) key objectives have been identified: ⁵

- ❖ **Understanding:** Local and state officials must work closely with the military, taking into account the needs and perspectives of both the community and the military, to identify and resolve compatibility issues. This can also include public awareness and outreach.
- ❖ **Collaboration:** Foster coordinated land use planning between Fort Knox and its surrounding communities to ensure future development aligns with military missions, while also mitigating the impacts of military activities on neighboring areas.
- ❖ **Actions:** Provide a comprehensive list of strategies, tools, and activities that local and state authorities can adopt or implement to mitigate or prevent compatibility issues. These recommendations aim to lessen impacts on surrounding communities and provide a framework for decision-makers to address potential concerns.

The Implementation Plan examines issues affecting both the military and the quality of life for civilians in surrounding communities, including their partnerships with Fort Knox and encroachment concerns impacting military readiness. The plan includes provisions to strengthen collaboration between military and local communities through transparent communication and coordinated planning efforts. By accepting this implementation plan, local stakeholders reaffirm their commitment to supporting future implementation efforts. Successful implementation will require revising or adopting certain policies to ensure that future development around Fort Knox remains compatible with both military needs and community growth

2.3 Fort Knox Military Installation Overview

Fort Knox spans across Hardin, Meade, and Bullitt Counties, covering over 108,000 acres along the Ohio River. Several communities are contiguous to the installation: City of West Point (to the north), City of Shepherdsville (to the northeast), City of Lebanon Junction (to the southeast), City of Elizabethtown (to the south), the Cities of Radcliff/Vine Grove (to the southwest), and City of Brandenburg (to the northwest). Additionally, the City of Muldraugh is uniquely encompassed within the boundaries of Fort Knox, located along Highway 31W near the northern edge of the cantonment area.

In 2005, the Base Realignment and Closure (BRAC) Commission's decisions led to operational changes at Fort Knox. For example, the U.S. Army Armor School was relocated to Fort Moore, Georgia. However, the BRAC and Department of the Army stationing decisions over the last 19 years also resulted in the addition of several mission sets at Fort Knox, including V Corps, U.S. Army Cadet Command, U.S. Army Human Resources Command, 1st Theater Sustainment Command, 84th Training Command, First U.S. Army Division East, 100th Training Division, U.S. Army Reserve Careers Group, and 83rd U.S. Army Reserve Readiness Training Center. Additionally, Fort Knox is home to the Army's single-largest annual training event- Cadet Summer Training- where over 10,000 Army ROTC cadets undergo a series of in-field leader development training. During the summer, Fort Knox's range complex often hosts more than 100 training events in a day. This is largely due to the range's world-class capabilities and offerings, which attract units from across the world. Fort Knox's newest range, the Digital Air-Ground Integration Range (DAGIR), became operational in 2024 and it stands to further bolster demand for the range complex. U.S. Army Recruiting Command, which has been headquartered at Fort Knox since 1992, is expanding its mission and is set to be elevated to a three-star general officer command. Holistically, Fort Knox today is a multi-command, multifunctional installation with worldwide missions and a central role in recruiting, training, and supporting the warfighter. The Army remains a prominent geographic, social, and economic influence in the region. In turn, changes "outside the gates" of Fort Knox, can impact military missions, underscoring the importance of coordination between Fort Knox and the surrounding communities. ⁶

It is imperative to recognize the significant regional and state economic influence generated by Fort Knox. The surrounding communities are already deeply interconnected with the installation, and it is important to emphasize this relationship. Fort Knox serves as a major economic engine in the region and Commonwealth, with an economic influence that surpasses even the Blue Oval SK Battery Plant in Glendale, Kentucky. It is the second largest employer in the Commonwealth of Kentucky as a single entity, second only to United Parcel Service. While the unprecedented \$6 billion investment in Blue Oval SK in Glendale, Kentucky, is expected to create 5,000 jobs, Fort Knox already has an annual economic influence of \$5.6 billion, ⁷ nearly doubling the \$3.2 billion

economic influence reported in the 2022 CUP Study. The payroll impact on the adjoining communities is \$1.3 billion. Fort Knox has directly created over 16,500 jobs, and when including full-time equivalents of transient service members and students, this number increases to 21,500.⁸

The off-post population within a 40-mile radius of Fort Knox includes 79,445 people, including retirees⁹. A significant portion of funds from active-duty military personnel is directed toward housing, goods and services, businesses, tourism, and more in Hardin County and surrounding areas. Population fluctuations in the county are often tied to troop buildups or drawdowns, with the local economy shifting in response to changes in troop numbers or deployment patterns.

Therefore, it is crucial that regional development aligns with the military missions at Fort Knox to avoid another round of BRAC targeting Fort Knox units, organizations and infrastructure, which would have a devastating economic impact on the region and the Commonwealth.

2.4 Summary of Work Approach and Plan Structure

The approach and methodology outlined below were utilized to develop the implementation plan, which underscore the recommendations detailed in Section 5. ¹⁰

- Gathering feedback through two stakeholder meetings.
- Reviewing existing data from the 2022 Compatible Use Plan Study for Fort Knox and assessing the regional applicability of identified compatibility issues.
- Gather and analyze new data to reinforce and present the findings.
- Analyzing state policies and local ordinances addressing community/military compatibility planning.
- Developing goals and recommendations for Kentucky, the Lincoln Trail Region, and local communities surrounding Fort Knox, based on an analysis of compatibility issues, strategies, policies, and laws.
- Examining community/military compatibility policies implemented in other states, counties, and cities that may serve as best practices for Kentucky and the communities surrounding Fort Knox.

The following provides an outline of the implementation plan format, along with a brief overview of each section.

Compatibility Goals & Objectives – Section 3

Section 3 analyzes data from the 2022 CUP Study conducted to identify compatibility issues affecting both the installation and surrounding communities. These issues were assessed for their potential to be addressed through policy or legislative solutions at the state, regional, or local levels. The concerns identified for each compatibility factor were used to create assessments for adjacent communities, highlighting any gaps.

Analysis & Findings – Section 4

In Section 4, both state and local policies were analyzed for their direct or indirect impact on community - military compatibility, highlighting gaps and discrepancies. From this analysis, recommendations were developed to guide the adoption of recommended policies that promote compatible land use planning.

Implementation Strategies Recommendations– Section 5

Section 5 presents a series of recommended strategies and actionable steps, supported by analysis and findings. These recommendations and steps outline opportunities for stakeholders to implement policy and planning actions that promote the desired compatibility outcomes.

Housing Study– Section 6

Section 6 provides a market analysis of housing both on post and in the surrounding communities. The Housing Study examines the current housing market, identifies shortages, and highlights challenges related to finding available and affordable housing. It also outlines future housing needs and offers recommendations to address the challenges identified in the study.

Conservation & Land Risk Analysis– Section 7

Section 7 presents a land risk analysis for the region to identify areas more vulnerable to natural hazards, as well as strategies for mitigating those hazards. It also examines the impact of military missions on critical facilities and vice versa. Additionally, conservation plays a key role in ensuring compatible land use. This section emphasizes the importance of preserving farmland in perpetuity and acquiring parcels for conservation around the installation's boundary. As a result, it recommends forming a conservation coalition of partners to advance conservation goals and work toward obtaining Sentinel Landscape Status for Fort Knox.

Appendices– Section 8

Section 8 provides supplemental information to support the recommendations and framework discussed above. This section includes a list of acronyms utilized in this plan, maps, sample ordinances and policies that surrounding jurisdictions can implement, and other related resources.

COMPABILITY GOALS & OBJECTIVES



3

COMPATIBILITY GOALS & OBJECTIVES

Section 3 presents assessments of the compatibility factors for Fort Knox and its neighboring communities. The goal is to identify compatibility factors that may have broader statewide or regional applicability, as well as areas where state-level policies or local ordinances could potentially address these concerns. Additionally, the section outlines the goals and objectives for promoting compatible land use between the military, the Commonwealth, and local communities.

3.1 Regional Compatibility Factors

To ensure Fort Knox continues their current and future training missions, it is imperative for the surrounding communities to address the external challenges posed by encroachment, annexation, land zoning changes, and population growth. This requires ongoing collaboration between Fort Knox and the contiguous communities to manage the effects of missions integral to military readiness. Effective adaptation involves identifying compatibility concerns or factors that may pose challenges both within the installation and in the surrounding areas. This section highlights examples of potential issues - past, present, or future- that could impact Fort Knox's missions or the development of adjacent communities. Compatibility factors can vary community to community, with some factors being more prominent in certain areas than others.

As part of the Compatible Use Implementation Plan, the compatibility tools outlined in this section are intended to evaluate both current and potential future efforts by local jurisdictions. The goal is to create a policy toolbox that fosters collaborative regional planning, benefiting both the surrounding communities and Fort Knox. These shared objectives can be accomplished through the following goals:

- ❖ **Coordination/Communication:** Enhance ongoing communication and coordination between the Commonwealth of Kentucky, local communities, and

Fort Knox. Inadequate communication and coordination between stakeholders could potentially result in incompatible development, further encroachment, and adverse effects on military operations and mission readiness.

- ❖ **Land Use:** Land use planning is rooted in the government's responsibility to protect public welfare. To address land use compatibility concerns, local jurisdictions rely on policies, comprehensive plans, and zoning ordinances to act as key tools, especially when it comes to separating land uses that are vastly different. For example, industrial areas are typically separated from residential areas to minimize issues such as noise, odors, or excessive lighting. ¹
- ❖ **Conservation:** In the context of compatible land use, conservation encompasses strategies aimed at the eradication of incompatible land uses and preserving of critical lands. It is a vital component of a local jurisdiction's toolkit for addressing land use concerns and mitigating potential conflicts.

3.2 Goals and Objectives

The Fort Knox Compatible Use Implementation Plan is structured around three (3) main overarching goals. Each goal is accompanied by specific objectives and actionable items designed to gauge the success of their achievement.

Goal 1: **Enhance ongoing communication and coordination between the Commonwealth of Kentucky, local communities, and Fort Knox.**

Goal 1 Objectives:

1. Formalize communication channels between Fort Knox and its surrounding communities.
2. Evaluate the effectiveness of communication and coordination between local and state government and Fort Knox to address compatibility concerns.
3. Codify communication in regards to Kentucky's military installations by improving standard coordination and communication procedures to be in accordance with state law.
4. Compile data to develop a Housing Study that addresses the housing availability concerns on Fort Knox and in the surrounding counties to meet current demand.
5. Establish a standard point of contact to serve as a local government liaison to Fort Knox and in turn, have a Fort Knox representative identified as the point of contact.

Goal 2: **Adopt community and military planning compatible land use policies and planning guidelines for implementation at the local, regional, and state levels.**

Goal 2 Objectives:

1. Create military compatibility policies on the state and local level that can be integrated into the land use planning tools and strategies of local jurisdictions.
2. Identify and incorporate best practices from military installations and local and state governments across the country for adoption.
3. Encourage local jurisdictions to adopt policies that promote compatibility between military operations and local communities.
4. Foster collaboration between local governments, the Commonwealth, and Fort Knox to oversee the implementation of land use planning and ensure effective communication and coordination policies.

Goal 3: **Continue conservation efforts between Fort Knox, the Commonwealth, and the surrounding communities.**

Goal 3 Objectives:

1. Form a consortium to pursue Sentinel Landscape designation with Bernheim Forest and Arboretum, counties surrounding Fort Knox, and local, state and federal agencies.
2. Utilize the Readiness and Environmental Protection Integration (REPI) Program to support the creation of additional buffer zones around Fort Knox.
3. Collaborate with state conservation and natural resources agencies to advocate for and secure funding to preserve agricultural lands.

3.3 Compatibility Factors with Regional Applicability

As with any active military installation, training and readiness activities at Fort Knox generate various impacts that affect the surrounding communities, influencing the quality of life for residents. Concurrently, military operations can be compromised by hazards arising from proximity to civilian areas. When land use in surrounding communities conflicts with Fort Knox's needs, it threatens both the installation and the local community. Fort Knox's operations may adversely impact neighboring communities through effects such as dust, noise, and vibrations from overflights, and conversely, incompatible land use can hinder essential training exercises. Therefore, implementing compatible land use practices is vital to ensuring the long-term viability and effectiveness of training at Fort Knox. The priority compatibility factors mentioned below will be discussed in greater detail in Sections 4 & 5.

Priority Compatibility Factors:

- ❖ Encroachment
- ❖ Vertical Obstructions
- ❖ Drones
- ❖ Noise
- ❖ Communications/Spectrum Frequency
- ❖ Lighting
- ❖ Lasers

3.4 Compatibility Tools

This section offers an overview of various programs and plans at the federal, state, regional, and local levels that can be leveraged and utilized to support compatibility initiatives.

Federal Programs

Range Compatible Use Zone (RCUZ) Program:

To reduce exposure to the noise and safety risk associated with military training, while maintaining the range's operational integrity is the foundation for the implementation of the Range Compatible Use Zone (RCUZ) Program. By collaborating with local governments, the program produces land use recommendations to foster compatibility and guide community planning efforts. Since military installations typically encompass multiple ranges, the areas affected by those activities, along with noise contours, define the Range Compatibility Zones (RCZ). These zones that present safety concerns offer specific land use guidance for the different types of military training and activities. Whereas, the specific noise contours indicate the noise level produced from these activities while assessing their impact on surrounding communities.³

Air Installation Compatible Use Zone (AICUZ) Program:

AICUZ (Air Installation Compatible Use Zone) Program was initiated to encourage compatible development with the four main objectives of: safeguarding the safety and welfare of residents by ensuring compatible land use, supporting the continuity of current and future military operations, Ensuring the installation meets mission requirements while simultaneously reducing the impacts of noise produced by aircraft, and raising public awareness about the program and seeking collaboration in the effort to minimize noise and aircraft accident potential through the promotion of compatible land use.⁴ This program strikes a balance between sustaining military missions and enhancing public welfare through informed, collaborative planning.

Readiness and Environmental Protection Initiative (REPI) Program:

The utilization of the The Readiness and Environmental Protection Initiative (REPI) Program plays a crucial role in addressing and combating encroachment. To protect habitats and promote compatible land use near military installations, the Office of the Secretary of Defense, permits the Department of Defense to enter into agreements with local and state governments as well as conservation organizations. These agreements benefit Fort Knox and private landowners - Fort Knox gains compatible land use, while land owners receive funding to preserve agricultural use in perpetuity. This collaboration supports the long-term viability of working farms and forests, enhances recreational and open space opportunities and protects against mission reductions that could negatively impact local economies.⁴

Key REPI Program Partners: ⁵

- Bernheim Forest & Arboretum
- Compatible Lands Foundation
- Kentucky Department of Agriculture
- Kentucky Department of Fish & Wildlife Services
- Kentucky Division of Conservation
- Kentucky Forest Service
- Kentucky Natural Land Trust
- Kentucky National Preserves
- Knox Regional Development Alliance
- Lincoln Trail Area Development District
- The Nature Conservancy
- U.S. Department of Agriculture- Natural Resource Conservation Service

Sentinel Landscapes:

Sentinel Landscapes, established through the Department of Agriculture, Department of Defense, and the Department of the Interior- partners federal, local, and private stakeholders- to collaborate on sustaining natural resources and preserving agricultural and conservation lands around military installations. Sentinel Landscapes are lands that are crucial to national defense—regions where preserving the rural character of the landscapes supports the economies of farms, ranches, and forests, conserves habitats and natural resources, and facilitates essential training activities. ⁶ This partnership encourages landowners to protect these landscapes in ways that also benefit national defense. By identifying common priorities, the partnership aligns programs and strategies that preserve, enhance, or protect working lands and habitats near military installations, aiming to reduce or eliminate conflicts from incompatible development that could disrupt military testing and training operations. Although a Sentinel Landscape designation is not directly tied to funds, it may increase an installation's chances in obtaining funding from one of the three partner agencies: USDA, DoD, DOI, or other federal programs.

DoD Sustainable Ranges Initiative:

The Department of Defense's Sustainable Ranges Initiative is a key approach to ensuring the long-term viability of military training and ranges, safeguarding national security, and promoting compatible land use. This initiative emphasizes continuous collaboration and coordination, building partnerships with local and state governments, as well as relevant organizations.

Forest Legacy Program (FLP):

Under the USDA, the Forest Service Program's Forest Legacy Program (FLP) aims to identify and protect private forestlands at risk for deforestation. Through land acquisitions and conservation easements, FLP partners with state agencies to assist local efforts to preserve these forests.

The Agricultural Conservation Easement Program (ACEP):

The Agricultural Conservation Easement Program (ACEP) has two main components: Agricultural Land Easements (ALE) and Wetland Reserve Easements. Agricultural easements help private landowners, land trusts, and other entities- such as local and state governments to promote conservation value and protect agricultural land. By acquiring these easements, the sustainability of agriculture is preserved while also promoting compatible land use.

Regional Conservation Partnership Program (RCPP):

The Resource Conservation and Partnership Program (RCPP) fosters collaboration between the Natural Resources Conservation Service (NRCS) and its partners, and collectively enhances the capacity to address natural resource challenges. By leveraging resources and working toward shared objectives, RCPP highlights the private sector effectively partnering with the public sector to achieve meaningful outcomes for agriculture and conservation.

RCPP projects are implemented through NRCS contracts and easements. Through this program, funding is allocated to partners to support conservation efforts. In October 2024, the USDA announced a \$1.5 billion investment in 92 partner-led Regional Conservation programs across the United States. ⁷

State and Regional Programs

Kentucky Military Affairs Commission:

The Kentucky Commission on Military Affairs (KCMA), established under Kentucky Revised Statute (KRS 154.12-203) and operating within the Office of the Governor, serves as the primary advocate for military installations and the defense economy in Kentucky. It provides guidance to all levels of government on military and veterans' issues. According to its website, KCMA's purpose includes: ⁸

- Addressing military-related matters in Kentucky.
- Promoting a collaborative and productive relationship between state agencies and military entities in the state.
- Advising the Governor, General Assembly, Kentucky congressional delegation, and other relevant officials on military issues.
- Taking actions to enhance the military value of Kentucky's National Guard, active, and reserve forces, as well as improving the quality of life for military personnel in the state.
- Coordinating Kentucky's interests in future Base Realignment and Closure (BRAC) activities.
- Recommending military-related economic development projects at the state, federal, and local levels.
- Fostering partnerships between the private sector and Kentucky's military installations.

- Providing recommendations to the Kentucky Economic Development Partnership on long-term strategies for defense facilities in the state.
- Developing initiatives to encourage military personnel to retire and settle in Kentucky, while also promoting former service members as a skilled workforce.
- Allocating available grant funds to qualified applicants to advance the KCMA's objectives.

Kentucky Building Code:

Compatibility factors such as noise, vibration, or lighting in buildings can be mitigated through construction design and materials outlined in the Kentucky Building Code. Local building codes must adhere with the Kentucky Building Codes, adopted in 2018, which is based on the International Building Code with specific amendments for Kentucky. ⁹ These codes are designed to address potential hazards associated with the occupancy of buildings, structures, or premises, helping to reduce the impacts of these factors.

Local Programs

Local jurisdictions develop land use plans and zoning ordinances to shape their communities' growth and development. The following is a brief overview of these documents, relevant to Fort Knox. The land use plans and zoning ordinances of the surrounding communities were reviewed, including those of Hardin County, the City of Elizabethtown, the City of Radcliff, the City of Vine Grove, the City of West Point, Bullitt County, Meade County, the City of Brandenburg, the City of Muldraugh, and Nelson County.

Comprehensive Plans serve as a strong foundation for implementing compatibility tools by establishing a framework to regulate development through local land use policies and ordinances. As a collaborative effort, these plans can act as a catalyst for strengthening the partnership between the community and the military, supporting compatible land use objectives, and providing clear guidelines for future development in areas vulnerable to encroachment. The use of overlay districts- such as the Military Influence Planning District (MIPD), Military Influence Area (MIA), Military Installation Overlay (MIO), Military Lighting Overlay District (MLOD), and the Air Installation Compatible Use Zone (AICUZ)- is becoming increasingly common. These overlay districts are specifically designed to foster a collaborative relationship between military installations and the surrounding communities. The plans incorporate policies and regulations that encourage compatible development, including communication protocols, conservation efforts, and land use controls. The next two sections will provide a more detailed overview of comprehensive plans and language to incorporate to accommodate Fort Knox.

Zoning Ordinances involve creating a set of regulations that govern the land development by designating areas for specific uses- such as for industry, retail, recreation, agriculture, and residential use. For land to be considered compatible with military operations, it typically needs to

have low-density or fewer people, as these areas are less impacted by noise and other operational activities. Therefore, intentional low-density development is essential around active military installations. Zoning regulations that support military operations and training, while aligning with the Army's goals, typically focus on minimizing the impact of land use on these activities. For example, zoning ordinances can control light pollution or limit the height of vertical obstructions to prevent interference with navigable airspace. To effectively manage incompatible land use, local governments may create overlay districts like a Military Installation Planning District (MIPD), Military Installation Overlay (MIO), or Military Impact Area (MIA) to regulate land use within noise contours and Accident Potential Zones (APZ). The governing body is solely responsible for making decisions regarding zoning regulations and land use controls.

Military-local Government Coordination strengthens formal coordination between the military and local government through the Compatible Use Implementation Plan process. This collaborative effort allows all stakeholders to identify common interests, build stronger relationships, and develop practical solutions that safeguard both public welfare and the Army's objectives. The plan offers tools and strategies to build long-term institutional capacity for continued implementation. By informing local jurisdictions about potential impacts from military training and operations, the military enables them to better update their plans and ordinances accordingly. Without sufficient information to evaluate the effects of land use decisions and growth, government officials are unable to make well-informed choices.

Avigation Easements can be granted, allowing military training activities to include flying over a property and utilizing the airspace above it. These easements are commonly used on properties near airfields or airports. These easements also limit the property owner's ability to construct above a certain height. Avigation easements are increasingly being utilized by local governments to protect military operations from encroachment by surrounding development. For instance, a local jurisdiction might require an avigation easement as the prerequisite for approving a new residential subdivision proposed in an area affected by military training and activities. ¹⁰ (Appendix 3.8)

Conservation encompasses a variety of strategies and approaches designed to eradicate incompatible land uses and protect critical lands. These tools promote compatible land use surrounding Fort Knox by supporting the installation's goal of intentional, sustainable growth. At the same time, they help protect the environment, preserve habitats for wildlife and endangered species, support agricultural activities, and conserve open spaces.

ACUB, renamed the Readiness and Environmental Protection Integration(REPI) Program, proved to be one of the most successful and effective sustainability initiatives, securing conservation easements to prevent incompatible development, ensure farmland remains in agricultural use in perpetuity. ¹⁰ By preserving agricultural land use near the installation's boundary, the military can continue training operations without disruption. In this region, ACUB successfully acquired land around Fort Knox in the past by utilizing conservation easements on priority properties. The eastern

boundary of Fort Knox, known as Zone A, has been identified as a key focus area for conservation initiatives. ¹¹

Additional information and analysis on compatibility planning in relation to Kentucky's policies and local jurisdictions' legislation are provided in Section 4. Section 5 provides recommendations for strategies to address regional compatibility issues. The subsequent sections of this plan present an analysis of these goals and objectives, drawing on the findings from the 2022 Fort Knox Compatible Use Plan Study.

4



ANALYSIS & FINDINGS



4

ANALYSIS & FINDINGS

Photo Courtesy of Fort Knox Army Installation

Section 4 examines current state and local policies to assess those that address community-military compatibility and identify opportunities to enhance existing policies. The compatibility factors, as presented in Section 3 of this implementation plan were analyzed in the 2022 Compatible Use Plan Study, determining which factors aid or hinder compatible land use around Fort Knox, as well as their impact on community welfare and military mission resiliency. By addressing policy gaps, regional planning efforts can be enhanced, community-military compatibility strengthened, and existing encroachment issues mitigated or resolved, thereby preventing future conflicts. Without the necessary tools, surrounding development may adversely affect military operations, leading to reduced training opportunities, changes to mission objectives, and even the risk for base closures.

4.1 Compatibility Analysis

The purpose of the Compatible Use Implementation is to enhance compatibility and reduce encroachment— two interconnected concepts that impact both military and civilian communities. Compatibility entails balancing the needs of the local community with the operational requirements of the military. Encroachment, which can take various forms, poses challenges to both parties. According to the U.S. Department of Defense encroachment is defined as “*the cumulative impact of urban and rural development that can hinder the military’s ability to perform its testing and training missions.*”¹ For Fort Knox, encroachment specifically concerns incompatible use of land and air.

The diverse nature of military operations and training exercises makes the installation vulnerable to various types of development that may qualify as encroachment. Incompatible land uses near the installation, particularly those within the noise contour zones, include the following:

- Land uses that concentrate large numbers of people in confined areas
- Land uses that generate frequency interference
- Land uses that emit smoke, dust, or steam
- Land uses that produce excessive lighting
- Sensitive land uses, such as hospitals, schools, or daycare centers

While land use regulations are crucial for preserving military readiness, they may also be perceived as infringing on property owners' rights, potentially lowering property values and limiting development and economic opportunities. For civilian populations, encroachment can lead to negative impacts such as increased noise, vibration, traffic congestion, and housing shortages.

Existing plans, policies, and ordinances from local governments, combined with the expansion of the military installation's operational footprint and regional trends, underscore the urgent need to ensure land use compatibility and manage competing interests moving forward. Identifying potential conflict areas and assessing their impacts will provide valuable insights for the Compatible Use Implementation Plan and help stakeholders prioritize actions for effective implementation.

The methodology for this analysis drew on a wide range of sources, including local plans, policies, ordinances, military operations, and other relevant data impacting community-military compatibility. The primary objective was to identify potential conflicts and opportunities for improvement between military activities and community growth. The analysis included a review of state and local policies influencing military compatibility, assessing the extent to which these policies address - or fail to address - the factors outlined in the 2022 Compatible Use Plan (CUP) Study. This evaluation identified policy deficiencies related to compatibility issues and highlighted regulations that effectively addressed or overlooked these concerns.

Findings from this gap analysis informed the development of policy recommendations and best practices. Additionally, a Geographic Information Systems (GIS) analysis was conducted to integrate and compare key data points. This analysis focused on potential future growth and development around the installation, specifically within the 1 and 5-mile buffer, to evaluate the impact of military operations on surrounding land. This approach provided a comprehensive understanding of areas and timeframes where conflicts might arise between military activities and nearby development, considering factors such as development types, locations, patterns, and intensity.

Table 4.1 provides a summary of the issues identified by compatibility factor.

Compatibility Factor	Summary of Issues Identified
<i>Coordination/ Communication</i>	Conflicts primarily stem from the need for improved communication and coordination between military officials, surrounding communities, and local, state, and federal agencies. Effective collaboration is key to strengthening partnerships across various initiatives, such as increasing awareness of military operations and establishing channels for public input during development reviews and infrastructure planning. The successful implementation of these recommendations depends on clear communication and strategic planning. Currently, there is not a formalized process for notifying stakeholders about public hearings, zoning amendments, comprehensive plan updates, quarterly compatibility meetings, or designating a single point of contact. Streamlining these processes through a Memorandum of Understanding (MOU) would formalize communication and enhance coordination.
<i>Frequency Spectrum Impedance/ Interference</i>	Communication challenges arise from the interaction between Fort Knox's operations and adjacent communities, with each influencing the other. For example, radio frequencies used by the installation may disrupt civilian devices in the Fort Knox Compatible Use Areas, whilst civilian use of these frequencies can interfere with the critical systems supporting Fort Knox's operations. Furthermore, radio frequency interference can impact emergency services in the neighboring area. Local residents rely on a range of communication technologies, including cell phones, radios, televisions, as well as devices like door openers, lighting systems, cameras, and home automation tools, all of which place increasing demands on available bandwidth. As these communities grow and develop, their expansion directly contributes to higher levels of interference with military communications, potentially impacting the installation's readiness and training activities.
<i>Vertical Obstructions (VOs)</i>	Vertical Obstructions (VOs) have become an increasing concern for Fort Knox, particularly with the rise in development of structures such as wind turbines, cell towers, and other tall structures that could interfere with military operations. The growing reliance on cell phones has driven demand for more cell towers, which, alongside spectrum usage conflicts, presents additional challenges. The physical presence of cellular, microwave, and other communication towers create potential flight hazards and may disrupt radar systems, as well as other sensitive transmitters and receivers. These vertical obstructions also pose risks to aerial operations around Fort Knox. As a result, regulating the height of these structures is essential to prevent impedance on military missions and ensure safety.
<i>Noise/Vibration</i>	The Compatible Use Plan Study highlights concerns regarding vibrations, particularly from military aviation activities, and their impact on nearby communities. Areas adjacent to Yano Range, due to DAGIR, are of particular concern due to rising levels of

	noise and vibration. This increase is likely to result in additional complaints, especially as a result of overnight missions and training exercises.
<i>Light and Glare</i>	The Fort Knox CUP Study identified light and glare from neighboring communities as a significant issue, particularly for military operations that rely on dark skies at night. Regulating outdoor lighting- such as type, design, and intensity - is crucial to minimizing light pollution and glare. A key concern with solar energy is the glare from solar panels, which can interfere with aircraft operations. Light pollution can severely disrupt nighttime overflights and military training missions, thereby impacting operational effectiveness. As a result, light pollution remains a persistent challenge to mission sustainability.
<i>Drones/Lasers</i>	Drones and lasers have become an increasing concern, particularly with the operation of privately and commercially owned drones near military facilities within restricted airspace. Although drones are prohibited from flying over Fort Knox's restricted airspace, the general public may lack awareness or understanding of the regulations governing drone flights in these areas.
<i>Encroachment</i>	This plan aims to address encroachment, which can significantly impact the operations and readiness of Fort Knox. As residential development in the region continues to grow, it is essential that future development aligns with the installation's mission, safeguarding both the effectiveness of Fort Knox's missions and the well-being of the surrounding communities. The goal is to manage existing development while strategically planning for future growth in a manner that minimizes disruptions to military operations. By fostering collaboration between local governments, developers, and military stakeholders, the plan seeks to integrate military needs with community development objectives, ensuring that land use decisions support the operational readiness and sustainability of the installation.

Table 4.1 Summary of identified issues by compatibility factors

In this subsection, the following compatibility factors have been addressed by the Commonwealth or local jurisdiction. However, while these issues have been acknowledged, existing policies do not fully address the concerns related to compatible land use.

The following compatibility factors addressed in policy:

- Coordination/Communication
- Noise/Vibration
- Light/Glare
- Land Use

The following are compatibility factors aligned with the CUP Implementation Plan focus areas, but lack the necessary tools to address potential conflicts and promote military-community compatibility.

The following compatibility factors requiring policy are:

- Dust/Smoke/Steam
- Housing Availability
- Drones/Lasers
- Safety Zones
- Vertical Obstructions
- Frequency Spectrum Capacity/Interference (Communications)
- Encroachment

4.2 GOAL 1: COORDINATION & COMMUNICATION

Enhance ongoing communication & coordination between officials from the Commonwealth of Kentucky, local communities, and Fort Knox.

This section assesses communication strategies designed to improve coordination between state officials, local communities, and Fort Knox. The subsequent recommendations aim to serve as the basis for an interagency communication plan designed to address compatibility concerns where military operations intersect with civilian jurisdictions. ² Preventing incompatible land use requires the establishment of clear communication channels to facilitate better coordination between officials from the Commonwealth, local communities, and military. Additionally, the plan should include a standardized approach for sharing concerns and best practices that can be implemented across the Commonwealth, region, and at the local level. Given that military activities impact multiple jurisdictions, many local regulations are either insufficient or require strengthening to effectively safeguard both military operations and community development.

State and Local Policy Review

Table 4.2 summarizes each policy that has a direct impact on military compatibility planning.

State/Local Policy	Description
KRS 154.12-203 Military Advisory Group	KRS 154.12-203 established the Kentucky Commission on Military Affairs, an independent agency within the Office of the Governor. The Commission serves as the primary advocate for military installations and the defense economy across the Commonwealth. Its mission is to establish Kentucky as the nation's most military-and veteran-friendly state. The Commission prioritizes various initiatives, including advising and coordinating efforts with key stakeholders, and safeguarding of military missions, enhancing defense-related infrastructure, and supporting transitioning service members, veterans, and their families.
KRS 36.010 Department of Military Affairs	The Department of Military Affairs, attached to the Office of the Governor, is accountable to the Governor for overseeing the effective operation of the Kentucky National Guard, militia, and all other military or naval matters. The Department is comprised of the following offices and divisions: (1) Office of Management and Administration, which includes the: (a) Division of Administrative Services; (b) Division of Facilities; (c) Bluegrass Station Division; and (d) Logistics Operations Division; (2) Division of Emergency Management; (3) Office of the Chief of Staff for Federal Army Guard; (4) Office of the Chief of Staff for Federal Air Guard; (5) Kentucky Guard Youth Challenge Division; and (6) Kentucky Civil Air Patrol.
KRS 100.187.5	Provisions for the accommodating military installations of 300 acres or more in size shall apply

Contents of Comprehensive Plan	to those that are: (1) Fully or partially located within the planning unit; (2) Adjacent to the planning unit's boundaries; or (3) Located within or abutting to any county that contains a planning unit. (b) The goal of these provisions is to minimize conflicts between military installations and the residential population within the planning unit. These provisions shall be established following consultations with the relevant installation command authorities to assess the needs of the military installation. Such consultations will cover, but are not limited to, concerns related to installation expansion, environmental impact, safety, and airspace usage, including noise pollution, air pollution, and air safety.
KRS 100.212.3 Notice of Hearing on Proposed Map Amendment	If property proposed for a classification changed adjoining property in a different planning unit, or lies outside any planning unit, notice of the hearing must be sent by first-class mail at least fourteen (14) days prior to the hearing to the following public officials: (a) If the adjoining property is within a planning unit, notice must be sent to the planning commission of that unit; or (b) If the adjoining property is within a planning unit, notice must be sent to the mayor of the city where the property is located or, if the property is in an unincorporated area, notice must be sent to the county's judge/executive where the property is located.
Section 5.3 Hardin County Development Guidance System	A public hearing is required to review changes in land use. Provisions include notifying property owners within 1,200 feet of road frontage about a zoning map amendment, with notices sent via first-class mail.
<i>Heart of Kentucky Association of Realtors (HKAR)</i> Real-Estate Disclosure Language	<p>The following language has been incorporated into every Residential Real-Estate Offer and Sales Contract with HKAR, for the following Counties: Hardin, LaRue, Meade, Nelson. The homebuyer must initial to acknowledge the following:</p> <p>Military Base Disclosure : <i>This property may be located near a military installation and may be affected by high noise or air installation compatible use zones or other operations. Information relating to high noise and compatible use zones is available in the most recent Air Installation Compatible Use Zone Study or Joint Land Use Study prepared for military installation and may be accessed on the Internet website of the military installation and of the county and any municipality in which the military installation is located.</i></p>

Table 4.2 Kentucky State and Local Policies for Communication/Coordination

State and Local Gap Analysis

A key focus of this implementation plan is advocating for solutions to address encroachment at Fort Knox. Each compatibility factor identified in the CUP Study was evaluated to determine whether existing policies could be utilized. While Kentucky and the local jurisdictions surrounding Fort Knox have policies that address some compatibility factors, many critical issues remain unaddressed. As the region continues to experience rapid growth, compatibility challenges are expected to intensify. Therefore, it is imperative to identify potential policies that the Commonwealth, along with local cities and counties, can adopt to mitigate encroachment.

The communication analysis drew findings from a review of existing policies, which informed the development of recommended policy actions to address communication gaps, improve issue visibility, and promote best practices for military/community compatibility. The final phase of the

analysis involved organizing issues, strategies, and policy recommendations by compatibility factors and aligning them with the appropriate government entities. This approach establishes a framework for the Commonwealth of Kentucky and local jurisdictions to streamline communication on encroachment issues, military operations, and community concerns. It also provides an opportunity to implement best practices while ensuring alignment with available resources and policies.

The community analysis was guided by key considerations including leveraging stakeholder input, emphasizing the strategic importance of Fort Knox and its military missions, and grouping strategies and policy recommendations to ensure alignment with responsible parties and effective compatibility oversight.

The Commonwealth's current policy has made some progress in promoting communication and coordination between local jurisdictions and military installations. However, it remains incomplete, as it does not fully address the need for integrated solutions to encroachment issues or ensure the balanced coexistence of military and community interests. A formalized process is needed to notify the military of zoning changes, comprehensive plan updates, and proposed or future land uses and developments. The absence of such a process underscores the need for further policy development to mandate closer collaboration between local governments and military installations. At present, the policy lacks a clear framework for effectiveness, as there are not any specific guidelines in place. Aside from the provisions in KRS 100.212, which require notification of property abutting the installation, local jurisdictions are not obligated to notify the military about zoning changes, except in Hardin County. Notably, Hardin County exceeds state requirements by mandating notifications to all adjoining properties and those within 1,200 feet of road frontage. The broader military influence area and footprint are outlined in the 2009 Hardin County Development Guidance System Zoning Ordinance.

Findings for Goal 1: Enhance Communication and Coordination

- Several jurisdictions have yet to establish formal mechanisms for coordinating with the military on proposed land uses, plans, zoning changes, or developments near military installations or in areas that could potentially affect military operations.
- In some communities, there are not established processes for notifying or coordinating with the military to ensure proposed developments align with the military's presence and their potential impact on the community.
- State policies and procedures lack clear standards for communication and coordination between the military and local governments on events or activities that may impact local jurisdictions.

BEST PRACTICES

An effective strategy for promoting compatible land use near military installations involves engaging all relevant stakeholders in the local planning process. Many states facilitate military participation in local land use planning, helping communities understand the potential impacts of incompatible development on both the quality of life for citizens and military operations. Kentucky is one of 18 states that require local governments to notify military installations about proposed land use changes. ³ This formalized process strengthens communication and prevents unintentional conflicts. However, the current language lacks specific guidance on implementing the notification process, lending itself to potential ambiguity and ultimately limiting its effectiveness. To better integrate military input into local land use planning, states could improve notification procedures, establish clear mechanisms for obtaining military feedback, and allow military representatives to participate in state or local zoning boards. Additionally, to prevent uncontrolled development and incompatible land use, several states- such as Indiana, Kansas, and Montana- have designated "areas of critical concern" to ensure proposed land uses align with the needs of nearby military installations. ⁴

Table 4.3 outlines sample state and local policy that can be implemented to mitigate encroachment.

State/Local Policy	Description
AZ, CA, CO, FL, GA, KS, LA, MA, NE, NJ, NC, SC, TX, VA, WA, WI Planning Notification Areas	Sixteen (16) states have established planning notification zones to inform military installations about upcoming policy actions. These notification areas create buffer zones around military installations, requiring coordination before development approvals to prevent incompatible land use in the vicinity.
Lakewood, WA Military Coordination and Notice Area: 18A.10.15.6	Establishment of Lakewood Military Coordination and Notice Area (MCNA). Thereby, the City will coordinate with the JBLM Coordinating Official prior to approval of zoning code and comprehensive plan amendments.

Colorado Colorado Revised Statutes: 30.28.106;31.23.206	<p>The General Assembly has emphasized the importance of local governments collaborating with military installations to "promote compatible land use, prevent urban encroachment on military installations, and support the continued presence of major military installations within the state." Local governments with a military installation larger than 500 acres located within two miles of their boundaries are required to provide "timely" notifications to the installation commands (or their designee) regarding specific actions. These include changes to the comprehensive plan, amendments, or land use regulations that, if approved, could "substantially affect the intensity, density, or use of any area within two miles of the military installation." Conversely, this requirement does not extend to site-specific development applications currently under review by the local government.</p> <p>Once the local government provides the necessary information with the military, it must offer the installation commands (or designee) the opportunity to review and provide feedback on the potential impacts of the proposed changes on the military mission.</p>
Louisiana Act 787 of 2004 Louisiana Revised Statute: 33.4734	Requires local governing authorities to inform the commands of a military installation thirty (30) days prior to taking any action on a zoning request or variance affecting property within 3,000 feet of the installation.
Parish of Plaquemines, LA Zoning Regulations: Appendix B. <i>Section VI</i>	The Parish building permit officer is required to inform the Community Planning Liaison at NAS/JAB New Orleans of any permits for the construction, modification, or expansion of telecommunications transmission facilities, or any facility or structure that will emit smoke or steam. New construction and additions to existing structures must comply with the height and lighting standards set forth in this ordinance, unless a site plan has been approved and a valid building permit is in effect as of the adoption date of this district, in which case those approvals remain valid. If such approvals expire, compliance with the applicable height and lighting standards will be required.
Illinois Executive Order 05-04 Executive Order on Land-Use Planning and Military Installation Compatibility.	This executive order issued by the Governor directs all land-use planning agencies to coordinate with the state's military installations.
Florida Florida State Statute 163.3175	Florida law outlines a process to enhance communication and coordination between local governments and military installation commands concerning potentially incompatible land uses. As part of this initiative, the law mandates military representation on local zoning boards to ensure the exchange of relevant information.
New Jersey New Jersey Revised Statutes: 40.55D-62.1 SB2207 (2005)	Requires the notice of hearing for an amendment to a zoning ordinance to military command for zoning 3,000 feet of an active military installation.

Washington, California California Advisory Handbook for Community and Military Compatibility Planning; Washington State Guidebook on Military and Community Compatibility	Developed a state handbook for community and military compatibility planning to provide as a valuable resource for local planners, officials, property owners, developers, and the military, promoting responsible land use and development practices.
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Table 4.3 Best Practices Policies for Communication/Coordination

4.3 GOAL 2: LAND USE POLICY

Adopt community and military planning compatible land use policies & planning guidelines for implementation at the local, regional, and state level.

State and Local Policy Review

The policies of the Commonwealth of Kentucky and its local governments were reviewed to identify regulations and legislation that directly or indirectly affect community/military compatibility planning. This review also included an assessment of policies from other states. These factors, which informed the completed 2022 CUP Study, will also be incorporated into this plan. This subsection provides an overview of state and local laws and policies currently addressing compatibility planning in relation to land use. Table 4.4 lists and summarizes each policy influencing military compatibility planning.

State/Local Policy	Description
KRS 224.30.175 Local Comprehensive Noise Regulation Program	Local governments have the authority to develop, adopt, and maintain a comprehensive noise regulation program. This program may include assessing noise concerns related to activities and land uses within the jurisdiction, as well as developing and enforcing a noise control plan.
KRS 100.208 Transferable Development Rights	This provision permits the voluntary transfer of development rights from one parcel of land to another, restricting or prohibiting further development on the originating parcel while allowing increased development density or intensity on the receiving. It requires the identification and designation of areas on the zoning map where development rights can be transferred from and areas where these rights can be applied for new development (such as Use Districts or Overlay Districts). The transfer is carried out via deed from the owner of the parcel relinquishing the rights and may involve the granting of easements and reasonable regulations to oversee and manage these transfers, ensuring compliance with the ordinance's requirements.

KRS 100.201 Interim and Permanent Land Use Regulations Authorized-Designation and Regulation of Urban Residential Zones	The legislative bodies and fiscal courts of the cities and counties within the planning unit may adopt interim zoning or other growth management regulations, effective within their respective jurisdictions for up to twelve (12) months. During this period, the planning commission must finalize the remaining components of the comprehensive plan. Once all required elements of the comprehensive plan are adopted in accordance with this chapter, the legislative bodies and fiscal courts can implement permanent land use regulations.
KRS 100.277 Commission Approval Requirements for Subdivisions.	No individual or representative may subdivide any land without first obtaining approval from the planning commission and having the subdivision recorded by the county clerk. Furthermore, no landowner or their agent may transfer or sell any lot or parcel within a subdivision until final approval has been granted by the planning commission.
KRS 100.281 Contents of Subdivision Regulations	Subdivision regulations shall align with the county's adopted comprehensive plan and must include: the provisions for submitting and approving preliminary and final plats; design standards for streets, blocks, lots, utilities, recreational areas, facilities, hazardous areas, and flood-prone areas; specifications for the construction of streets, utilities, and other infrastructure; and criteria for determining the extent of land designated for public use.
KRS 100.987 Local Government Regulation of Cellular Antenna Towers	A planning unit along with its legislative body that has adopted planning and zoning regulations may oversee and regulate the installation of cellular antenna towers in accordance with the locally established planning or zoning policies.
Section 11.2, 11.3 Hardin County Development Guidance System	Establishes special lighting standards for new developments within the district to minimize interference with Fort Knox's critical training missions (KY313 Corridor). The height of lighting fixtures shall not exceed 50 feet. Within the KY 313 Corridor Planning Area, full cut-off lighting fixtures are required for all walkway, parking lot, canopy, and building/wall-mounted lighting within C-1, C-2, B-1, I-1, and I-2 zones. These full cut-off fixtures must be installed with a horizontal orientation to the ground.
Section 12.8 Hardin County Development Guidance System	A telecommunications antenna tower or similar structure may be constructed to a maximum height of 250 feet, regardless of the maximum height allowed for the zone in which it is located. The tower must be located at least 50 feet from any property line or the minimum building setback line for the zone, whichever distance is greater.

Table 4.4 Kentucky State and Local Policies for Land Use Policy

State and Local Policy Gap Analysis

Addressing potential compatibility policies is imperative for resolving military/community encroachment issues and preventing future conflicts. Local comprehensive plans, which guide long-term strategies for growth and development- including land use - are an example of formal policies that incorporate military input. However, the extent to which these plans support military installations often remains discretionary. The absence of specific parameters in the Commonwealth

of Kentucky's Revised Statutes (KRS) highlights the need for clearer policy guidance to ensure effective coordination between local governments and the military. While the current provisions offer some flexibility, they lack the detailed guidance required for full effectiveness. There are not any clear directions regarding the scope of military compatibility planning, how it should be implemented, or which specific compatibility issues must be addressed in a comprehensive plan, leaving local jurisdictions with only optional approaches.

In theory, this statute grants the authority to collaborate with the military, providing a broad framework for informing and consulting with Fort Knox to assess its needs and ensure proper representation in each city or county's comprehensive plan. These plans are intended to serve as foundation guides for cities or counties; however, their effectiveness depends on the adoption of ordinances that enforce regulatory actions. Unfortunately, the language in many plans lack sufficient detail to fully address the needs of Fort Knox. All jurisdictions within the focus area of this implementation plan reference Fort Knox in their comprehensive plan, though some plans align with the installation's needs more effectively than others. Notably, the Hardin County Comprehensive Plan takes a proactive approach to supporting the sustainability of Fort Knox's missions and training activities. The plan was developed in close collaboration with Fort Knox, integrating their goals and objectives, establishing a conservation corridor, and including land use provisions to ensure compatibility between the military and future development. These provisions cover aspects such as lighting and height restrictions on vertical obstructions.

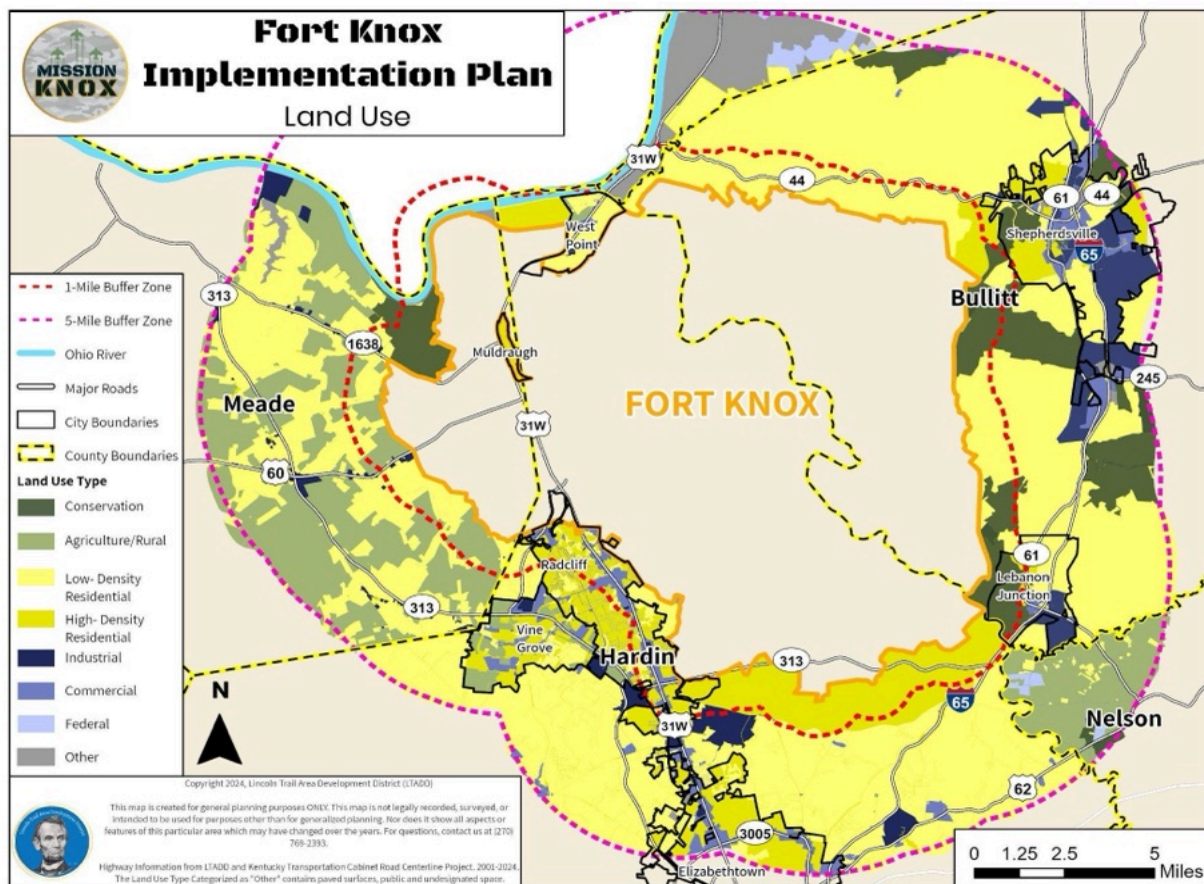
Where there is established precedent for considering military bases, installations, and airports when developing or amending zoning ordinances, there are not any provisions specifically addressing operational areas beyond these general parameters. This includes areas impacted by operational noise, military airspace extending beyond the FAA's imaginary surfaces of an airfield, and range compatibility zones. Although the code addresses military airport facilities in terms of accident potential zones and noise mitigation for structures, these provisions are limited to military air installations and do not encompass all military influence areas surrounding each installation. This gap can lead to miscommunication and land use conflicts, particularly when incompatible development is planned outside municipal airport safety zones but within military influence areas.

Municipality	Zoning District Type (in acres) in 5-Mile Buffer						
	Agricultural	Residential	Commercial	Industrial	Conservation	Recreation/ Municipal	TOTAL
Bullitt County	N/A	13,228.36	747.50	1,767.22	7,683.01	114.64	23,540.73
Lebanon Junction	N/A	1,423.25	197.37	636.85	1,049.06	10.66	3,317.19
Shepherdsville	N/A	3,274.95	1,458.54	2,765.33	1,011.83	138.97	8,649.62
Hardin County	9.62	45,484.20	893.98	1,552.41	N/A	N/A	47,940.21
Elizabethtown	N/A	3,324.78	1,282.29	31.98	N/A	N/A	4,639.05
Radcliff	142.97	5,646.37	1,319.05	286.47	288.29	N/A	7,683.15
Vine Grove	1,219.67	2,055.13	322.15	87.07	N/A	344.75	4,028.77
West Point	153.98	1,322.02	101.56	22.25	N/A	N/A	1,599.81
Meade County	19,259.03	22,601.83	885.46	517.28	6.17	N/A	43,269.77
Muldraugh	N/A	N/A	N/A	N/A	N/A	N/A	311.98
Nelson County	3,210.72	328.13	N/A	N/A	N/A	N/A	3,538.85
TOTAL	23,995.99	98,689.02	7,207.90	7,666.86	10,038.36	609.02	148,519.13

Table 4.5 Zoning District Type within the 5-Mile Buffer of Fort Knox

**County acreage totals account for unincorporated areas only.

As outlined in Table 4.5 above, zoning district types within the 5-mile buffer around Fort Knox are categorized by local jurisdiction and measured in acres. Residential zoning is the most prevalent type, covering 148,519.13 total acres within the buffer. Residential development- especially medium and high-density housing- poses the greatest risk of encroachment on the installation. Such development concentrates population density near the installation, increasing the potential for conflicts with military operations. The map below illustrates the regional land use patterns around Fort Knox, revealing significant residential development to the south and southwest, particularly in Hardin County and the City of Radcliff, as well as along the northeastern boundary in Shepherdsville. With Fort Knox surrounded by expanding residential areas and growing demand for housing, residential density is expected to rise. Therefore, it is crucial that new zoning ordinances and proposed developments align with the military's objectives, supporting and preserving its mission while ensuring compatibility with the surrounding community.

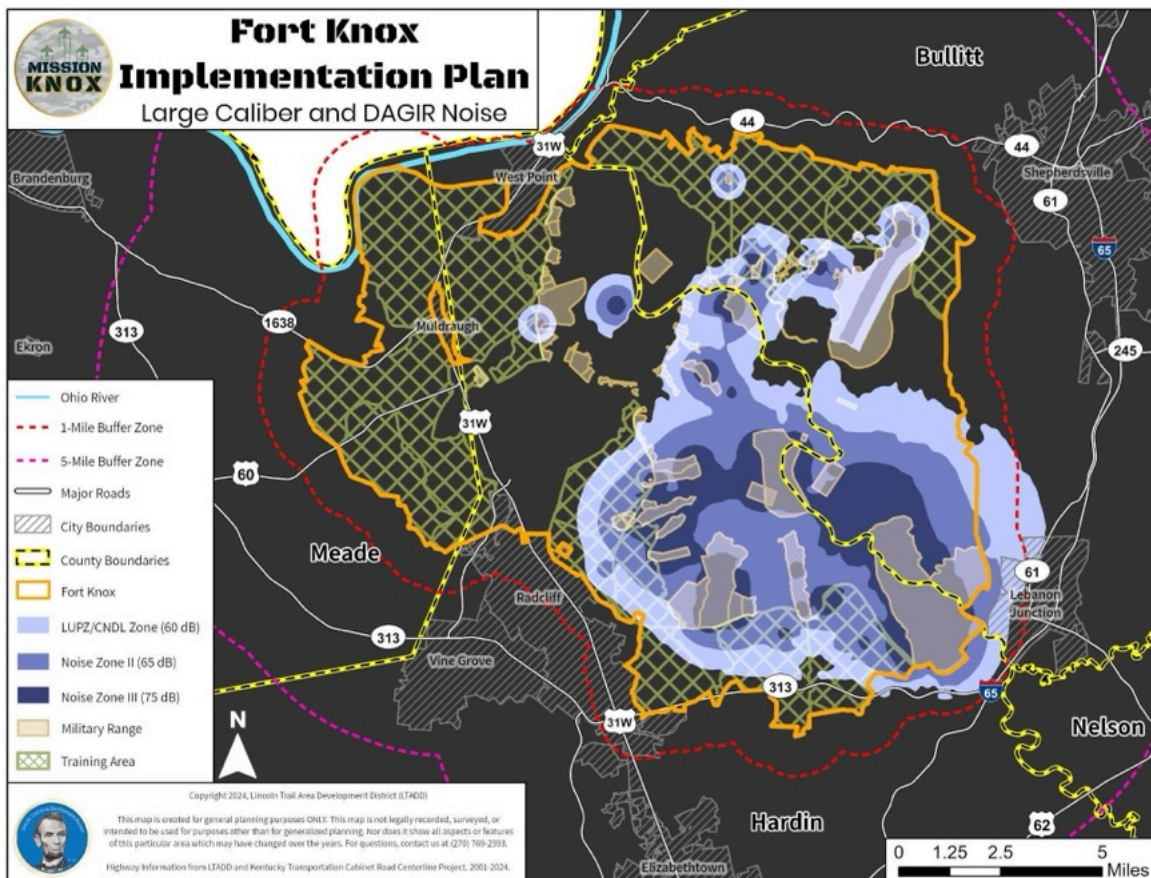


Map 4.1: Current Land Use Map

This analysis identified two areas of concern where compatibility issues could significantly impact both the community and Fort Knox’s mission: Zone A and Zone C (Appendix 2.23). Zone A is particularly vulnerable due to its proximity to high noise levels and active military operations. In contrast, Zone C has seen an increase in residential development near the Fort Knox boundary. Additionally, Zone A is also a priority area for increased conservation efforts due to the elevated noise and activity levels.

Long-term, two of the most paramount compatibility factors to address when developing policies that balance civilian quality of life with vitality of Fort Knox’s mission. The primary sources of noise at Fort Knox include weapons and demolition training, as well as aircraft operations. The City of Radcliff, located on the southwest boundary, the City of Lebanon Junction (to the southeast) and the City of Shepherdsville (to the northeast) experience notable noise impacts. These cities, along with unincorporated areas to the south and east of Fort Knox, are most exposed to noise from daily training activities. Additionally, certain high-intensity training events can generate exceptionally loud noises that are audible beyond the installation’s boundaries.

The cumulative noise from large-caliber and demolition operations primarily affects sensitive land uses beyond the southeast boundary, near the City of Lebanon Junction. Zone III is free of noise-sensitive land uses, while Zone II includes low-density residential areas scattered across Hardin and Bullitt Counties (see map below). Under unfavorable weather conditions, operations at Pk15 (met) can generate sound levels reaching up to 130 dB, which is extremely loud.⁶ This can impact the far northeastern corner of Hardin County, near its border with Bullitt County. Residents in Hardin and Bullitt Counties, as well as those in the Cities of Radcliff and Shepherdsville, may experience significant noise or vibrations under these conditions.



Map 4.2: Large Caliber and DAGIR Noise Map

Future development in these areas is expected to be constrained due to existing planning measures that limit large-scale growth. The Land Use Planning Zone (LUPZ) extends further east, encompassing part of Lebanon Junction, which has a higher concentration of noise-sensitive land uses.⁷ As a result, it is crucial to implement policies - such as real estate disclosures or overlay districts - to address the noise generated by Fort Knox, particularly in Hardin and Bullitt Counties.

Promoting awareness and providing education on noise issues is vital. As the community moves away from a generation with direct ties to Fort Knox and its operations, there is a growing

disconnect and lack of understanding regarding the post's activities. This knowledge gap is likely to result in an increase in noise and vibrations complaints. Such complaints often lead to reductions in training and firing schedules, which, over time, could shorten training days and result in earlier end times, limiting overnight and weekend operations. The United States Army Reserve and Army National Guard, in particular, have less flexibility and rely heavily on weekend training. If training hours are further reduced, units may seek alternatives, potentially impacting Fort Knox's military value and putting its mission at risk (e.g., during another round of BRAC). This shift could ultimately reduce the region's economic impact and activity, making it crucial to safeguard the Army's mission and preserve the installation's operational capacity.

Light pollution is a major concern for Fort Knox, as excessive lighting can interfere with critical operations, especially nighttime training. According to the 2022 CUP Study, ambient lighting from surrounding areas, including the Cities of Radcliff, Elizabethtown, and Shepherdsville, poses a potential threat to Fort Knox's nighttime training activities. Nighttime training is essential to Fort Knox's mission, and any disruption to this capability could undermine the effectiveness of training and impact military unit readiness. A significant portion of training at Fort Knox occurs at night, relying on night vision devices (NVDs). While some nighttime lighting is intentionally used to simulate real-world combat scenarios, excessive ambient light from surrounding areas can interfere with these training conditions. This surplus of light can diminish the effectiveness of night vision equipment and compromise the quality of training and readiness. ⁸

When addressing light pollution, it is important to consider streetlights and other sources of artificial light sources. Light pollution can result from issues such as glare, skyglow, light trespass, clutter, reduced nighttime visibility, and excessive energy consumption. To mitigate these challenges, lighting ordinances in the surrounding areas will be crucial. Recommended actions include installing full downward-facing or cut-off light shields, requiring lighting plans for new developments—especially medium- to high-density residential areas—and regulating lumen output and glare. Additionally, ordinances should mandate the use of shielded fixtures, encourage warm (non-blue) lighting, and promote the installation of dimmers, motion sensors, and timers to reduce light pollution and protect the effectiveness of nighttime training at Fort Knox.

In addition to policy changes concerning land use around Fort Knox, it is equally important to consider policies that support military personnel stationed on post, as these changes will ultimately benefit both the region and the Commonwealth. As reported by *Kentucky Today* in November 2024, the General Assembly's Workforce Task Force has put forward recommendations for legislative action during the 2025 Regular Session. To maximize workforce opportunities within the Commonwealth, adjustments to current policies are necessary. Kentucky and Tennessee are competing to retain military personnel transitioning out of active duty from Fort Knox and Fort Campbell. Tennessee currently has a competitive edge, offering benefits such as tax-free military pension. Moving forward, it will be essential to implement policies that support the retention of transitioning service members, ensuring long-term benefits for the Commonwealth.

Findings for Goal 2: **Regional Land Use Planning Guidelines in Consideration of Military Compatibility**

- Kentucky state law regarding local government comprehensive planning allows for the inclusion of military compatibility provisions in plans of a military installation over 300 acres and is either fully or partially located within a county or adjacent to Fort Knox. The plan may address various topics, including but not limited to: installation expansion, environmental impacts, safety concerns related to the installation, and issues related to airspace usage, such as noise pollution, air pollution, and air safety.
- There is a lack of insufficient or restrictive long-range planning goals, objectives, and policies to support Fort Knox compatibility, the installation may be at risk of uncoordinated, incompatible development or encroachment.
- The Commonwealth of Kentucky and local governments do not specifically define military installation influence areas or establish compatibility measures for them.
- Some local jurisdictions have developed and implemented land use planning guidance and regulations that could serve as best practices for other areas surrounding Fort Knox seeking to implement or improve military-compatible land use planning strategies, such as the Hardin County Comprehensive Plan.

BEST PRACTICES

Collectively, these state laws provide a strong foundation for fostering military-community coordination. However, the finer details—the proverbial "in the weeds" aspects—are what truly enhance the policy's effectiveness and applicability. Well-defined parameters are essential to ensuring that both the military and surrounding communities benefit from streamlined planning processes. As regional development continues to expand, local jurisdictions should regularly engage with Fort Knox planners on major residential subdivisions and large-scale commercial or industrial projects to ensure proper coordination. In addition to maintaining biannual discussions between military and community leaders, it is vital to designate a point of contact for consistent communication with Fort Knox. By adopting these practices, the Commonwealth, the region, and local jurisdictions can more effectively balance military needs with economic growth.

Table 4.6 identifies best policy practices to implement for compatible land use and military mission resiliency.

State/Local Policy	Description
North Carolina Military Lands Protection Act (2013) <i>SB614</i> North Carolina Revised Statute: <i>143.151.70</i>	No municipality is permitted to approve construction of tall buildings or structures in areas surrounding a major military installation without certification from the Building Code Council. Certification applications will be denied if the proposed construction would encroach upon the mission, training, or operations of the installation, or adversely affect the continued military presence in the state.
South Dakota Military Airport Hazard Area Zoning Regulations: HB1258 (2018)	Authorizes municipalities to adopt zoning regulations around military airports to prevent creation of military airport hazards, defined as any structure that obstructs the air space required for taking off or landing, or interferes with systems used for tracking or acquiring data. These regulations may dictate permissible land uses and regulate the type, density, and height of structures within the designated area.
Utah Sentinel Landscape Amendment (2023) <i>HB265</i>	This bill requires municipalities and counties to develop a compatible use plan to ensure that proposed land uses within a specified distance of military land are aligned with and supportive of military operations.
Indiana Planning & Zoning Affecting Military Bases (2023) <i>SB332</i>	Establishes a state- designated area of interest, encompassing land within three (3) miles of specific military installations and/or within a military impact zoning district- an area influenced by the impacts of military operations. Planning, zoning, and development activities within this area are subject to the military installation command to assess how these activities may impact military operations.
Montana Montana State Code <i>10-1-1505</i>	Allows municipalities to designate “military affected areas,” which encompasses both land used for military purposes and land adjacent to military installations. The law establishes a permit system for any land use changes within these areas, ensuring that permits are not granted for uses deemed incompatible with military operations. Over the past five years, several counties have designated military affected areas.
Arizona Arizona State Statute <i>49.1102</i>	Requires all outdoor light fixtures to be fully or partially shielded with exceptions for incandescent fixtures of 150 watts or less and other sources of 70 watts or less. Emergency and construction lighting are exempt from these requirements. Non-compliant fixtures may be permitted if they are automatically turned off between midnight and sunrise.
Texas Texas Local Government Code: <i>240.031</i>	The legislature authorized counties, at the request of the military, to implement measures governing outdoor lighting within five (5) miles of a military installation. Counties may accomplish this goal in several ways:(1)require permits before the installation of certain types of lighting; (2) prohibit specific lighting fixtures; (3) establish shielding requirements for outdoor lighting; or(4) regulate the hours during which certain types of lighting may be used.

TX, IN, MD, VA Texas: <i>HB890 (2017)</i> Indiana: SB332 Virginia State Code: <i>55.1.1217</i>	Requires a disclosure stating that the property is located near a military installation, within a designated state area of interest, and may be affected by the installation’s military operations. Additionally, the disclosure must inform potential buyers that local regulations may impose restrictions on the use and development of the property to ensure compatibility with military operations. <i>**Virginia State Code: Applies to Rental Properties</i>												
Arizona Incorporation of Sounds Attenuation Standards in Building Codes Arizona Revised Statute <i>28.8482</i>	Requires municipalities with areas near a military airport to implement sound attenuation standards for new residential buildings and certain public structures.												
Maryland Environmental Noise Standards. Maryland Environment Code: <i>26.02.03.02</i>	<p>Establishes noise standards using A-weighted sound levels. The regulation stipulates that no person shall cause or allow noise levels to exceed those specified in this table:</p> <table><tr><td>Day/Night</td><td>Industrial</td><td>Commercial</td><td>Residential</td></tr><tr><td>Day</td><td>75</td><td>67</td><td>65</td></tr><tr><td>Night</td><td>75</td><td>62</td><td>55</td></tr></table> <p>*Maximum Allowable Noise Levels by Land Use (dB)</p> <p>Exceptions to the permissible noise levels include restrictions on noise emanating from construction or demolition activities, which must not exceed 90 dBA during daytime hours or surpass the levels specified in the table during nighttime hours. Additionally, no person may cause or permit the emission of prominent discrete tones and periodic noises that exceed a level 5 dBA below the applicable level listed in the table above.</p>	Day/Night	Industrial	Commercial	Residential	Day	75	67	65	Night	75	62	55
Day/Night	Industrial	Commercial	Residential										
Day	75	67	65										
Night	75	62	55										
Montgomery County, TN Airport Approach Zone, Aircraft Light Sensitive Area, & Ft. Campbell Noise Zone	When a subdivision or a portion is located within the Airport Approach Zone, the final plat shall state:“Subdivision lies within the Airport Approach Zone” (indicating the lot numbers affected by this area). If the height of structures is restricted by the Airport Approach Zone, the plat shall specify the maximum allowable height of such structure. Additionally, if the subdivision falls within the Aircraft Light Sensitive Area, the plat should state: “Subdivision lies within the Aircraft Light Sensitive Area” (with designated lot numbers, if applicable). All outdoor lighting within the subdivision shall comply with the requirements of the Montgomery County Zoning Resolution (or City of Clarksville Zoning Ordinance) pertaining to the Aircraft Light Sensitive Area.												

Hopkinsville, KY City of Hopkinsville: <i>Section 158.406</i>	The resolution establishes an overlay district for Sabre Heliport on Fort Campbell. For lots located within Noise Zone II and III, the plat shall note: "Lots ____ of this subdivision lie within Noise Zone II or III of the Sabre Heliport Overlay District. Sound attenuation shall be required to meet the requirements of the Sabre Heliport Overlay District per the Montgomery County Zoning Resolution." The Sabre Heliport Overlay District consists of areas identified as Noise Zone II (NZ-2), Noise Zone III (NZ-3), the Military Noise Disclosure Area (NDA), Aircraft Light Sensitive Area (ALSA) and the Approach Departure Surface Area (ADSA), as shown in the report "Joint Land Use Study Compatible Use Zone for Fort Campbell Military Installation" (U.S. Department of the Army, September 2003).
San Antonio, TX Military Lighting Overlay District	The Military Lighting Overlay District (MLOD) is a designated zoning overlay district created to reduce light intensity levels, glare, and light pollution in areas surrounding the military installations in San Antonio, in order to preserve nighttime training exercises occurring on these installations. The MLOD regulates only lighting levels, intensity, and direction; the overlay district does not regulate property use.
Garfield County, WA Zoning Ordinance: <i>Chapter 1.01, Section 1.05.075.</i> Military Airspace Overlay Zone: Military Operations Area	To promote compatible development, boundaries are established to define a Military Operations Area (MOA) and create a military airspace overlay zone. For new and proposed developments within the MOA, permits must be reviewed and approved to assess potential adverse impacts on aircraft and military operations. This includes factors like steam, dust, light emissions, height obstructions, and smoke that could hinder pilot visibility or operational effectiveness.
Lakewood, WA Military Influence Areas Overlay District: <i>18A.10.135</i>	Regulations within the overlay district include provisions for restricting the height of man-made structures and objects of natural growth, as well as prohibiting incompatible land uses and development activities. These regulations apply to the portion of any parcel located within the Military Influence Area and Military Coordination & Notice Area.
Jefferson County, NY (Fort Drum) Height Restrictions for Compatible Development: New York State Statute of Local Governments: <i>Article 2</i>	Imposes height restrictions on development adjacent to a military installation to safeguard designated military operating areas, military training routes, and restricted airspace from encroachment. These measures aim to minimize potential impacts on people, property, and facilities near the airfield and maintain a clear zone to ensure a safe operating environment for military aircraft. Additionally, height restrictions are implemented for areas exceeding 150 feet above the airfield elevation.

Table 4.6 Best Practices Policies for Land Use Policy

4.4 GOAL 3: CONSERVATION

Continue conservation efforts between Fort Knox, the Commonwealth, and surrounding communities.

Successful military operations and training activities require adequate land and air space for maneuvers, live fire, and testing to maintain military readiness. This highlights the importance of conserving land to support the Army's mission by creating buffer zones and limiting residential development near Fort Knox's borders. These buffer zones or corridors help mitigate encroachment and support the Army's efforts to protect its mission, environment, and the surrounding community, ensuring the continuity of training and readiness activities. A more detailed analysis of conservation and next steps is provided in Section 7.

It is critical to Fort Knox's mission that partnerships not only establish buffer zones around the installation but also identify mutual priorities for land conservation to prevent incompatible development in the long term.

State and Local Policy Review

Table 4.7 outlines the Commonwealth of Kentucky policies that address conservation.

State Policy/ Legislation	Description
KRS 262.906: Purchase of Agricultural Conservation Easements (PACE)	Creation of the Purchase of Agricultural Conservation Easement (PACE) Corporation which oversees the purchases of agricultural conservation easements.
KRS 262.920: Agricultural Enhancement Fund	The creation of the Agricultural Enhancement Fund allows for the use of funds, with authorization of the PACE Board, for the following purposes: (1) Acquisition of agricultural conservation easements on eligible lands within the Commonwealth; (2) Acquisition of options to purchase agricultural conservation easements on eligible lands within the Commonwealth; (3) Payment of costs related to appraisal, engineering, surveying, planning, financial, legal, and other services, and applicable personnel costs lawfully incurred in the acquisition of agricultural conservation easements on eligible lands and for monitoring and enforcing easements on restricted lands; (4) Costs associated with the sale, issuance, and delivery of bonds, and securing funds from other revenue sources for the fund; (5) Provision of loan guarantees to farmers participating in the PACE Program, enabling them to secure loans from lending institutions in order to carry out agricultural operations, including loans for annual agricultural production, agriculture and conservation-related improvements, and changes in agricultural practices on enrolled farmland tracts; and (6) Other expenditures as

	specified by the PACE board, providing they are consistent with KRS 262.900 to 262.920 and administrative regulations promulgated by the PACE Board. These expenditures must focus on preserving agricultural lands, supporting sustainable agricultural practices, and improving conservation and natural resource protection practices efforts, enhancing the viability of the agriculture industry, and increasing its economic impact on the Commonwealth.
KRS 146.430: Office of Kentucky Nature Preserves	Kentucky established a state system of nature preserves.
KRS 146.465: Buffer Areas	To protect a nature preserve, adjoining land that is not suitable for inclusion within the preserve may be designated as a buffer area. A dedicated buffer shall receive the same level of protection under Kentucky Revised Statutes (KRS) as the nature preserve itself.
KRS 146.565: Acquisition of Natural Areas & Wetlands	Private, nonprofit land trust organizations, state agencies, local governments, and state colleges & universities are authorized to acquire natural areas, wetlands, and any access or buffer land deemed necessary by the Kentucky Heritage Land Conservation Fund Board. The acquisition of land and expenditure of funds from proceeds provided by KRS 146.570 must be approved before action is taken.
KRS 100.208 Transferable Development Rights	A "TDR" (Transfer of Development Rights) is a land use planning strategy that allows landowners to "transfer" their development rights from a designated "sending area" -typically land intended for conservation, such as farmland or open space- to a "receiving area" where higher-density development is encouraged. This approach helps preserve sensitive land while permitting development in suitable locations, ensuring that land uses in both zones align with their intended purpose and are more compatible with the surrounding environment.

Table 4.7 Kentucky State Conservation Policies

State and Local Gap Analysis

The effectiveness of policies and tools to maintain and expand compatible use buffer zones is contingent upon their enforcement and proper application. Fort Knox's buffer zones provide a clear example: where policies are enforced, such as along the southern border, the buffer zone is effective. However, thousands of acres remain available for development or could potentially be preserved through conservation or agricultural easements. Given the rapid economic growth in the surrounding areas, there is an urgent need to address the future of these lands.

The areas surrounding Fort Knox are currently facing challenges in securing conservation easements, despite these easements being one of the most effective ways to promote compatible land use. This is particularly concerning given the growing momentum to secure both conservation and agricultural easements in the region.

Conservationists in the region are eager to partner with willing landowners to create a conservation corridor extending Bernheim Forest & Arboretum's western boundary to Fort Knox's eastern boundary, and northward to the Ohio River. Several landowners have already expressed interest in participating, contingent upon favorable conditions and available funding.

Additionally, many landowners who lease their land for farming, as well as those who own their properties, are highly motivated to secure easements that would preserve their farms as agricultural land forever, protecting them from potential future housing or commercial development. This sentiment is shared to varying degrees along all borders of Fort Knox.

The PACE program has historically been the most effective tool for securing easements, though it is currently unfunded. During the previous ACUB program, now known as REPI, PACE successfully secured 462 acres of easements along the eastern border of Fort Knox. Once a new REPI agreement is established, a funded PACE program would become an invaluable resource.

The significance of conservation and agricultural preservation in fostering compatible land use is exemplified by the 313 Corridor along Fort Knox's southern border, which serves as a model of effective land use compatibility. This corridor is currently protected by local policies that prevent development, and replicating this approach elsewhere would be ideal.

The densely populated and highly developed areas around Fort Knox are not conducive to conservation easements. However, thousands of acres in other priority areas remain available for agricultural or conservation easements, offering mutually beneficial outcomes for both landowners and Fort Knox. As regional economic growth accelerates, the risk of encroachment increases, making it essential to secure easements to preserve and expand compatible use buffer zones.

Findings for Goal 3: Conservation Efforts

- The Commonwealth has established the Purchase of Agricultural Conservation Easements (PACE) Program, but it is currently unfunded. To effectively support the acquisition of conservation easements, the program will need adequate funding.
- Although Transfer of Development Rights (TDR) is a codified policy in the Commonwealth, it has been implemented in only a limited number of local communities. Expanding the use of TDR could be a valuable tool for ensuring compatible land use.
- Dedicated buffer areas, such as 313 Corridor, should be replicated in surrounding areas to further protect the installation.

Best Practices

As mentioned above, acquiring conservation easements is one of the most effective methods for ensuring compatible land use and balancing development by permanently protecting natural, agricultural, or cultural resources from incompatible development. The easements are significant for several reasons: they preserve ecosystems and wildlife habitats, maintain agricultural lands, improve land use compatibility, provide long-term protection and stability, support local economies and community values, and contribute to climate change mitigation. Ensuring the availability of state funding for acquiring easements is vital to sustaining the mission and vitality of Fort Knox. Below, Table 4.8 outlines the best practices and conservation policies for implementation.

State/Local Policy	Description
Maryland Conservation Easements: Real Property Code §2-118	Conservation easements in the state are authorized by Maryland Real Property Code.
Maryland Heritage Conservation Fund Natural Resources Code §5-150	The Heritage Conservation Fund is utilized to protect habitats for rare and endangered species, as well as to provide financial support for programs aimed at achieving these conservation objectives. Administered by the Department of Natural Resources, the Fund supports the acquisition of conservation easements, fee simple titles, and any land designated as a unique ecological area under the Department's Natural Heritage Program. It also helps protect wilderness areas that remain relatively undisturbed by human encroachment, lands supporting rare, threatened, or endangered plants or animals, habitats with diverse ecological communities, and areas where conversion to development would negatively impact water quality or unique natural habitats. Additionally, it funds the preservation of natural areas designated as areas of critical state concern.
Maryland Program Open Space	Program Open Space facilitates the acquisition of state and local parks, conservation areas, and easements on lands to protect historic properties, such as battlefields, historic structures, and landscapes, as well as scenic vistas. The program manages funds provided to local communities for open space and recreational areas through the state real estate transfer tax, as well as funding from the Land and Water Conservation Fund administered by the National Park Service, U.S. Department of the Interior (DOI). Additionally, the program oversees the acquisition of DOI lands for use by various departmental agencies.
Maryland Maryland Environmental Trust Natural Resources Code: 3 - 201	The Maryland Environmental Trust (MET) was created to safeguard the state's natural resources and serves as the primary recipient of donated conservation easements in Maryland. MET's mission is to protect farms, forests, wildlife habitats, waterfront properties, natural areas, historic sites, and scenic landscapes. This is accomplished by offering tax deductions, credits, and estate tax savings for donations of conservation easement donations.

AR, CA, CO, CT, DE, FL, GA, IA, MA, MD, MS, NM, NY, SC, VA Conservation Easements	Provide a conservation easement tax credit that enables landowners to claim up to 50 percent of the fair market value for land donated to a government agency or private land trust.
Washington Transferable Development Rights RCW Chapter 39.108	Authorizes the use of transferable development rights (TDR) programs to preserve agricultural and forestlands, while steering development away from military installations.

Table 4.8 Best Practice Conservation Policies

5

IMPLEMENTATION STRATEGIES RECOMMENDATIONS



5

IMPLEMENTATION STRATEGIES RECOMMENDATIONS

Photo Courtesy of Fort Knox Army Installation

Section 5 outlines recommended actions for implementation by both local governments and Fort Knox, based on the findings of the 2022 Compatible Use Plan Study. This section provides a framework for actionable steps to improve compatibility between Fort Knox and its neighboring communities. As noted at the outset, all recommendations are intended as suggestions. The sample ordinances and concepts offered can be adapted to meet the specific needs of each community, acknowledging the distinct characteristics of each area.

5.1 OVERVIEW

As noted earlier, the Fort Knox Compatible Use Implementation Plan aims to establish a coordinated and strategic regional approach to address ongoing challenges faced by both the military and surrounding communities within the 1 and 5-mile buffers. This plan reflects the collaborative efforts of stakeholders, including state and federal agencies, military Garrison Command leadership, local governments, community organizations, and other key partners.

The goal of land use compatibility is to create mutually beneficial outcomes for all stakeholders. This implementation plan framework outlines actionable strategies and steps, recognizing that some may be more feasible than others, and offers a range of timelines for their execution.

Military installations play a vital role in local economies and are deeply interconnected with surrounding communities. Effective collaboration and joint planning between officials from the military, local governments, and agencies are key to ensuring the long-term sustainability of both current and future military operations. This partnership strengthens local economies, industries, and communities, underscoring their shared dependence.

This plan provides a set of recommendations for local jurisdictions to consider in addressing existing and potential future incompatibility issues, ensuring alignment with the goals and objectives outlined in this plan.

It is important to emphasize that these recommendations can be implemented by the relevant governing bodies. Therefore, it is crucial to reiterate that this plan is not an adopted plan, but rather a collection of recommendations and strategies that could be considered and put into action to address land use incompatibility and align with the missions of Fort Knox.

5.2 RECOMMENDATIONS GUIDELINES

The success of this Implementation Plan hinges on balancing the needs of all stakeholders involved. Several key principles served as the foundation for developing the implementation actions, including the following: ¹

- ☐ The implementation plan aims to achieve its objectives at the local level or through state legislation. It seeks to align land use planning with military operations across the Commonwealth while supporting the economic growth of local communities.
- ☐ The plan's proposed solutions are designed to address the needs of all stakeholders. Given that these solutions are not one-size-fits-all, multiple approaches may be proposed to address the same issue, with each customized to the specific needs of each community.
- ☐ The implementation strategy should strike a balance between the interests of the community and the military. It is crucial that initiatives from local jurisdictions or the Commonwealth complement existing agreements, procedures, or tools, rather than conflict with them.
- ☐ As a "living document," the implementation plan recognizes that state and federal regulations, as well as the needs and priorities of both the communities and Fort Knox, may evolve over time.

5.3 HOW TO READ THE RECOMMENDATIONS TABLE

Based on the analysis of compatibility factors in the 2022 Compatible Use Plan Study, three overarching goals and thirty-one recommendations were developed. Each recommendation is designed to support the identified goals and is categorized by the following projected implementation timeframes: Ongoing (O), Short-Term (S), Mid-Term (M), or Long-Term (L).

These identified recommendations serve to: ²

- Prevent future actions that may lead to compatibility challenges.
- Resolve or mitigate existing compatibility issues.
- Foster continuous communication and collaboration to strengthen the relationship between the military and neighboring communities.

To improve accessibility, the recommendations are organized into Tables 5.1, 5.2, and 5.3. These tables outline the Fort Knox Compatible Use Plan Study Recommendations, categorized by goal. Each recommendation includes details such as the suggested action, the relevant geographic area (state/regional/local), the responsible party for implementation, and the projected timeline for execution. The following section offers guidance on how to read and interpret the tables.

Goal/Recommendation: Specifies one of the three primary goals and corresponding recommendations aimed at addressing the issues identified in the 2022 Compatible Use Plan Study. Each recommendation is accompanied by a detailed description of the proposed actions to achieve the overarching objectives.

Goal ID: Each goal at its associated corresponding recommendations are assigned a unique alphanumeric identifier. Recommendations are labeled sequentially as R1.1, R1.2, R2.1, and so on. For instance, the first recommendation (R) of the first goal (1) and first objective (1) is labeled "R1.1."

Region ID: This column displays a letter that represents the region(s) where a specific recommendation applies. A single recommendation may apply to multiple regions. The region IDs are defined below:

- **(S)** indicates the recommendation applies statewide.
- **(R)** indicates the recommendation applies regionally.
- **(L)** indicates the recommendation applies locally.

Timeline: Each recommendation under each overarching goal is organized according to its implementation timeline, as outlined below:

Ongoing(O): A recommendation may have already been implemented or nearing implementation of the Fort Knox Compatible Use Implementation Plan, but it should still be monitored on a regular basis.

Short-Term(S): A recommendation projected for implementation in 2025-2026, within one year of completion of the Fort Knox Compatible Use Implementation Plan.

Mid-Term(M): A recommendation projected for implementation in 2027 - 2028, within 2- 3 years of the Fort Knox Compatible Use Implementation Plan.

Long-Term(L): A recommendation projected for implementation in 2029 - 2031, within 4 - 6 years of the Fort Knox Compatible Use Implementation Plan.

***Timeframes may overlap, indicated by a "/" separating the two periods. For instance, Short-Term and Mid-Term would be shown as (S/M).*

Responsible Party: The three columns on the right side of the chart represent categories of responsible parties: the Commonwealth or its respective state agencies; local jurisdictions and agencies; and/or Fort Knox. An (X) in these columns indicate the entity directly responsible for implementing each recommendation, while the absence of a (X) signifies the entities that have a supporting role, but are not directly responsible for carrying out the implementation.

Communication/Coordination						
Goal #	Category	Timeline	Recommendation	Kentucky/ State Agencies	Local Governments/ Agencies	Fort Knox
1	Enhance ongoing communication & coordination between officials of the Commonwealth of Kentucky, local communities, and Fort Knox.					
R1.1	R	M	Conduct a housing market analysis within the CUP Study Area.		X	
R1.2	R	S	Establish a coalition group to meet on a regular basis to review issues related to compatible use.		X	X
R1.3	R	O/M	Revisit or establish new inter-local agreements for emergency response to natural or man-made hazards.		X	X
R1.4	R	S	Access to Fort Knox Management Plans.			X
R1.5	R	O	Expand or establish a separate Fort Knox Community Information Exchange (CIE) to address topics and issues that span both military and civilian areas.			X
R1.6	R	M	Collaborate with local builders and developers to incorporate materials with Sound Transmission Ratings (STC) for noise attenuation in areas of increased exposure risks.		X	X
R1.7	R	L	Create or adopt standardized GIS mapping protocols to ensure consistency across various datasets, such as parcels, zoning, land use, structure points, and boundary records.		X	

R1.8	R	O/S	Develop educational materials on the use of lasers and drones. Distribute these resources via website, local media, and make them accessible to educational institutions.			X
R1.9	L	M	Incorporate a notice into the construction permitting process to inform applicants about the proximity to active military installations and any potential issues that may occur.		X	
R1.10	R	L	Develop standardized complaint and response forms, along with a centralized system to collect data, track issues, and direct them to the relevant authorities for resolution (e.g., noise, encroachment, overflights, pollution).			X
R1.11	L	L	Create an online building permit tracking database to monitor development trends and identify potential issues.		X	
R1.12	L	S / O	Create Memorandums of Understanding (MOU) between planning organizations and Fort Knox.		X	X
R1.13	R	M	Develop a centralized website for information related to compatible use.		X	X
R1.14	S/R	L	Incorporate language on a real-estate disclosure, to inform potential homebuyers of the potential impacts of living near an active military installation, specifically related to military training activities.		X	

Table 5.1 CUP Study Communication & Coordination Recommendations Responsible Party

Land Use Policy						
Goal #	Category	Timeline	Recommendation	Kentucky/ State Agencies	Local Governments/ Agencies	Fort Knox
2	Adopt community and military planning compatible land use policies & planning guidelines for implementation at the state, local and regional level.					
R2.1	R	M	Conduct a risk analysis and assessment on the 1 and 5- mile buffers to identify areas vulnerable to incompatible use and to determine land most suitable for conservation easements or other mitigation measures.		X	
R2.2	L	O/S	Update comprehensive plans to incorporate the principles of compatible land use and collaboration with Fort Knox in future land use planning.		X	
R2.3	L	M	Creation of overlay zones or districts around Fort Knox to promote compatible land uses.		X	
R2.4	L	M	Create an air installation compatible use zone and/or air safety zone within comprehensive plans and zoning ordinances.		X	
R2.5	S	M	Develop a state-level guidebook addressing economic development, preservation, and compatible use strategies in relation to military installations.	X		
R2.6	L	O	Assess annexations for compatibility and long-term infrastructure impacts.		X	
R2.7	L	M	Develop zoning ordinances for noise mitigation and outdoor lighting regulations.		X	
R2.8	L	M	Revise subdivision regulations to promote noise and light mitigation measures, reducing impacts on surrounding areas.		X	
R2.9	L	M	Amend zoning ordinances to allow Transfer Development Rights (TDR) Programs and adopt policies to support their implementation.		X	
R2.10	L	M	Create "Dark Skies" ordinances to mitigate light pollution.		X	
R2.11	L	M	Review and update existing plans within the 1-mile buffer to align with land use compatibility objectives.		X	
R2.12	L	M	Reevaluate and update future land use maps to align with compatibility guidelines.		X	

R2.13	L	S	Establish buffer zones similar to the KY313 Corridor Buffer to reduce development density within the 1-mile buffer zone. Areas to consider include portions of KY Highways in Bullitt (44,61,251,434), Hardin (361), Meade (1238, 1500, 1638, 1816, 1882), and Nelson (61).		X	
R2.14	L	M	Establish a Frequency Memorandum of Understanding (MOU) between Fort Knox and local jurisdictions to address potential issues related to frequency interference.		X	

Table 5.2 CUP Study Land Use Policy Recommendations

<i>Conservation</i>						
Goal #	Category	Timeline	Recommendation	Kentucky State/ Agencies	Local Governments/ Agencies	Fort Knox
3	Continue conservation efforts across the region between Fort Knox the Commonwealth, and surrounding communities.					
R3.1	R	S	Form a consortium to pursue and apply for Sentinel Landscape Status.	X	X	X
R3.2	R	S	Leverage the REPI (formerly ACUB) Program in the short-term to secure additional buffer lands and achieve immediate results.			X
R3.3	R	M	Coordinate with Kentucky Department of Agriculture: Natural Resources Conservation Service offices, and the Kentucky State Conservationist to promote and facilitate the use of the funding available for U.S. Department of Agriculture's (USDA) Agricultural Conservation Easement Program (ACEP) and Kentucky's Purchase of Agricultural Conservation Easements (PACE) Programs to preserve agricultural lands.	X	X	X

Table 5.3 CUP Study Conservation Recommendations

5.4 Implementation Plan

The 31 recommendations provide actionable steps to promote compatible land use, mitigate encroachment, resolve land use conflicts and align development with military operations. They also enhance communication between stakeholders. The framework offers practical tools for local jurisdictions, reinforcing their commitment to these goals. To implement these recommendations effectively, this plan offers clear guidance, simplifying the process despite its complexity. Without action, the plan's objectives cannot be realized.

With the publication of this plan, planners, planning commissioners, and local officials can utilize the information and recommendations to guide policy and regulations for compatible growth. These resources will help decision-makers in assessing rezoning requests, subdivisions, and other land use or development proposals.

When reviewing discretionary proposals, such as rezonings, applications, and decisions, as well as developing long-term capital plans or making other local policy decisions, it is essential to ensure alignment with the compatible land use standards and guidance in this plan. This approach ensures consistency and helps local governments make informed investment decisions, steering growth to areas that support military operations and training needs.

The plan provides communities the opportunity to integrate growth and development considerations when reviewing and updating land use and comprehensive plans. If substantial discrepancies are found between existing zoning and compatible growth standards, communities should consider revising their zoning maps to better align with military-compatible land use goals.

5.5 Implementation Strategies

Communication and Coordination:

This subsection outlines communication recommendations, policies and actions that local jurisdictions, Fort Knox, and relevant local and state organizations can adopt to improve communication and coordination between the military and neighboring communities. Effective communication at all levels is essential for addressing ongoing challenges and fostering long-term compatibility. It is also encouraged that both residents and military personnel actively engage in local government processes that influence land use and participate in discussions about developments that affect their shared environment and interests.

Enhance coordination and communication initiatives to further strengthen the relationship between Fort Knox and the surrounding community.

Policy Enforcement:

- From jurisdictions within the Military Overlay District, standardize land use notification protocols.
 - Implement a Communication Notification MOU that:
 - Defines appropriate contact methods, including contact numbers and expected response times for notifications.
 - Designates a representative from Fort Knox to serve as an advisory member on all relevant planning committees.
 - Create a Regional Planning Council that includes local officials, local planning organizations, and Fort Knox representatives.
 - Develop an annual communication coordination guide to ensure information remains current for local government staff and installation personnel. This guide would include details such as city council and county fiscal court meeting schedules, departmental contact information, city hall/fiscal court locations, and more.
 - Incorporate representative from Fort Knox to participate in a local government's planning committees, in an advisory role.
 - Engage in semi-annual meetings between Fort Knox and local jurisdictions to discuss land use compatibility and encroachment mitigation.
-

Expand upon land development regulations and military compatibility provisions.

Prepare and Adopt a Communication & Coordination Memorandum of Understanding to notify the installation for proposed zoning changes.

Policy Enforcements:

- Develop notification policies in partnership with Fort Knox to formalize the process for notifying stakeholders about proposed land use and zoning changes. These policies should include the provision of detailed site plans, project descriptions, elevations, and construction plans, when applicable, to ensure transparency and allow for informed feedback.
 - Implement Memorandums of Understanding (MOUs) that are suitable for external representatives, such as local jurisdictions, the Kentucky Transportation Cabinet (KYTC),
-

Metropolitan Planning Organizations (MPOs), Area Development Districts (ADDs), and local utility providers.

A Memorandum of Understanding (MOU) is a valuable tool for strengthening partnerships. While not legally binding, a MOU is a formal agreement between two or more parties that provides a clear framework for collaboration. The agreement outlines the roles and responsibilities of each party, sets guidelines for future actions, defines procedures for sharing information, and promotes land use compatibility around the installation to prevent encroachment. ³

Codify language for notification requirements related to land use controls, such as zoning map amendments. Local jurisdictions within a 3-mile buffer of Fort Knox would be required to notify Garrison Command of any proposed zoning change. *KRS100.212* currently requires notification of zoning map amendments only for property that directly abuts boundary lines. However, to achieve greater impact, the statute should be amended to include language that states:

“Provisions for the notification of hearing to Garrison Command of all military installations greater than or equal in area to three hundred (300) acres within a 3-mile buffer to be notified of a planning unit’s proposed changes in zoning.”

It is vital that any proposed changes to land use within the 3-mile buffer of post result in notification to Fort Knox, allowing the installation the opportunity to express any concerns regarding the potential impact on military operations, ultimately ensuring that the governing body can consider these concerns when making the final decision on the zoning map amendment.

Appendix 3.1 contains a sample MOU template for communication and coordination among communities within the 1 and 5-mile buffer, including the Cities of Elizabethtown, West Point, Radcliff, Vine Grove, Shepherdsville, Lebanon Junction, Mt. Washington, Brandenburg, and Muldraugh, and the Counties of Hardin, Meade, Bullitt, and Nelson. In these areas, it is crucial to designate a single point of contact to facilitate coordination on compatibility issues with Fort Knox. The proposed MOU would outline the responsibilities as follows.

Local jurisdictions agree to:

- Designate a single point of contact to serve as a liaison between Fort Knox planners and represent the respective entity.
- Provide Fort Knox with any plans, actions, or projects that could potentially impact the installation.
- Submit proposals to Fort Knox for review and feedback, including projects, policies, plans, reports, studies, and information related to development, infrastructure, and environmental activities within the 3-mile buffer.
- Consider Fort Knox’s feedback when making final decisions.
- Ensure that Fort Knox is included in the dissemination of meeting agendas for city council/fiscal court meetings, planning commission meetings, and other relevant forums.

Fort Knox agrees to:

- Share plans, programs, actions, and projects with local jurisdictions that may affect the city or county (e.g., installation master plan, installation compatible use zone study, noise studies, light studies, etc.).
- Submit projects, policies, plans, reports, studies, and information related to development infrastructure and environmental activities to local jurisdictions for review and feedback.

- Ensure information on compatible use implementation recommendations is easily accessible to the public.

Appendix 3.13 contains a sample MOU template for the Kentucky Department of Transportation and the LTADD MPO, covering Hardin and Meade Counties and the Cities of Elizabethtown, Radcliff, Vine Grove, West Point, Brandenburg, and Muldraugh. The draft MOU will be presented to the MPO Policy Committee for approval, alongside KYTC members.

MPO/KYTC agrees to:

- Designate a single point of contact to collaborate with Fort Knox planners and participate in implementation partnerships.
- Submit information to Fort Knox regarding plans, programs, actions, and projects that may impact the installation, including the following: Statewide Transportation Improvement Plans, Statewide Transportation Plan, Six Year Highway Plans, Regional Long-Range Transportation Plans, Regional Transportation Improvement Programs, Unified Planning Work Programs, Access Management Plans, Concept Plans for roadway projects, and lighting plans for roadway projects.
- Submit relevant documents to Fort Knox for review and comment within 5-miles of Fort Knox.
- Ensure that Fort Knox is included in the distribution of meeting agendas.
- Prioritize the installation of fully shielded luminaires for street lighting applications on new roadways.
- Coordinate with Fort Knox military planners on the placement of new roads or upgrading existing roadways within the Compatible Use Focus Areas to enhance capacity.
- Incorporate the Kentucky Military Affairs Commission and Fort Knox requirements into regional transportation planning.

Fort Knox agrees to:

- Provide transportation representatives with information on plans, programs, actions, and projects which may affect surface transportation and regional access. This may include: installation master plan, changes in existing installation use that may change off-post impacts, such as troop movement on surface road, transportation plans, and modifications to gate access.
- Submit project notification, policies, plans, reports, studies, and similar information on development, infrastructure, and environmental activities at Fort Knox to transportation representatives for review and comment.
- Ensure information on the Compatible Use Implementation Plan, noise mitigation measures, and encroachment reduction strategies is readily available to the public.

Include the installation in planning decisions and committees. Regularly seek input from the installation for technical assistance, such as: code update, land use plan updates, and development review processes.

Policy Enforcements:

- Expand the membership of planning boards and committees to include a Fort Knox representative in an advisory capacity. Ensure local jurisdictions participate in semi-annual compatible use meetings with Fort Knox, or more frequently if deemed necessary.

- Disseminate information about pertinent meetings, such as city council/fiscal court meetings, planning commission meetings, and public hearings, as topics arise that pertain to Fort Knox.
- Establish a Regional Planning Council to regularly review compatible use issues and regional planning concerns.
- Collaborate with Bullitt County and the Cities of Radcliff, Lebanon Junction, and Shepherdsville to identify areas that pose the greatest risks to installation training and mission development, and develop strategies to address and mitigate these risks.

Effective communication and collaboration are fundamental for fostering a mutually symbiotic relationship. One key approach to achieving this is by addressing regional issues that span multiple jurisdictions through the creation of a Regional Planning Council (RPC). This partnership, comprising local officials, regional planners, and Fort Knox representatives, can collaboratively develop solutions to land use challenges, such as encroachment. The RPC can strengthen the military's efforts to safeguard its mission by helping local governments better understand military operations, enabling them to assess the potential impacts on both local and regional planning. In turn, the council can provide valuable insights to the military regarding regional planning and its potential implications for future training and operations.

Currently, military and community planning lack legal authority under existing state statutes. To address this, the Lincoln Trail Area Development District (LTADD), in partnership with local stakeholders, will establish the Regional Planning Council (RPC). The RPC will include the counties identified in the implementation plan- Hardin, Meade, Nelson- along with the cities within the four (4) primary focus counties (Elizabethtown, Radcliff, Vine Grove, West Point, Brandenburg, Muldraugh, Boston). Additionally, Bullitt County and its cities - Mt. Washington, Shepherdsville, Lebanon Junction- will also be included in the RPC. Although Bullitt County lies outside the Lincoln Trail Region, its inclusion is essential to the mission. Fort Knox will also play a central role in the regional planning process.

Through its involvement in the proposed LTADD Regional Planning Council, the military can actively engage in decision-making processes that impact the installation and its training ranges from the outset. This regional council offers a collaborative platform to address compatibility issues, streamlining efforts and reducing the need for separate discussions with each local jurisdiction.

The RPC, established through an interlocal agreement, would develop recommendations to promote compatible land use around Fort Knox. Local jurisdictions share the goal of protecting and supporting Fort Knox's vital military training and operational missions while encouraging compatible growth and development. Similar to, and drawing from, LTADD's Radcliff-Elizabethtown Metropolitan Planning Organization (MPO) ⁴, the Council would include two main committees: a Technical Advisory Committee, consisting of representatives from local planning commissions, and a Policy Committee, which would include local officials such as mayors and judge-executives, state representatives, state senators, a representative from the Kentucky Commission on Military Affairs, congressional officials or their proxies, and a representative from Fort Knox.

As stated in the Agreement, all parties agree to:

1. Facilitate collaboration among stakeholders to align land use and development planning in the areas surrounding Fort Knox, ensuring that both current and future land uses are compatible with the installation's missions.
2. Adopt a consistent and uniformed approach to protect Fort Knox from encroachment and incompatible land uses.
3. Create an overlay and planning notification area that is reflective of the jurisdiction's active commitment to addressing compatibility through tailored strategies.
4. Meet semi-annually as a regional planning commission to develop plans, conduct studies, and provide recommendations for the adoption or revision of land use and planning ordinances by each jurisdiction's governing body.

The purpose of the Technical Advisory Committee (TAC) shall be to make determinations and provide assistance and recommendations to the Policy Committee.

Functions of the Technical Advisory Committee:

1. Develop, assess, and provide feedback on proposed goals, objectives, and policies for the RPC.
2. Oversee the creation of all RPC short and long-term plans, studies, and other necessary components as directed by the RPC Policy Committee.
3. Foster coordination, communication, and understanding among the public, decision-makers, planning agencies, and all stakeholders involved in or affected by the RPC planning process.

The Policy Committee acts as the governing body for the RPC, guiding cooperative policy planning, decision-making, and ordinances that impact the areas surrounding Fort Knox, within the 1 and 5-mile buffers. Its responsibilities include reviewing and approving plans, and overseeing the implementation of ordinances.

Functions of the Policy Committee:

1. Initiate, oversee, and approve efforts to establish a coordinated, comprehensive, and ongoing policy planning process.
2. Evaluate the effectiveness and feasibility of the planning process.
3. Review and assess agreements associated with implementing the planning process.
4. Review and approve the RPC's proposed goals, objectives, and policies.
5. Approve all short and long-term plans, studies, and other key components.
6. Authorize the addition of new members to the RPC's Technical Advisory Committee (TAC).
7. Ensure that any ordinance or policy approved by the Policy Committee is submitted to the respective city council or fiscal court for final approval.

Appendix 3.2 provides a sample interlocal agreement for the establishment of the Regional Planning Council. This agreement incorporates a military zoning ordinance adopted by each jurisdiction within the council and details the administrative procedures for coordinating efforts among stakeholders.

Create new inter-local agreements regarding natural or man-made hazards.

Policy Enforcements:

1. Integrate notification requirements and training procedures into the agreement.

2. Continue coordination efforts with local jurisdictions to establish interlocal agreements in other sectors, such as transportation maintenance.

Interlocal agreements enable two or more public entities with shared goals to enter into a mutual agreement to carry out governmental functions or services. These agreements exemplify regional cooperation, benefiting communities by pooling resources to: improve efficiency, reduce costs, eliminate duplication, collaborate on addressing common issues, and extend services to smaller communities with more limited resources. ⁵

To ensure the success and optimal effectiveness of an interlocal agreement, it should include key elements such as: the purpose, duration, organizational structure, personnel, financial arrangements, and termination date and process. Additionally, approval from the governing body of the respective city or county is required prior to the agreement being finalized. ⁶

In the last two years, Fort Knox has established successful interlocal agreements with many of its neighboring communities. These agreements cover essential services such as fire protection, emergency management, water treatment, and maintenance. Expanding these agreements to include other services like waste management, training range maintenance, public transportation, road upkeep, animal control, custodial services, and coordinated responses by military and military police could further enhance regional cooperation and efficiency.

A key proactive measure in addressing risks and hazards affecting a military installation is conducting a Military Installation Resiliency Review (MIRR). ⁷ This comprehensive assessment evaluates a military installation's ability to adapt to and recover from various challenges and disruptions. These can include environmental threats (such as climate change and extreme weather), as well as social, economic, technological, and operational challenges, such as encroachment, infrastructure degradation, or security risks. The primary goal of a MIRR is to ensure that military installations can maintain operational effectiveness, support the mission, and safeguard personnel and resources, even under adverse conditions. The outcomes of a Military Installation Resiliency Review include a resiliency roadmap, a risk and vulnerability report, a stakeholder engagement plan, and a continual improvement framework.

Provide education and awareness to the public regarding potential noise and mitigation.

Policy Enforcements:

1. Increase awareness among local jurisdictions, developers, and residents about the installation's training areas and the potential noise levels associated with military activities.
2. Provide education on key aspects of noise, such as frequency, intensity, and duration, to help local communities understand its impact. In addition to mitigation efforts implemented by Fort Knox.
3. Create and distribute educational resources about installation-related noise to local real estate agents, prospective homebuyers, and the public, highlighting potential noise and vibration impacts.
4. Improve community understanding of training schedules and military operations by utilizing local media, social media platforms, websites, and other outreach efforts, when feasible.

Provide current and adequate information to facilitate informed decisions by jurisdictions, developers, and residents relative to a property's location and its proximity to military activities.

Create a standardized complaint and response system, along with a centralized platform to compile and track issues, directing individuals to the appropriate entities for resolution (e.g., noise, encroachment, overflights, pollution).

Policy Enforcements:

1. Routinely conduct education sessions for local officials and municipal/county departments to better equip them with the information necessary to address community inquiries regarding noise impacts.
2. Develop a list of potential noise attenuation standards that could be provided to homeowners or developers.

The communities surrounding Fort Knox are likely to experience noise impacts, making effective complaint management and communication essential for maintaining good neighbor relations. Complaints typically fall into three main categories: noise, vibrations, and low-flying aircraft. Noise-related complaints are the most common, followed by concerns about vibration. The majority of complaints have come from the City of Shepherdsville and Bullitt County, with additional concerns raised by Hardin County, as expected due to proximity. Complaints have also been reported as far as Jefferson County and the City of Louisville.

The Fort Knox Public Affairs Office (PAO) is responsible for receiving and responding to noise-related complaints and inquiries. In accordance with the PAO's Standard Operating Procedures for fielding such communications, a staff member collects the following information: the individual's full name, contact information, residence address, and the direction of their residence relative to the noise source or installation. Additionally, staff gather details about the direction from which the noise originated, the time(s) and date(s) the noise was heard, a description of the noise type, visual identification of the noise source (if known, such as the tail number of a UH-60 Black Hawk helicopter), and the individual's expectations or requests. If the complaint or inquiry cannot be fully addressed during the initial contact, a follow-up will be made within one business day, providing all relevant findings within operations security parameters. For example, follow-up clarifications may include: "No, Fort Knox helicopters were not flying over the specified area at the time in question," or "Yes, troops were firing .50-caliber weapons at Yano Range from 5-8 p.m. on 8 June as part of their annual training requirement. The unit's training concluded last night." 8

The PAO staff member who fields a complaint or inquiry records the details in the office's 'Noise Complaint Spreadsheet' within one (1) business day. Any updates, including the information provided to the individual making the complaint or comment, are also added to the spreadsheet within the same timeframe. The updated spreadsheet is then promptly emailed to the Fort Knox Environmental Management Division (EMD) Chief to ensure EMD's awareness and allow for any necessary action, if warranted.

If the noise in question is suspected to be related to training activities at or near Fort Knox, the PAO contacts the Range Branch Manager and/or Operations Officer within one (1) business day. They will work together to investigate the details, including: the specifics of the complaint or inquiry; training activities occurring at the time(s), date(s), and/or location(s); possible, probable, likely, or confirmed source(s) of the noise; the equipment or ordnance involved; the general nature of the training; and any additional scheduled training times, dates, and locations. The same process is followed for contacting the Godman Army Airfield Manager or Operations Officer.

Additionally, if weather conditions may have contributed to the training noise being louder than usual, the PAO contacts the Fort Knox Weather Operations Squadron Manager within one (1) duty day of receiving the complaint or inquiry. This ensures the Manager is informed and allows for a discussion and investigation of the weather conditions during the time(s) the noise was reported.

If the individual with the complaint or inquiry believes that noise from Fort Knox caused damages to their property, the PAO staff member will explain the claims filing process and outline the potential next steps. This includes completing Standard Form (SF) 95 'Claim for Damage, Injury, or Death,' and contacting the Fort Knox Area Claims Office for further guidance. Additionally, the PAO can offer the individual with the 'Tort Claims Instructions Packet,' a comprehensive set of instructions. Depending on the nature of the damage, a Fort Knox Public Works engineer will conduct an on-site assessment to determine whether Fort Knox's training activities were responsible for the reported damages.

If the individual filing the complaint or inquiry requests that the military activity causing the noise be curtailed, relocated, or halted, the PAO staff member will explain the intent and purpose behind the training. The staff member will also reiterate training activities likely to generate louder-than-usual noise are publicly announced via Fort Knox's social media platforms, including Facebook, X (formerly Twitter), as well as the Recent Announcements section on the Fort Knox website.

Fort Knox's formalized complaint process should be clearly posted on its website, outlining the available contact methods available (e.g., phone and email) for the PAO and specifying the information that individuals with noise complaints and inquiries should provide in order for the complaints or inquiries to be adequately researched and addressed promptly. The purpose of this formal complaint system is to proactively address community concerns, enhance relations, and ensure that civilian complaints are resolved effectively. The Army's goal is to minimize or resolve civilian complaints without impacting or limiting military operations.

Create a GIS Database with standardized procedures and strategies that encompass the installation, municipalities, and counties within the designated focus area.

Standardizing geospatial data enhances its effectiveness and value. By improving data usage and sharing, GIS procedures simplify the aggregation, integration, and exchange of information across various governmental entities and organizations. Establishing clear standards helps minimize discrepancies and ensures alignment in technical specifications for local jurisdictions and planners, streamlining operations and improving data quality.

Effective access to web-based geospatial information relies on GIS standards that minimize the time required to retrieve data, integrate multiple layers, and share spatial data on remote servers. By implementing these standards, performance can be greatly enhanced. These standards should include common data file types and formats, as well as design and accessibility guidelines to ensure the data is user-friendly and easily accessible.

There should be an established GIS centralized database that unclassified data from the installation and local jurisdictions that fall within the focus area. Local, regional, state, and federal layers could be incorporated in planning documents.

Create a centralized website to host information related to compatible land use.

A compatible use website would serve as a central resource hub for state and local leaders, planners, military communities, and the public, providing essential tools and resources to support compatible use planning and coordination. It would include documents such as sample templates for ordinances, agreements, and guidebooks to aid in implementation. The website's success and effectiveness would largely depend on the entity responsible for its management and maintenance. In the short term, the website would function most effectively as a regional initiative. Over time, it could evolve into a statewide resource, addressing broader compatibility issues across the Commonwealth, which is home to two major military installations: Fort Knox and Fort Campbell.

This website would:⁹

- Provide accessible resources to the military and local communities to enhance compatible land use. These resources should include guidance on communication, coordination, best practices, and support for promoting compatible development in surrounding areas and across the region.
- Recognize Fort Knox's economic significance and promote a collaborative approach that supports military operations while ensuring land use compatibility with neighboring communities.

Develop a state-level guidebook that focuses on economic development, land preservation, and compatible land use practices in relation to military installations.

This long-term initiative aims to develop a comprehensive guidebook for compatible land use, establishing a framework for aligning goals and fostering coordinated planning between civilian and military sectors. The guidebook will introduce the concept of civilian-military compatibility planning and offer technical guidance for planners involved in these efforts. It will emphasize the importance of collaborative land use planning around military installations, promote ongoing communication between civilian and military stakeholders, clarify the planning processes for both communities and the military, and provide local governments with planning resources and best practice examples.

The guidebook will serve as a vital resource for those involved in military planning across the Commonwealth, targeting community members, civilian planning professionals, and various stakeholders. The guidebook will be organized into four sections: ¹⁰

1. **Community Guide to Compatibility:** This section introduces the fundamentals of land use compatibility planning, government partnerships, government processes for the public, and provides an overview of military installations and training ranges within the Commonwealth.
2. **Technical Guide to Compatibility:** This section offers technical support and guidance for local planners, military and local governments planning, best practices and strategies for compatibility, and relevant land use regulations.
3. **Implementation Toolkit:** This section includes resources such as maps, consultation guidance, contact information for local and military-related resources, a quick-reference policy guide, and a glossary of terms to aid in the implementation process.
4. **Case Studies/Sample Policies:** This section showcases tangible examples of compatibility initiatives and policies that have been successful for adoption and implementation.

To advance this initiative, it will be necessary to engage the State Legislature, the Kentucky Commission on Military Affairs, and a sponsoring State Department.

Review and develop options for emphasizing the potential adverse effects of military training issues on real-estate disclosure forms.

Policy Enforcements:

1. Provide sample language for inclusion in lease agreements, commercial, and industrial contracts, or as an addendum for all contracts in the region. This language should inform tenants that the property is located within the 3-mile buffer surrounding Fort Knox and outline the possibility of disturbances resulting from military operations and training activities.
2. Continue collaborating with partners to integrate real-estate disclosure into all housing contracts in Bullitt County. This ensures that prospective homebuyers are fully informed of the potential impacts associated with living near Fort Knox, fostering transparency and better community relations.

A recommended strategy is to mandate the disclosure of potential military impacts during real estate transactions to raise community awareness. This would include adding a statement in all residential contracts within the 1 and 5-mile buffer, informing prospective homebuyers of the potential effects of living near an active military installation. Such a disclosure ensures that homebuyers are fully informed about possible disturbances, including occasional but significant noise from large munitions and other training activities at Fort Knox.

Since there is not any state policy requiring real estate disclosures about proximity to an active military installation, real estate disclosures could be implemented at the local, regional, or state level through policies requiring such measures. Several strategies, as outlined in Appendix 3.12, could be employed to ensure transparency. For example, a disclosure form could be included in residential, industrial, and commercial real estate contracts, informing prospective buyers or renters about the property's proximity to an active military installation and the potential impacts of military training activities. Alternatively, a local ordinance could mandate disclosures for properties within a designated Real Estate Disclosure Area. Another approach might involve requiring

prospective buyers or renters acknowledge and initial their awareness of the property's proximity to an active military installation, a strategy that has been successfully implemented in the Lincoln Trail Region.

Following the completion of the CUP Study, the Heart of Kentucky Association of Realtors (HKAR) has incorporated military base disclosure language in all housing contracts across the region. This applies to Hardin, Breckinridge, Bullitt, Edmonson, Grayson, Green, Hart, Jefferson, LaRue, Meade, Nelson, and Taylor Counties, which are all part of the HKAR Service Areas. The disclosure requires homebuyers to initial and provide consent to the following statement:

"This property may be located near a military installation and may be affected by high noise or air installation compatible use zones or other operations. Information relating to high noise and compatible use zones is available in the most recent Air Installation Compatible Use Zone Study or Joint Land Use Study prepared for military installation and may be accessed on the Internet website of the military installation and of the county and any municipality in which the military installation is located."

To ensure the program's effectiveness, an educational initiative should be developed for real estate agents and other related professionals, helping them understand the program's requirements and specific military impacts in the communities they serve. This approach has proven to be more feasible and successful when implemented on a regional level. Fort Knox has provided real estate agents in the Lincoln Trail Region with this information to ensure alignment with the installation's mission.

Bullitt County is an exception, as it falls under the Greater Louisville Association of Realtors. Efforts are currently underway to incorporate similar disclosure language into all housing contracts in Bullitt County.

With residential contracts now addressed or in progress, the next priority is to focus on leases and rental agreements. Currently, there is not any requirement mandating commercial properties or their contracts to inform tenants or renters about their proximity to a military installation and the potential impacts of high noise levels or other military activities.

Evaluate annexations with compatible land use as a key factor.

Policy Reinforcements:

- 1) Notify Fort Knox if a parcel of land that may impact the installation is proposed for annexation.

Rapid development and population growth often occur just outside city limits, where land is more affordable and zoning regulations are typically less stringent. While individual property owners may request annexations, the final decision rests with the local governing body. ¹¹ The Comprehensive Plan should serve as the primary framework for long-term local planning, outlining a vision, goals, policies, and actions to guide day-to-day decisions by local governments. Effective coordination and communication regarding annexations are essential to ensuring compatible land use and preventing encroachments. If a local jurisdiction is within five (5) miles of a military installation, such as Fort Knox, they would notify Fort Knox of any annexations involving properties adjacent to the installation's boundaries.

Land Use Policy:

Compatible land use strategies are key to addressing a range of challenges identified in the CUP Study. These strategies aim to create a cohesive and proactive approach to managing growth and development around Fort Knox. By aligning policies with the study's recommendations, local governments, military planners, and other stakeholders can work together to reduce conflicts, support military operations, and foster sustainable community growth. To enhance clarity and effectiveness, the recommendations are categorized into key areas such as zoning, noise mitigation, development standards, and stakeholder communication. This structured approach ensures a targeted, step-by-step implementation of practical solutions tailored to the specific needs of each community. By adopting and executing these strategies, the region can effectively manage development while ensuring compatibility with the military's mission requirements.

Update Comprehensive Plans to incorporate the concepts of Compatible Use and emphasize coordination with Fort Knox in future land use planning.

Policy Enforcements:

- 1) Integrate language into the local government's comprehensive plan to address the installation's needs and ensure compatible land use.
- 2) Include Fort Knox in these discussions in an advisory capacity.
- 3) Local jurisdictions notify Fort Knox when their respective city or county is rewriting or updating their Comprehensive Plan.

As part of implementing the Compatible Use Plan Study, comprehensive plans are among the most important policies to work in collaboration with and coordinate. These plans provide the foundation for the actions outlined in this plan and establish the policy framework for regulating development through local land use regulations.

Plans should focus on strengthening the relationship between the community and military, encouraging collaborative land use planning, aligning complementary land use goals, and providing clear guidelines for future development in areas at risk of encroachment.

Sample language includes:¹²

- **Economic Development Opportunities:** Military installations, often overlooked as catalysts of regional economic development, are vital to the resilience and vitality of both local and state economies. Fort Knox is integral to regional planning efforts, ensuring that growth and development are aligned with compatible land use principles.
- **Land Use Issues:** To preserve compatibility and safeguard Fort Knox from encroachment, the 2022 CUP Study recommended several strategies, including land use guidelines, the establishment of a military influence area overlay district, updates to comprehensive plans, zoning amendments, and the implementation of noise and light ordinances.
- **Intergovernmental Issues:** Effective communication and coordination are essential for all rezoning and subdivision activities within Fort Knox's Priority Areas (Zone A & Zone C). The local jurisdiction will consult with military leadership before making any land use changes in these areas to assess potential adverse impacts on the installation.

- **Regional Identity:** Fort Knox serves as a cornerstone of the Lincoln Trail Region's economy. The installation significantly contributes through salary payments, civilian employment, construction contractor payments, operating costs, and non-construction contracts.
- **Environmental Protection:** Local jurisdictions recognize the value of the Readiness and Environmental Protection Integration (REPI) Program as a key tool for protecting the critical plant and animal species in areas near Fort Knox.

Land use is especially crucial in relation to the installation, and the plan highlights the importance of retaining and expanding businesses and industries, with Fort Knox serving as a central pillar of the local economy.

As part of the implementation process, Fort Knox worked closely with Bullitt County in the revision of its Comprehensive Plan. Fort Knox actively participated in the Steering Committees that guided the plan's content, ensuring that military concerns and needs were represented. As the plan nears finalization, language has been incorporated to address land use concerns and reinforce the ongoing partnership with the County. Key updates include objectives designed to ensure that future development near Fort Knox is compatible with the installation's operations and noise levels, along with a commitment to maintaining ongoing collaboration with Fort Knox.

Below, you will find the language that has been incorporated into the DRAFT Bullitt County 2045 Comprehensive Plan. ¹³

Action steps shall include:

- Consulting with Fort Knox on future updates to the land use plan to ensure continued compatibility with the installation.
- Updating zoning ordinances to permit smaller agricultural lot sizes in areas **not** impacted or adjacent to Fort Knox.
- Revising the future land use map to identify areas that are compatible with Fort Knox operations.
- Ensuring that development near Fort Knox aligns with the installation's ongoing activities, particularly with regard to noise and vibration impacts.

Future development criteria shall include:

- Identifying areas likely to be impacted by Fort Knox operations.
- Developing a secondary checklist for a "Fort Knox Compatible Use Area" that addresses noise and vibration impacts near the installation, to be reflected on the future land use map.

The Fort Knox Compatible Use Area criteria stipulates that proposed land uses within this zone should adhere to the future land use map and development guidelines. However, land uses sensitive to noise and vibration- such as residential areas with lot sizes smaller than 10 acres, multi-family housing, schools, and medical facilities- should be discouraged. Furthermore, considerations regarding lighting and building heights should be taken into account to minimize or avoid conflicts with military operations.

Overlay Districts:

An overlay district is a zoning designation that imposes additional requirements on properties within a designated area, supplementing the regulations of the underlying zoning district. These additional criteria can include, but are not limited to, stricter standards for building height, design, and orientation, or indoor noise levels. When conflicts arise between the overlay zone requirements and the underlying zoning regulations, the more restrictive standard takes precedence. Overlay zones are incorporated into local zoning maps and work in conjunction with the broader land use designations and general zoning regulations.¹⁵

Overlay ordinances could be implemented in two main ways. One approach would involve the Regional Planning Council taking the lead in creating a unified regional overlay ordinance, ensuring consistency in land use standards and regulations across multiple jurisdictions. This regional approach would address compatibility issues on a broader scale, ensuring the uniform incorporation of military land use requirements across neighboring communities. It would also streamline coordination, provide clarity for developers, and reduce conflicts between regulations in different jurisdictions.

Alternatively, each jurisdiction could opt to create its own customized overlay ordinance, addressing specific land use needs and compatibility concerns. This approach offers more flexibility, allowing for a variance based on military impact, existing infrastructure, or future development goals. While this approach could result in subtle differences across jurisdictions, it can better serve communities with distinct land use challenges or priorities.

Regardless of the chosen approach, overlay ordinances would protect the integrity of military operations while enabling compatible growth in neighboring communities. In either case, the Regional Planning Council's involvement would offer valuable guidance and support, promoting collaboration and ensuring that regulations align with broader regional objectives for land use compatibility.

Establish a Military Influence Area (MIA) and a Military Influence Planning District (MIPD) within the land use regulations of each relevant jurisdiction. Potential boundaries for the MIPD, could include the 1 and 5- mile focus areas, as well as the entire Cities of Radcliff, Vine Grove, Elizabethtown, West Point, Muldraugh, Lebanon Junction, Shepherdsville, and Mt. Washington, with the Counties of Bullitt, Hardin, Meade and Nelson.

Policy Enforcements:

1. Establish a Military Impact Area (MIA) with a Military Impact Planning District (MIPD) encompassing the 5-mile buffer around the installation. This would create a clearly defined district to improve coordination between the installation and the surrounding region.

MIA could include the following factors:¹⁴

- Noise
- Vertical Obstruction
- Safety Zones

- Light/Glare; specifically for dark skies
- Limitation of development density in areas with high noise levels
- Restriction of development of hotels, schools, churches, government buildings, and other facilities attracting a high concentration of people

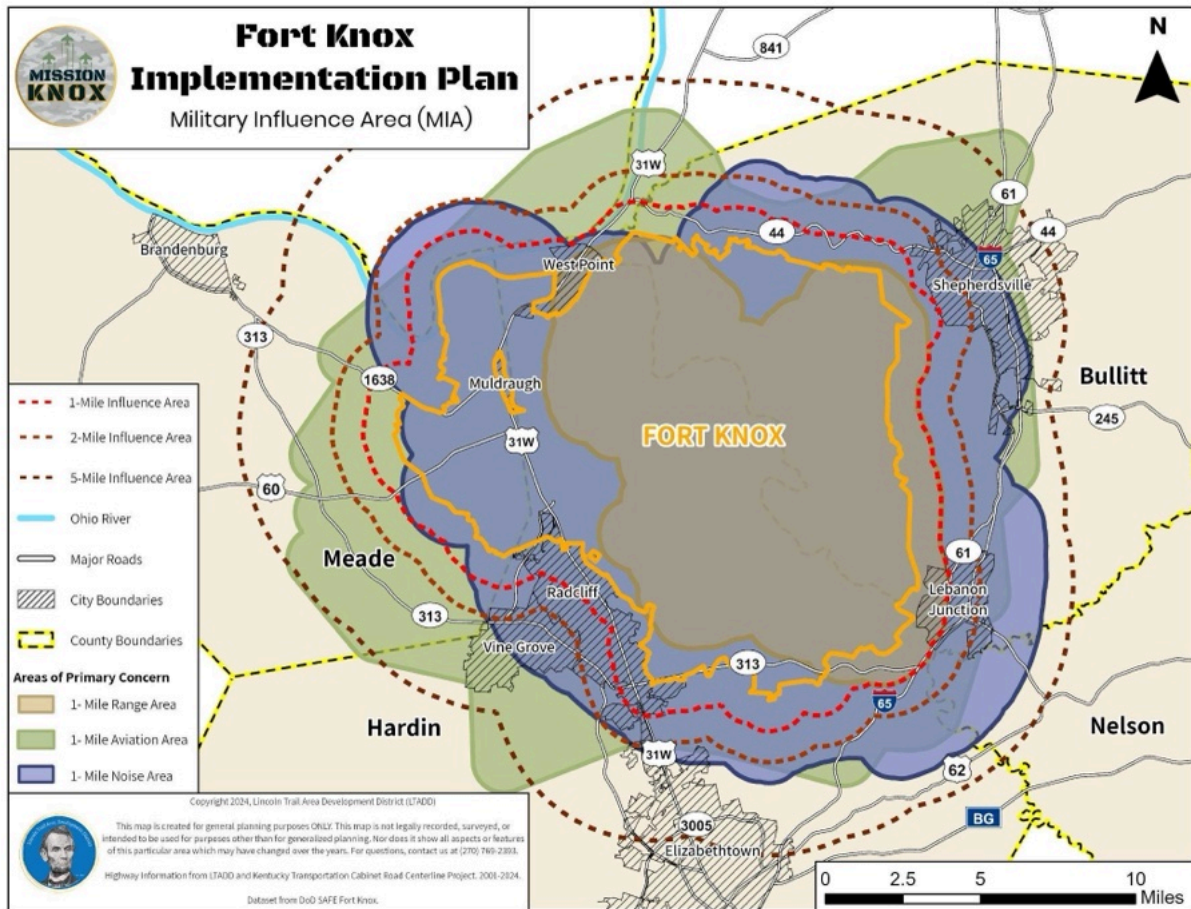
Update existing planning documents to include provisions for the MIA and MIPD.

1. Revise comprehensive plans to incorporate the Military Impact Area (MIA), Military Impact Planning District (MIPD), and other policies that promote military compatibility.
2. Update and adopt future land use maps, along with corresponding goals, objectives, and policies.
3. Modify zoning regulations to reflect the inclusion of the MIA and MIPD. Sample ordinances for these overlay districts are found in Appendix 3.4 and 3.11.
4. Integrate noise contour maps into municipal and county planning documents.

Develop and distribute informational materials to property owners that outline the regulations governing development within the Military Influence Planning District (MIPD).

1. Develop an informational sheet for current and prospective property owners within the Military Influence Planning District (MIPD), outlining the relevant regulations. This document can be provided to local real estate agents for distribution to clients and posted on both the installation's and local jurisdiction's websites. Additionally, brochures and pamphlets can be created and distributed to educate the public about these new regulations and their effects on property owners.¹⁴

The Military Influence Area (MIA) of Fort Knox consists of three primary zones: 1-mile range area, 1-mile aviation zone, and 1-mile noise zone. Together, these areas collectively represent the areas impacted by military activities and should be considered when formulating and approving policies. The MIA is used to identify regions impacted by military operations, ensuring their influence is taken into account during planning and development processes. A map outlining the MIA, located outside the installation's main boundaries, is provided below. It is important to note that the MIA does not align precisely with the 1-mile buffer, as its boundaries may shift based on specific military activities and environmental factors. Appendix 3.4 includes a sample template of an MIA ordinance.

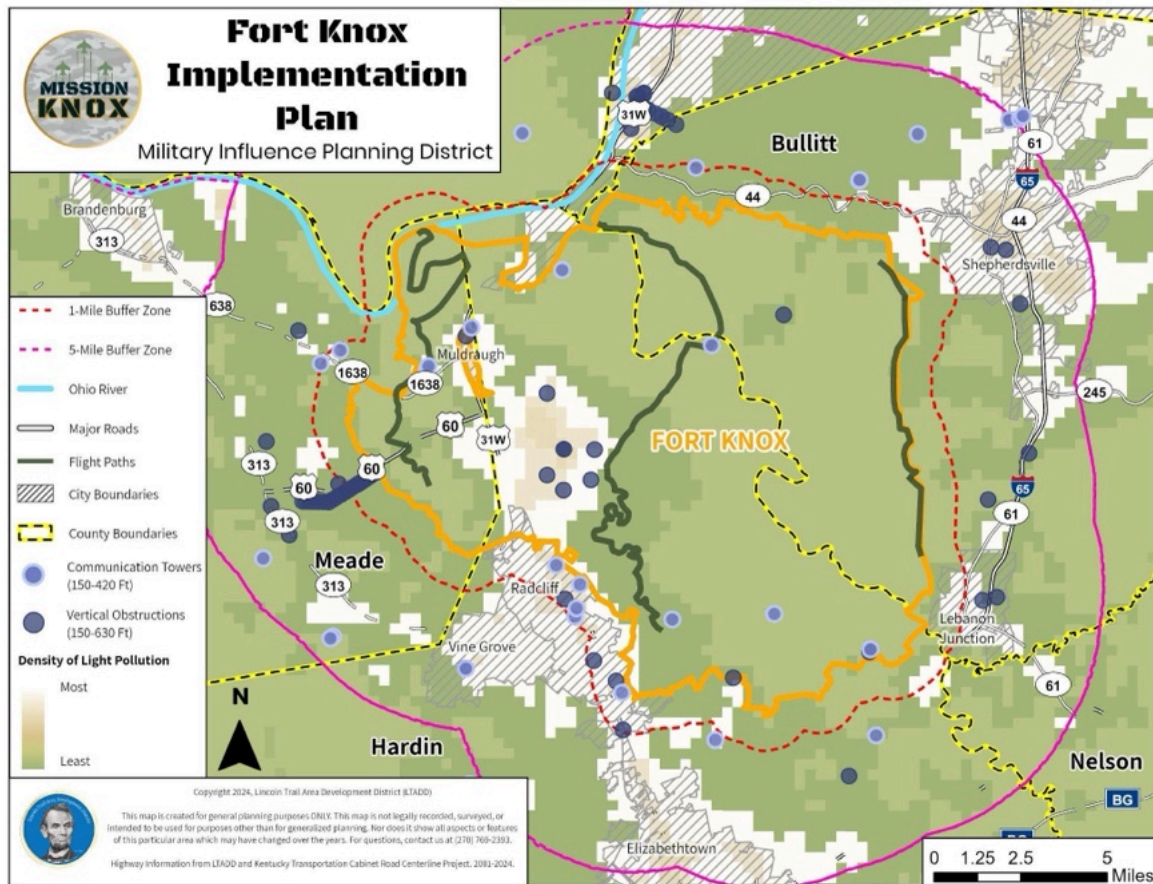


Map 5.1: Military Influence Areas Map

The Military Influence Planning Districts (MIPD) and Military Influence Area (MIA) propose the creation of overlay zoning districts to address and mitigate potential future land use compatibility concerns, particularly as development pressures increase in the focus area. These recommended regulations aim to offer local jurisdictions a toolkit for land use management that is both adaptable and scalable. They can be implemented individually or in tandem, depending on local needs. The scope and geographic boundaries of these overlay districts can be adjusted to accommodate the unique requirements of each community and to adapt to evolving military training and operations.

The proposed Military Influence Planning Districts (MIPDs) are organized into three distinct categories, each addressing specific land use compatibility concerns. The first category focuses on areas within the Aircraft Accident Potential Zones- Clear Zone (CZ), Accident Potential Zone I (APZI), and Accident Potential Zone II (APZII)- which extend from Fort Knox's primary runway at Godman Army Airfield. These zones are designated where land use activities may present a risk for aircraft accidents. The second category targets regions surrounding Fort Knox that are exposed to higher levels of aircraft noise, necessitating noise mitigation measures. The third category, which is not a regulatory zone, pertains to land use and development proposals within a 10-mile buffer of the installation's boundaries.

Below is a map of the potential MIPD, highlighting vertical obstructions within the 1 and 5-mile buffers. The majority of these obstructions are located in Bullitt County.



Map 5.2: Military Influence Planning District Map

While the primary focus area highlighted in the plan's introduction remains central, the proposed MIPD would also encompass neighboring regions. Local governments could also adopt this tool within their own jurisdictions to enhance their ability to coordinate land use compatibility efforts.

Develop and implement consistent vertical obstruction standards.

Policy Enforcements:

1. In areas of concern for vertical obstructions review and update corresponding maps .
2. To ensure consistency, amend each jurisdictions' land development regulations to address all identified vertical obstruction issues and locations.

Develop a formal process to include the installation in the telecommunication tower(s) siting and approval process.

Policy Enforcements:

1. Include a Fort Knox representative in Planning Boards/Commissions in an advisory role.
2. Incorporate into a MOU that a Fort Knox representative is involved in the approval process for communication tower siting.

Establish an Airfield Overlay District for Godman Army Airfield.

Policy Enforcements:

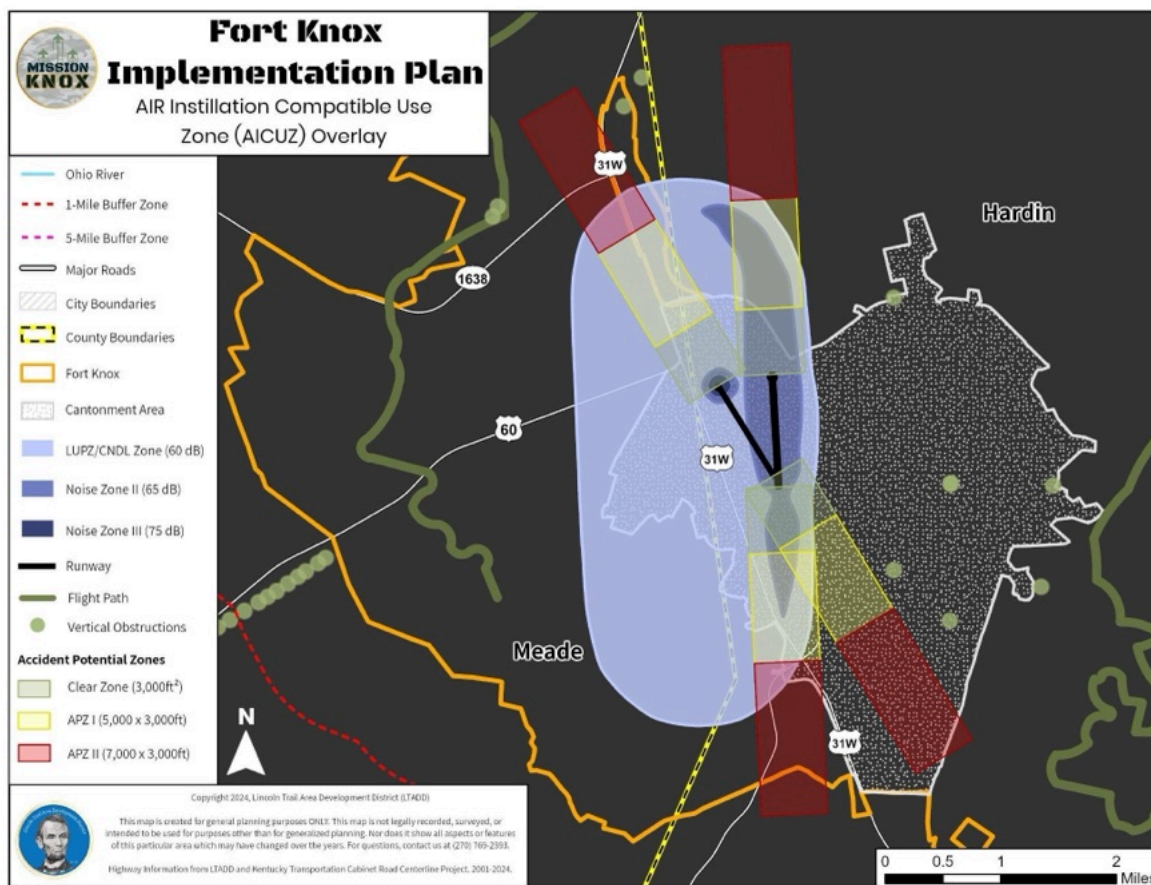
1. Establish an Airfield Overlay District for Godman Army Airfield to protect the airfield's flight path.
2. To safeguard personnel safety and preserve the integrity of military missions, an Air Installation Compatible Use Zone (AICUZ) is a key land-use planning tool that focuses on airfields and aviation activities. It ensures that development near military airfields does not disrupt flight operations, minimizes accident risks, and helps mitigate noise pollution. Successful collaboration between military airfield planners and local communities is crucial to align with mission needs while addressing noise and safety concerns. As nearby communities grow, the Army has a responsibility to work closely with local governments on land use planning, zoning, and other factors that could impact airfield operations or missions. In turn, Fort Knox must engage with local stakeholders to assess the potential impacts of new or evolving missions on the surrounding areas.
3. Update each jurisdiction's land development regulations to include the overlay district.

AICUZ areas are categorized into specific zones surrounding an airfield, each with a specific set of guidelines addressing land use, noise levels, and safety concerns. These zones are often depicted on maps and correspond to varying degrees of noise, crash risks, or flight activity. The three primary components of an AICUZ are:

1. **Clear Zones (CZ):** Positioned at the ends of runways, these zones extend approximately 3,000 feet from the runway and are subject to strict development guidelines due to the high risk of aircraft accidents.
2. **Accident Potential Zone I (APZ I):** Located around the Clear Zone, this area has a high potential for accidents and typically extends 3,000 feet in width and 5,000 feet in length along the extended runway centerline.
3. **Accident Potential Zone II (APZ II):** This zone presents a moderate risk of accidents and generally extends 3,000 feet in width and 7,000 feet in length along the runway centerline. It includes moderate development restrictions, which may affect areas such as the Cities of Muldraugh and Radcliff.

AICUZ zones are critical for reducing risk and ensuring that civilian and military activities can coexist safely and efficiently near military airfields. Below is a map illustrating the AICUZ Overlay for

implementation.



Map 5.3: Fort Knox Air Installation Compatible Use Zone (AICUZ) Overlay

Establish a military lighting overlay district.

Policy Enforcements:

1. Create a Military Overlay District to preserve nighttime military missions and training activities.
2. Update each jurisdiction's land development regulations to include the overlay district.

The Military Lighting Overlay District (MLOD) is a specialized zoning district designed to reduce light intensity, glare, and light pollution in order to protect the integrity of nighttime training operations. Its primary objective is to preserve Fort Knox's missions and enhance the installation's long-term viability, thereby helping to mitigate the risk of future base closures.

The MLOD regulates the intensity, direction, and levels of lighting but does not control land use. The proposed overlay introduces more precise criteria for measuring light intensity in accordance with industry standards. Additionally, the overlay district would impose stricter lighting regulations within five (5) miles of the installation.

The MLOD applies to residential, multi-family, commercial, and industrial properties. In general, lighting fixtures must be shielded downward with full cut-offs above 90 degrees. For intermittent lighting, such as security floodlights, motion-sensor lights must automatically turn off after five (5) minutes.(Appendix 3.5).

Educate and increase awareness of the public on the potential dangers of flying private drones near the installation.

Establish restrictions within the MIPD for the operation of UAS.

Establish coordination between the installation and local jurisdictions regarding the flying of UAS.

Policy Enforcements:

1. Create educational materials and training to inform drone operators about the potential risks of collisions with military equipment and the impact these incidents can have on flight operations. The program should also emphasize flying drones over the installation, particularly near Godman Army Airfield, is strictly prohibited.
2. Establish drone restrictions within the MIPD for Fort Knox and Godman Army Airfield approach zones and portions of the airspace.
3. Create a Memorandum of Understanding (MOU) to facilitate coordination between the installation and local police and sheriff departments, ensuring consistent standards for notifying drone users.

As drone activity in restricted airspace becomes more frequent, it is vital to take a proactive approach to educating civilians about FAA regulations. To ensure proper use of registered drones, raising awareness and providing education is crucial. Fort Knox, as a member of the Lincoln Trail Hazard Mitigation Council, could serve as a key partner in presenting this information. The Council would receive a briefing on drone operations and regulations, and in partnership with local officials, emergency management personnel, and law enforcement, a framework could be developed for regional education to ensure civilians are informed about the safe and legal use of UAS. Since there is an approval process required to obtain permission to fly a drone within the Class D airspace surrounding Fort Knox, such as for utility companies,

Local governments can play a key role in educating the public about the risks of flying drones in these areas. One potential action could include the installation of road signs near these facilities and low-altitude flight zones, alerting UAS operators—particularly those from outside the region—that military aircraft frequently fly at low altitudes in the area. Given the increasing use of UAS in agriculture, targeted outreach to local farmers and contractors who conduct aerial surveys could also be effective in raising awareness. While flight restrictions are in place, additional educational efforts can help bridge gaps in knowledge, reducing the risk of drone collisions with military aircraft.

The 2022 Compatible Use Plan Study highlighted the growing use of private and commercial use of unmanned aerial systems (UAS or drones) as a potential compatibility concern. This is due to the

absence of FAA flight restrictions around Godman Army Airfield, which is designated as a restricted airspace. The rise in private drone use raises the risk that operators may unintentionally fly drones into areas where Fort Knox pilots are conducting low-altitude training.

Educate the public about the value and activities of the installation.

Policy Enforcements:

1. Increase public awareness of the installation's training mission, its unique role, and its importance to national security. Provide details about noise sources, including the functions of training ranges like Yano and Wilcox, the diverse users in the area, and the overall significance of the installation. Utilize a variety of communication methods, such as local media, social media, text alerts, public meetings, and annual outreach events to effectively convey this information.
2. Expand the current Community Information Exchange to provide updates on projects and developments occurring on post.
3. Strengthen community outreach by actively promoting the installation's social media accounts, websites, and other communication channels to keep the public informed on current and upcoming events and issues. In addition to, installation-related activities, such as scheduled training events- as feasible, controlled burns, night operations, and other relevant activities.
4. Utilize local jurisdictions and regional planning organizations' websites to include links to the installation's web page, contact information, upcoming activities, and other community relevant details.
5. Identify and make key points of contact for both the community and Fort Knox easily accessible, ensuring residents can easily reach out to the installation for inquiries or concerns.

To improve awareness and promote transparency about Fort Knox and its missions, the installation has created a public forum through the Public Affairs Office (PAO). The Community Information Exchange (CIE) serves as an effective platform for sharing updates on significant upcoming activities and initiatives that may impact the broader Fort Knox community. These quarterly meetings are held at the Saber & Quill on-post and are live-streamed on Fort Knox's Facebook Page to ensure wide accessibility for the public.

To enhance public outreach and awareness, Fort Knox organizes a Community Information Fair on-post, featuring more than 100 agencies and organizations. This event is open to the public and provides valuable information on a wide range of topics, including local clubs, activities, private organizations, veterans' groups, school and child programs, readiness groups, home-based businesses, installation services, and community resources.

Fort Knox, in collaboration with the Kentucky Career Center and the Lincoln Trail Area Development District (LTADD), have created a variety of services to assist veterans and their spouses. These services include job search assistance at both local and national levels, resume writing support, job search guidance, interview skills training, development of personalized employment plans, help with unemployment insurance benefits, and insights into the labor market. Fort Knox employs the Transition Assistance Program (TAP), to organize on-site employer interviews and job fairs for

individuals transitioning from military to civilian life. ¹⁶ For military spouses relocating to Fort Knox, dedicated services are available to help them enter the workforce. The Knox Regional Development Alliance (KRDA) further supports military spouses by connecting them with career coaches and community resources, helping them build networks and secure employment opportunities. ¹⁷

Develop a list of potential noise attenuation standards to provide to homeowners when remodeling or constructing new structures.

Policy Enforcements:

1. Create a set of recommended noise attenuation standards to guide developers and homeowners in mitigating noise from the installation.
2. As outlined in the Compatible Use Plan Study, communities affected by aviation noise recognize the importance of noise compatibility regulations, especially in the areas to be within the 65+ dB noise zones, where restrictions on land use and/or requirements for interior noise reduction may be necessary.

Structures, especially residences located near active military installations like airfields, are often exposed to aircraft noise that can interfere with civilian activities. Several methods and materials are available to enhance the interior sound absorption of homes, making them more resilient to noise from military operations. One effective approach is to implement building codes specifically designed for noise control. Noise can enter a structure through walls, roofs, doors, windows, chimneys, and other openings. The more windows, doors, vents, and gaps a building has—particularly larger ones—the more likely it is that noise will infiltrate the interior. Typically, a home can absorb around 25 dB of noise, which is usually considered acceptable for residential areas. ¹⁸ While certain materials can reduce noise levels, it's important to note that they cannot fully eliminate noise.

Sound Transmission Class (STC) Rating is a standardized measurement that is used to assess how effectively a building material can block sound transmission. ¹⁹ This rating quantifies how effectively the assembly attenuates noise across different frequencies, yielding a single numerical score.

Best practices are outlined in Appendix 4.10. *According to the Naval Facilities Engineering Systems Command, Sound Installation of Residences and Other Buildings Exposed to Aircraft Noise*, sound installation practices should include:

- **Construction Materials:** Utilize STC ratings to assess the effectiveness of sound reduction in construction techniques and materials.
- **Window Options:** Opt for thicker glass and larger air gaps between panes to improve sound transmission.
- **Door Considerations:** Focus on door composition, weight, and the quality of seals to minimize sound transmission.
- **Room Characteristics:** Incorporate sound-absorbing elements and furnishings- such as carpeted floors, heavy curtains, upholstered furniture- which absorb noise compared to hard surfaces like hardwood floors and cabinets.
- **Construction Methods:** Ensure precise installation techniques during the construction process to optimize noise reduction.

The Lincoln Trail Home Builders Association (LTHBA) connects residents of the Lincoln Trail Region with builders, contractors, and a network of more than 300 members. The association promotes collaboration among builders and contractors, facilitating knowledge sharing idea exchange, service expansion, and membership growth. LTHBA is well-positioned to provide guidance and support for implementing initiatives in the region. ²⁰

Appendix 4.9 contains a *Builders Guide* aimed at educating key stakeholders—such as builders, developers, architects, and building inspectors—on effective strategies for reducing noise levels generated by the installation’s missions and training activities. The guide outlines recommended practices and sample noise attenuation ordinances that local jurisdictions can integrate into their comprehensive plans.

Appendix 4.10 includes a model noise attenuation ordinance to assist communities implement land use compatibility guidelines for managing aviation noise. The ordinance:

- Acknowledges aircraft noise as a concern for the community and its residents.
- Establishes overlay zoning districts for aircraft noise.
- Specifies permitted exterior noise levels and interior noise performance standards.
- Differentiates between compatible and incompatible land uses.
- Sets acoustical requirements for buildings and structures.
- Details the inspection and enforcement process.

Limit development in areas with high levels of light pollution.

Policy Enforcements:

1. Local jurisdictions should coordinate with Fort Knox and refer to this implementation plan to identify the locations surrounding Fort Knox with the greatest concern for light emission. The Cities of Shepherdsville, Radcliff, and Elizabethtown generated the highest levels of lighting pollution at night. (According to the 2022 CUP Study).
2. Adopt Dark Sky lighting standards within the focus area to minimize sky glow and prevent light pollution and glare. These guidelines should be integrated into local zoning regulations and building codes, with exceptions permitted where lighting is essential for safety, but lights are shielded and downward facing. Local jurisdictions should collaborate with utility companies to support this initiative.
3. Establish a Lighting Overlay District to mitigate light pollution.

Key Strategies for Limiting Development in Light Pollution Areas

1. Identify Sources of Light Emission
2. Awareness & Education
3. Coordinate with Fort Knox
4. Draft Ordinance Language
5. Incorporate Language into Zoning Code

Restricting development in areas with high light pollution is a proactive strategy to safeguard the natural environment, protect wildlife, and enhance public health. By adopting Dark Sky lighting regulations, updating zoning codes, and collaborating with utility providers, local governments can significantly reduce light pollution, while fostering sustainable and compatible development practices.

Continue coordination between Fort Knox and the local jurisdictions regarding spectrum encroachment.

Policy Enforcements:

1. Coordinate with Fort Knox to identify areas within the 5-mile buffer that are at risk and vulnerable to frequency interference.
2. Collaborate with local jurisdictions to develop procedures for identifying mitigation solutions for communications that could generate frequency emissions, such as large-scale Wi-Fi networks.

Conservation:

Conservation strategies can help address several of the challenges outlined in the CUP Study. These strategies include establishing formal processes, such as Memoranda of Understanding (MOUs) or routine coordination meetings, to enhance collaboration. To improve clarity and intentionality, the recommendations are organized into specific categories.

Support the mission by protecting agricultural lands surrounding the installation and training areas.

Policy Enforcements:

1. Conduct a study to analyze the feasibility of Transfer of Development Rights (TDR) from agricultural lands in close proximity to the installation's training areas.

The Transfer of Development Rights (TDR) program, established under Kentucky Revised Statute 100.208, offers a strategic tool for balancing urban development with the preservation of agricultural land. By enabling landowners to sell their development rights to urban areas, the program facilitates the creation of easements that protect farmland and open spaces while supporting the growth of cities and towns. The TDR system essentially shifts the potential for development from designated agricultural or rural areas, preserving the rural landscape without halting overall growth. By utilizing this tool, local governments can offer landowners a viable option to monetize their development rights, preserving open spaces and agricultural land for future generations while accommodating the needs of a growing population.

Though the TDR program is not a widely adopted tool across Kentucky, its success in the City of Lexington provides a model for how this approach can be implemented in practice. The City has preserved more than 31,000 acres of farmland through this program, effectively safeguarding the

region's agricultural heritage and open spaces while managing the pressures of urban expansion. The program has enabled Lexington to direct growth toward areas where infrastructure and services can support higher-density development, thus reducing urban sprawl and protecting valuable farmland in the surrounding areas. In contrast, the Lincoln Trail Region has yet to leverage the TDR program, despite the potential benefits it offers for land conservation.

Create a conservation coalition to facilitate continuous coordination between the installation and local communities, focused on wildlife habitat preservation, prioritizing conservation efforts, and minimizing duplication of resources and actions.

Policy Enforcements:

1. Form a conservation coalition composed of representatives from the installation, local jurisdictions, state agencies, and environmental organizations at both local and state level to streamline efforts and focus on habitat preservation and conservation.
2. Foster ongoing collaboration by sharing resources and offering support between Fort Knox and local jurisdictions as needed.
3. Form partnerships that support and advance Fort Knox's missions, helping to achieve its objectives.

To ensure the vitality of Fort Knox's missions, it is critical that land use in surrounding jurisdictions is compatible. The formation of a conservation coalition builds upon the partnership already established, with a shared goal and vision to promote and support conservation efforts in areas adjacent to Fort Knox. Members of the coalition pool their expertise, resources, and influence to address environmental challenges, advocate for policy changes, secure funding, and implement conservation strategies on a local, regional, or state-wide scale.

Expand agricultural land protections outside of the installation.

Secure REPI Funding and Sentinel Landscape Status

Policy Enforcements:

1. Leverage federal programs that provide funding opportunities for the preservation of lands and habitat.
2. Pursue funding through the Readiness and Environmental Protection Initiative (REPI) Program and other sources to support habitat conservation efforts.
3. Prioritize efforts to establish a conservation/wildlife corridor linking Knobs State Forest and Fort Knox.
4. Raise awareness about how the installation preserves habitat and protects threatened and endangered species.
5. Strengthen protections and programs for agricultural land within the focus area. Collaborate with federal and state agencies to identify funding opportunities for long-term leases and easements that preserve farmlands for ongoing agricultural use.

Securing REPI funding and Sentinel Landscape Status requires a strategic approach that balances military readiness with environmental preservation. To secure REPI funding, the following are

essential: aligning conservation goals with military needs; collaborating with key stakeholders; demonstrating long-term impact; and showcasing clear outcomes. In contrast, securing Sentinel Landscape Status requires engaging stakeholders; identifying key conservation priorities; developing a management plan; and coordinating with federal agencies. More detailed implementation steps are outlined in Section 7. By pursuing both REPI funding and Sentinel Landscape designation, vital lands can be safeguarded while supporting military objectives and environmental sustainability. The key is to demonstrate how these conservation efforts align with broader national security goals and the health of local ecosystems.

6

HOUSING STUDY



6

HOUSING STUDY

Executive Summary

Findings:

- The five-county area encompassing Hardin, LaRue, Meade, Nelson, and Bullitt Counties, as analyzed in this report, currently faces a housing shortage of approximately 11,000 units. This shortage does not account for additional housing needs created by future regional developments, such as BlueOval SK. Moving forward, it will be critical for the housing market to address not only the current demand but also the growing needs in the years ahead.
- There is a significant demand for housing near Fort Knox, which may lead to potential land use conflicts between Fort Knox and surrounding communities. The communities within a short commuting distance of Fort Knox are likely to experience increased residential development to accommodate the housing demand. It is imperative that local cities and counties collaborate closely with Fort Knox to ensure that housing development aligns with community needs while also protecting the installation's boundaries from additional encroachment.
- The need for affordable housing in the region is undeniable, not only due to the discrepancy between available and needed units but also because of its impact on vulnerable populations most affected by rising housing costs. Moving forward, it will be essential for cities and counties to ensure that new housing developments accommodate not only higher-income individuals and families but also those with lower incomes.
- The region has experienced unprecedented growth over the past five years, and stagnation is unlikely in the future. The anticipated economic surge, driven by job creation from BlueOval SK, will likely place even greater pressure on the region's already strained housing market. Fort Knox, along with the region's cities and counties, must plan proactively for the anticipated economic growth and the challenges and opportunities it may bring.
- To mitigate encroachment while increasing housing availability, potential strategies include revising zoning laws, reducing development barriers, and creating build-ready lots to streamline the housing development process.

6.1 Approach & Methodology

This study, prepared by the Lincoln Trail Area Development District (LTADD), analyzes the housing market as it relates to Fort Knox personnel. The analysis focuses on the housing infrastructure and needs of Fort Knox and the five surrounding counties: Hardin, Meade, Bullitt, Nelson, and LaRue. Particular emphasis is placed on Hardin and Meade Counties, as they are home to the majority of civilian and military personnel.

The housing market affects the quality of life for residents, new residents, and businesses seeking to recruit and retain employees. When population needs and market conditions do not align with the available or developing housing, issues can arise, leading to a decline in the quality of life. Numerous external factors influence the housing market, creating fluctuations and shifting demand in multiple directions. Locally, construction costs are at historic highs, and the disparity of wages vs. housing costs continues to grow. Uncertainty surrounding the area's growth, driven by the upcoming BlueOval SK Battery Plant in Hardin County, has raised concerns about the pressures on current and future housing demand.

This study will utilize stakeholder engagement, market analysis, and data compilation to identify the strengths and gaps in the current housing market throughout the region, as well as the housing needs of both current and future residents.

Strategic Intent of Study

This region stands on the brink of historic growth and development. The 2022 Compatible Use Plan (CUP) Study highlighted ongoing concerns about the availability of quality, affordable housing for both military and civilian personnel. As of March 2021, Fort Knox estimated a shortage of nearly 200 on-post homes, despite having over 2,300 single-family homes currently available on post¹. To address this need, work is currently underway on renovations to existing homes on post, as Fort Knox has committed \$80 million to address the growing housing needs for personnel.

Between 2010 and 2020, the CUP Implementation focus area issued 12,479 residential building permits, with an additional 7,574 permits issued from 2020 to 2024². This illustrates the significant growth in the region over the course of the past 15 years. This study will include maps showing the locations of residential building permits issued since 2020, highlighting areas of residential development and potential encroachment on Fort Knox's boundaries.

In the 2022 CUP Study, several growth factors were identified that have served as a catalyst to increase the housing demand throughout the region. In Meade County, Nucor Steel Mill, which added 400 jobs to the region, became operational in 2022³. Nucor is just one of many economic investments contributing to the growing demand for affordable housing. The continued industrial expansions of bourbon distilleries in Bullitt and Nelson Counties, along with the BlueOval SK electric battery plant in the Glendale area of Hardin County-expected to be complete and

¹ U.S. Dept. of Defense, Fort Knox Compatible Use Zone Study, 2018

² U.S. Dept. of Defense, Fort Knox Compatible Use Zone Study, 2018

³ U.S. Dept. of Defense, Fort Knox Compatible Use Zone Study, 2018

operational in 2025- further contribute to this demand. A culmination of these developments signifies sustained economic and population growth, ensuring the region's continued vitality.

The new BlueOval SK facility in Glendale, located approximately 25 miles south of Fort Knox's main gate via US31W, is expected to further strain the region's housing market. Distance is not a significant factor in the decision as to where commuters will locate, as supported by the 2018 American Community Survey (ACS). About 17% of workers in Hardin County commute between 10 to 24 miles one way, with 24% traveling up to 50 miles one way⁴.

This housing study examines the 1-, 5-, and 10-mile buffers around the installation's boundary, which spans the counties of Bullitt, Hardin, Meade, and Nelson. In addition, LaRue County, located east of Hardin and south of Nelson Counties, will be included in the housing analysis due to its access to existing transportation networks, proximity to the new BlueOval SK facility, and inclusion in the Elizabethtown-Fort Knox Metropolitan Study Area (MSA). The five-county area currently has a population of 278,028, which is projected to grow significantly over the next ten years. This population increase will place additional pressure on the already strained housing supply, compounded by national population growth.

In addition to the unprecedented growth throughout the region, Fort Knox's new Digital Air-Ground Integration Range (DAGIR) became fully operational in May 2024 and is likely to have a significant impact on the communities surrounding it. Increased noise, vibration, and dust are likely to impact housing and other developments within the Fort Knox buffer zones. Without effective communication and coordination between Fort Knox and the surrounding communities, potential land use conflicts could arise.

These developments clearly place notable pressures on the housing market throughout the region and are predictive of future market impacts, highlighting the critical need to ensure Fort Knox's missions remain unhindered.

Note on the Pandemic

The COVID-19 Pandemic in early 2020 had an enormous impact on the country's economy, and the region surrounding Fort Knox is no exception. Supply chains, funding sources, and household finances were all significantly affected. Even now, 5 years later, while the economy has certainly improved, the effects of the pandemic are still felt. Therefore, the need for a housing study is all the more critical. The issues addressed in this study will be compounded by any lingering effects of the pandemic throughout the region and should be carefully considered in the analysis.

Process Overview

The aforementioned counties are most affected by the impact Fort Knox has on the surrounding housing market and, in turn, have the greatest reciprocal effect on Fort Knox. As a result of this study, practical recommendations and tools will be provided to address the housing concerns and opportunities.

⁴ American Community Survey (ACS), U.S. Census Bureau, 2018. [<https://data.census.gov/>].

The study is outlined as follows:

Housing Insights: Discusses the current housing landscape and how regional and national trends are likely to influence the housing market moving forward.

Regional Demographics: Provides an overview of the region including Fort Knox, and the factors that determine housing market trends and pressures exerted on residential development. It also offers an economic overview of the region.

Regional Housing Market Overview: A current overview of housing in the region and at Fort Knox, highlighting available options and addressing existing housing needs.

Needs Moving Forward: Examines personnel changes, housing demands versus availability, projected population growth, and multiple factors creating future housing needs.

6.2 Regional Housing Data

This section focuses on data relevant to housing throughout the region. It includes regional and Fort Knox demographics, an economic overview, a housing snapshot, housing survey of Fort Knox, and future population projections based on current economic conditions.

Overview of the Region

Hardin County has the most direct ties to the Fort Knox community. The primary post entrance is located in Hardin County, specifically in the City of Radcliff. Hardin County is the primary residence for many civilian and military personnel who prefer a more urban environment. Meade County offers a more rural alternative and provides more affordable housing. While Meade County is farther from the urban amenities found in Hardin County, it is still a short commute to the main entrance to Fort Knox.

Though there is less of a direct connection to Jefferson County, the City of Louisville, is the largest metropolitan area in the Commonwealth, approximately 50 miles from Fort Knox, which can appeal to personnel preferring an urban lifestyle and a litany of housing options. A significant number of personnel are choosing to make the long commute; according to Fort Knox Housing Services, approximately 200 soldiers live in Louisville. U.S. 31W is the primary highway connecting Fort Knox and the surrounding region⁵. Connections to Bullitt and Nelson Counties are relatively loose, with only a small percentage of military personnel living in these counties. This also applies to Harrison County, Indiana, to an even greater degree. While Harrison County may seem relatively close at a glance, it lacks direct bridge access, making the commute longer and resulting in fewer Fort Knox personnel choosing to live there.

Demographics

As Fort Knox is located within Hardin, Meade, and Bullitt counties, most of the demographic data in this section focuses on these three counties. This does not exclude the other counties in the region from analysis. However, since these counties will face a range of challenges in the coming years, the findings can be extrapolated and applied to address these challenges.

⁵ Mary Ellen Correia, Fort Knox Housing Services, Personal Communication, October 29th 2024.

Demographic Summary						
	Hardin County	Meade County	Bullitt County	LaRue County	Nelson County	Fort Knox
Population	112,273	30,131	84,863	15,303	47,730	8,655
Households	42,638	10,554	31,068	5,967	18,457	2,382
Average Household Size	2.54	2.82	2.64	2.46	2.51	3.10
Median Household Income	\$64,136	\$68,518	\$73,900	\$57,867	\$66,212	\$76,864
Per Capita Income	\$35,226	\$34,781	\$34,362	\$28,038	\$33,585	\$31,450
Veterans	12,772	2,827	5,549	854	3,220	667
Median Gross Rent	\$909	\$929	\$947	\$816	\$913	\$1,178
Persons in Poverty %	12.6%	11.9%	9.4%	18%	11.2%	4.3%
Source: US Census Bureau, ACS 2023						

Table 6.1: Demographic Summary

Findings:

- Average household size is largest in Meade and Bullitt Counties
- Hardin and Bullitt Counties have the largest number of households.
- *Median Household Income* is highest in Bullitt, Nelson, and Meade Counties, but still lower than the national average.
- The *Median Gross Rent* on post, according to the U.S. Census Bureau, averages \$1,178, which is significantly higher than off post, where the highest median gross rent is \$231 lower.
- Fort Knox has a much lower percentage of the population living in poverty than the surrounding counties with only 4.3% living below the poverty line.
- When living on post, rent is equal to Basic Allowance for Housing (BAH), regardless of the type of housing option.

Household income, in particular, is one of the overarching statistics that has a direct correlation to the housing that is available in the area. Income is a strong predictor of a resident's ability to make changes in their housing situation. Fort Knox has a higher median household income than any of the counties in the region, which is indicative of Fort Knox personnel living on post are better

equipped to accommodate potential increases in housing costs. However, Fort Knox also has the highest housing costs in the region, with the median gross rent costing \$231 more than any of the surrounding counties. This suggests a direct correlation of cost of housing to the quality of housing. Monitoring rent costs will be critical, as any increase will disproportionately impact those already paying higher rents or struggling to afford housing.

If costs on post remain higher, there could be a shift in personnel moving to surrounding areas for more affordable housing options. This, in turn, would exacerbate the regional housing crisis.

Education

Education levels are a key factor when analyzing regional housing trends. Generally, higher levels of education attainment indicate higher income or potential future income. See below for the education levels by county.

Education						
	Hardin County	Meade County	Bullitt County	LaRue County	Nelson County	Fort Knox
Population	112,273	30,131	84,863	15,303	47,730	8,655
No High School Diploma	7.0%	11.0%	11.0%	19.0%	8.0%	5.2%
High School Diploma or GED	33.0%	41.0%	40.0%	34.0%	36.0%	14.3%
Some College	33.0%	32.0%	33.0%	30.0%	35.0%	27.8%
Bachelor's Degree	15.0%	10.0%	9.0%	6.0%	12.0%	21.5%
Master Degree or Higher	12.0%	7.0%	7.0%	11.0%	8.0%	19.2%
Source: US Census Bureau, ACS 2023						

Table 6.2: Education

Findings:

- Hardin County has the largest population and the highest percentage with master's degrees or higher
- The national average for people over 25 with a high school diploma or GED is 90.6% (9.4% without). Hardin and Nelson Counties exceed the national average while the remaining counties fall below it

Compound Annual Growth Rates

When drawing conclusions about expected future growth, compound annual growth rates (CAGR) are paramount. The following table provides data about the *Compound Annual Growth Rates* (CAGR), from 2015-2022, of the population, households, families, and per capita income in the Fort Knox region.

Compound Annual Growth Rates, 2015-2022					
	Hardin County	Meade County	Bullitt County	LaRue County	Nelson County
Population CAGR	0.68%	0.5%	0.75%	0.86%	0.79%
Household CAGR	0.31%	-0.33%	0.79%	1.48%	1.11%
Household Size CAGR	0.17%	0.67%	-0.21%	-0.85%	-0.50%
Per Capita Income CAGR	3.69%	3.87%	4.23%	3.40%	3.82%
US Census Bureau, ACS 2023					

Table 6.3: Compound Annual Growth Rates, 2015-2022

Findings:

- Bullitt County experienced the highest percentage of growth in per capita income over the last 7 years, with an annual growth rate of 4.23%. While an increase in per capita income can be beneficial for residents of Bullitt County, however, as more spending capital becomes available, there could be a potential demand placed on the County's housing market for higher-end housing. This could have less of an impact on current residents, who are driving the demand, but may create challenges for those looking to relocate, making the market less conducive for them.
- LaRue County has experienced the highest percentage of growth in terms of population with an annual increase of 0.86%. Similar to the per capita growth rate in Bullitt County, this is initially positive for the County, but it also comes with the understanding that if the trend continues, less housing will be available to absorb the population overflow from Fort Knox and Hardin County.
- The majority of counties noticed decreases in household size over a 7-year span, while simultaneously increasing the number of households. This likely reflects a shift from single-family households with multiple children towards households with only one or two family members. The transition in household composition could be a direct result of an

aging population and children leaving the household, thereby reducing household size. However, the trend may also be influenced by the increased prevalence of younger, unmarried residents living alone or couples without children. These indications and the effect they have on the housing market will need to be monitored as these factors influence the type of housing residents seek.

Basic Allowance for Housing (BAH)

The Basic Allowance for Housing (BAH) is a financial benefit provided to service members to help cover the cost of housing. BAH is calculated based on the location of housing, pay grade, dependents, and inflation. When living on post, soldiers' housing costs are fully covered by their individual BAH. However, when living off post, this is not guaranteed, as housing costs are entirely influenced by local market conditions. The tables below, organized by rank, illustrate the BAH amounts for service members with dependents and without dependents on post. For personnel seeking off-post housing, BAH serves as a key indicator of the price ranges that are affordable.

BAH With Dependent Rate	
Rank	2024
E1	\$1,275
E2	\$1,275
E3	\$1,275
E4	\$1,275
E5	\$1,356
E6	\$1,746
E7	\$1,851
E8	\$1,965
E9	\$2,121
W1	\$1,767
W2	\$1,902
W3	\$2,037
W4	\$2,154
W5	\$2,292
O1E	\$1,872
O2E	\$2,016
O3E	\$2,172
O1	\$1,410
O2	\$1,743
O3	\$2,034
O4	\$2,340
O5	\$2,556
O6	\$2,574
O7	\$2,592

Table 6.3 BAH With Dependent Rates

BAH Without Dependent Rate	
Rank	2024
E1	\$996
E2	\$996
E3	\$996
E4	\$996
E5	\$1,116
E6	\$1,311
E7	\$1,389
E8	\$1,473
E9	\$1,590
W1	\$1,329
W2	\$1,473
W3	\$1,593
W4	\$1,770
W5	\$1,878
O1E	\$1,404
O2E	\$1,527
O3E	\$1,740
O1	\$1,188
O2	\$1,392
O3	\$1,605
O4	\$1,854
O5	\$1,917
O6	\$2,016
O7	\$2,049

Table 6.4 BAH Without Dependent Rates Implementation Plan

Housing Market Stability

Kentucky is one of the more stable states in the nation when it comes to the housing market. This stability extends to the region as a whole, with the City of Louisville ranked as the 14th most stable housing market among midsize metropolitan areas in the nation. The City has a 22.7% possibility of experiencing a 5% decline in home value after the purchase of a new home. The City of Elizabethtown and Fort Knox rank 54th among small metropolitan areas, with a 31.5% likelihood of witnessing a 5% reduction. While certain areas may be more unstable, the region overall experiences less fluctuation compared to other parts of the country. For example, Georgia has a 49.8% probability of facing a 5% decrease. The below chart showcases the *Housing Market Stability* in the Commonwealth and the focus area.

Housing Market Stability				
	Chance of Experiencing a 5% Drop	Largest Price Drop 2000-Present	Median Home Price	Percent Change in Home Price 2000-Present
Kentucky	12.1%	\$7,673	\$206,517	120.0%
Radcliff/Elizabethtown/Fort Knox MPO	31.5%	\$19,326	\$224,507	113.0%
Louisville/Jefferson County	22.7%	\$12,831	\$243,782	116.0%
Source: U.S. Census Bureau, ACS 2023, https://constructioncoverage.com/research/the-most-stable-housing-markets-2023				

Table 6.5: Housing Market Stability

When forecasting future housing prices, it is crucial to consider the impact the COVID-19 pandemic has had on the market. In the period immediately following the pandemic, there has been a steep acceleration in housing prices. The surge can be attributed to several factors: stimulus checks, extended and expanded unemployment benefits, and increased household incomes. This helped to mitigate what might have been a reduction in housing demand when unemployment spiked to 14.8% in April 2020. Combined with historically low mortgage interest rates, this actually boosted the demand for housing. Stemming from the pandemic was an increase in individuals working from home and the preference for more socially distanced housing, providing a boost to the demand for housing. Additionally, the rise in remote work and the growing preference for socially distanced living contributed to increased housing demand. Remote work led to a rise in prices for larger homes in suburban areas, while the demand for socially distanced living increased the cost of single-family homes compared to multi-family construction.

Under normal circumstances, new construction would gradually increase the housing supply, helping to offset these effects. However, due to supply chain issues that resulted from the pandemic, the cost of constructing new housing has risen significantly. In some cases, materials needed for new construction have even been unavailable.

These effects, in turn, are heightened by consumers having a tendency to base their expectations of future housing prices on recent trends in price growth. As prices continue to rise rapidly, many consumers see this as an opportune time to enter the market and capitalize, generating temporary increases in the demand for housing.

Eventually, the housing price-to-rent ratio will plateau as prices adjust with income levels, and fewer households will qualify for mortgages to purchase homes. This will ultimately reduce pressure on demand. However, these effects are unlikely to impact our region in the coming years. Even if the pandemic-driven housing spike ends, a shortage of available homes, in conjunction with an expected population increase in the region, is likely to place significant pressure on the current housing market- driving demand to unprecedented levels.

Economic Characteristics Throughout the Region

Regional Economic Characteristics						
	Nelson County	LaRue County	Bullitt County	Meade County	Hardin County	Fort Knox
Persons In Poverty %	11.2%	18.0%	9.4%	11.9%	12.6%	4.3%
Per Capita Income	\$33,385	\$28,038	\$34,362	\$34,781	\$35,226	\$31,450
Median Household Income	\$66,212	\$57,867	\$73,900	\$68,518	\$64,136	\$76,864
Total Employment	15,589	1,960	22,845	3,204	37,896	22,000
Total Employer Establishments	990	200	1,222	360	2,219	N/A
Source: U.S Census Bureau, ACI 2023 Quickfacts Table						

Table 6.6: Regional Economic Characteristics

One key takeaway from the chart above is the Total Employment figures. The BlueOval SK Battery Plant is projected to create up to 10,000 jobs across the region, representing an immense increase in the number of employed individuals. This will place an enormous amount of pressure on every sector of the economy, with the housing market being no exception.

Housing Market Overview

This section of the study examines the current housing market in the Fort Knox Region, focusing on the resiliency of the market and its ability to accommodate fluctuating military population demands and the influx of new residents from the BlueOval SK Battery Plant. Both factors are expected to drive increased demand for rental units throughout the area. The following table summarizes key characteristics of the housing markets in each county.

Housing Characteristics

Housing Characteristics						
	Hardin County	Meade County	Bullitt County	LaRue County	Nelson County	Fort Knox
Owner Occupied	29,596	9,074	27,815	4,923	15,569	16
Renter Occupied	14,326	2,258	4,564	1,064	3,528	2,102
% Owner Occupied	62.1%	74.2%	82.6%	74.8%	76.5%	0.7%
Vacant Housing Units	3,736	898	1,295	595	1,254	40
% Vacant Housing	7.8%	7.3%	3.8%	9.0%	6.1%	2.0%
Housing Units	47,659	12,230	33,674	6,582	20,351	2,382
Building Permits 2022	984	137	405	50	307	N/A
Source: US Census Bureau, ACS 2023						

Table 6.7: Housing Characteristics

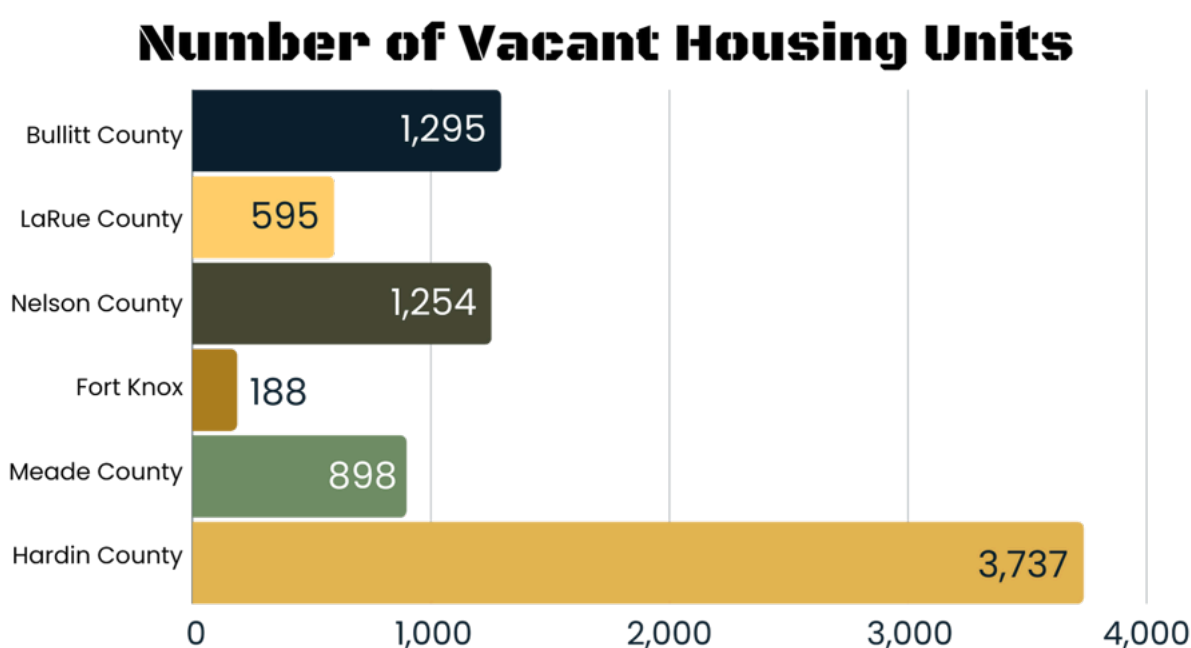


Chart 6.1: Number of Vacant Housing Units

Between 5 and 8% is considered a healthy vacant housing rate. A rate in this range ensures that housing is desirable and affordable. A rate below this range suggests limited housing options, driving up prices and restricting choices for prospective buyers. Conversely, a higher vacancy rate often signals insufficient demand for the available housing, which can lead to a devaluation of properties and an increase in unoccupied homes and rentals. Bullitt County stands as an exception, currently falling below this range, suggesting a stronger housing demand or a lower vacancy rate compared to neighboring counties.

At first glance, the presence of vacant housing units within these ranges suggests that the local housing market has a reasonable buffer, enough to absorb shifts in the population. However, these percentages fail to account for key factors: housing affordability, rapid population growth exceeding historical trends, and new developments that will attract even more residents. This gap in calculation means vacancy rates alone do not fully reflect the region's housing market - especially if they assume gradual, predictable growth rather than the accelerated expansion currently underway.

Owner Occupied Housing Unit Value

The chart below illustrates the *Owner-Occupied Housing Unit Value* by county. Bullitt and Nelson Counties have the highest median housing values, while LaRue County has the lowest. This could attract new residents to LaRue County who are seeking for more affordable housing, even if it requires a longer commute to Fort Knox.

Owner Occupied Housing Unit Value						
	Hardin County	Meade County	Bullitt County	LaRue County	Nelson County	Fort Knox
Median Value	\$186,500	\$187,400	\$214,000	\$164,000	\$204,000	N/A
Median Monthly Owner Cost (With Mortgage)	\$1,347	\$1,285	\$1,440	\$1,191	\$1,273	N/A
Median Monthly Owner Cost (Without Mortgage)	\$410	\$437	\$496	\$383	\$439	N/A
Source: U.S. Census Bureau, ACS 2023						

Table 6.8: Owner Occupied Housing Unit Value

Contract Rent Households by Monthly Rent

The chart below shows Rental Households by Monthly Rent, revealing a broad range of rental rates across the region. In Hardin County, the majority of rental rates fall between \$600 and \$1,249, whereas in Nelson County, they range from \$400 to \$899. This indicates that, while Nelson County is one of the more expensive areas for single-family homes in the region, the rental market is considerably more affordable. Across the region, rental prices have increased dramatically over the past 25 years. In 2000, the average rent in Meade and Hardin Counties was \$341 and \$355 per month, respectively. Whereas, today the median gross rental rates upsurge to \$929 and \$909, respectively. This represents a drastic rise of 272% for Meade County and 256% for Hardin County, a cost increase of roughly 10.56% a year.

Rental Households by Monthly Rent						
Monthly Rent	Fort Knox	Hardin County	Meade County	Bullitt County	Nelson County	LaRue County
Less than \$500	134	4,502	428	1,135	925	593
\$500-999	508	9,120	1,279	3,135	2,436	480
\$1,000-1,499	979	1,799	387	891	110	113
\$1,500-1,999	453	595	171	40	31	35
More than \$2,000	124*	0	0	17	52	0
*Includes homes over \$3,000						
Source: U.S. Census Bureau, ACS 2023						

Table 6.9: Rental Households by Monthly Rent

Housing Units by Structure Size

The chart below shows the *Housing Units by Structure Size* for the region, providing insight into the types of housing available across the focus area. Hardin County has the largest housing stock, with 47,322 structures in total, including the most 20+ unit structures, totaling 1,200. This makes Hardin county a prime location for those seeking apartments, given its significantly larger volume of multi-family housing. Conversely, Nelson County has a high concentration of single-unit structures, making up 82.3% of its total housing stock. This appeals to residents looking for single-family homes, positioning Nelson County as a desirable destination for homebuyers seeking more space and privacy.

Housing Units by Structure Size						
	Hardin County	Meade County	Bullitt County	Nelson County	LaRue County	Fort Knox
1 unit, detached	29,443	7,975	26,576	16,086	5,240	556
1 unit, attached	2,533	594	1,189	509	0	1,167
2 units	1,364	431	143	313	171	283
3 or 4 units	2,721	245	1,380	413	48	77
5 to 9 units	3,525	259	587	524	85	152
10–19 units	2,967	214	31	244	47	101
20 or more units	1,235	113	0	121	0	197
Mobile homes	3,534	2,136	3,124	1,317	858	6
Boat, RV, Van, etc	0	0	224	17	0	0
Total	47,322	11,967	33,254	19,544	6,449	2,539
Source: U.S. Census Bureau, ACS 2023						

Table 6.10: Housing Units by Structure Size

Building Permits

The table below displays single-family and multi-family building permits issued across counties and cities from 2019 to 2023. Over this five-year span, the number of permits has remained steady. However, when compared to permit data from a decade ago, a clear trend emerges, highlighting shifts in regional development patterns.

Single Family Homes Building Permits Issued										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Hardin County	169	327	152	159	160	126	138	161	194	188
Elizabethtown	N/A	150	86	66	85	75	52	67	113	85
Radcliff	69	420	179	N/A/	N/A	N/A	N/A	11	28	21
Vine Grove	69	139	52	61	51	40	48	44	63	42
West Point	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Meade County	N/A	93	106	89	100	93	88	99	97	97
Brandenburg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Muldraugh	N/A	2	0	0	1	1	0	0	0	0
Bullitt County	N/A	288	235	276	294	249	365	461	462	408
Lebanon Junction	N/A	3	2	1	0	1	0	0	0	6
Shepherdsville	N/A	73	59	72	60	48	56	70	84	51
LaRue County	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nelson County	148	144	120	114	164	178	149	153	194	276

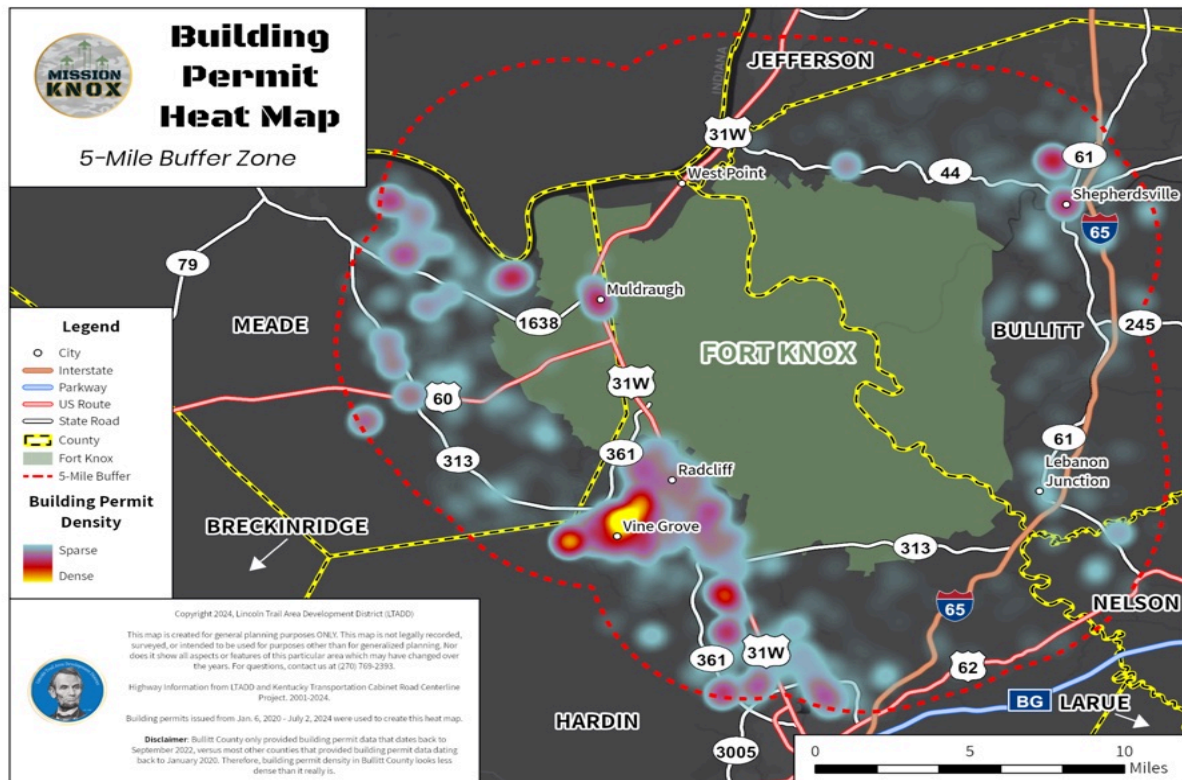
Table 6.11: Single Family Homes Building Permits Issued

When comparing this data to the more recent information in the chart below, it is important to look subjectively, as the first chart only includes single-family data, while the second chart includes both single-family and multi-family building permits. The ratio of single-family to multi-family construction remains high (since an apartment complex counts as one permit). As a result, this comparison still effectively highlights the stark contrast in developments over the past 5 years.

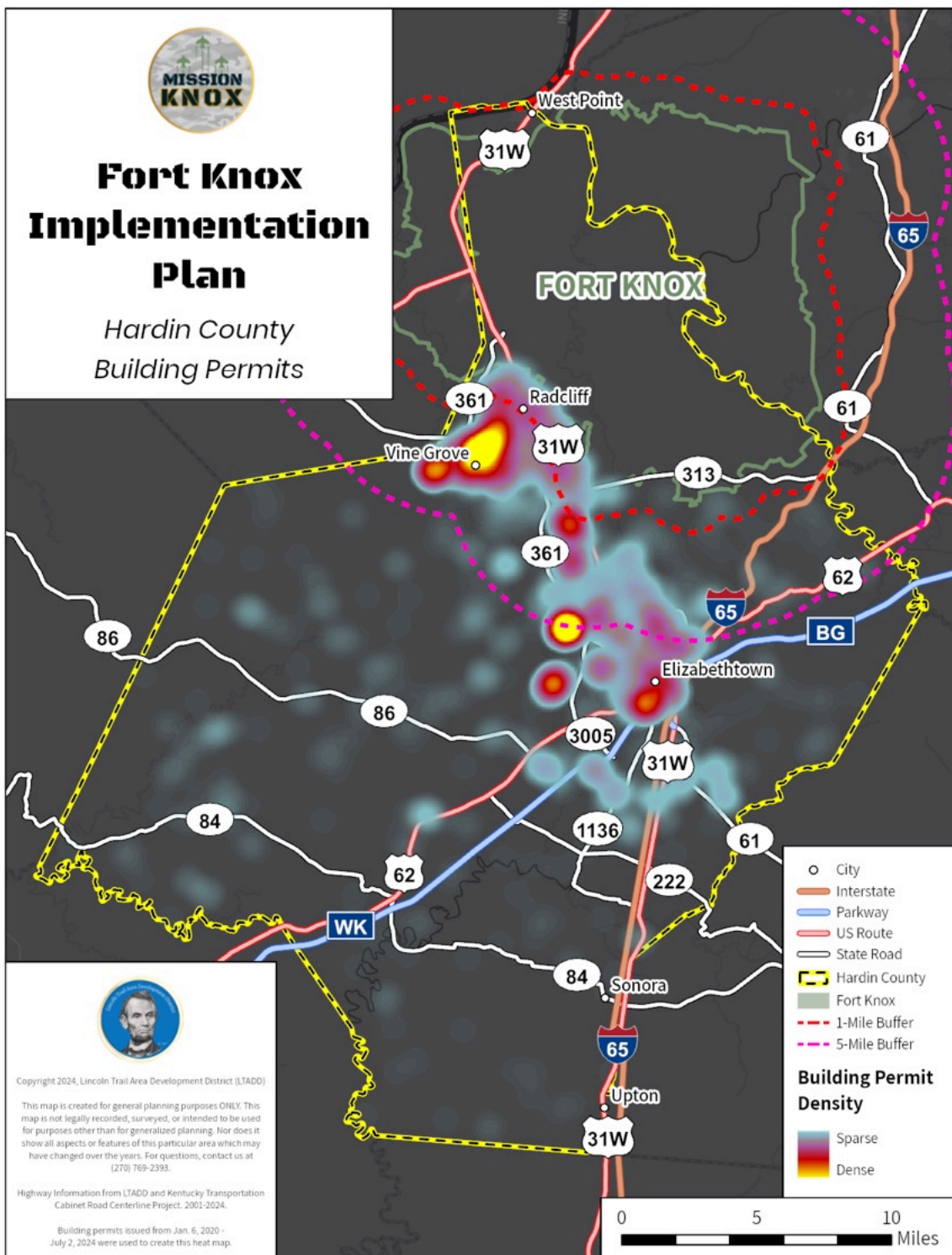
Single and Multi-Family Homes Building Permits Issued					
	Hardin County	Meade County	Bullitt County	LaRue County	Nelson County
2019	482	129*	418*	N/A	305
2020	548	248	464*	N/A	628
2021	495	306	438*	N/A	625
2022	508	496	416*	237	582
2023	535	383	338*	209	564
*Indicates Data is Single Family Only					

Table 6.12: Single and Multi-Family Homes Building Permits Issued

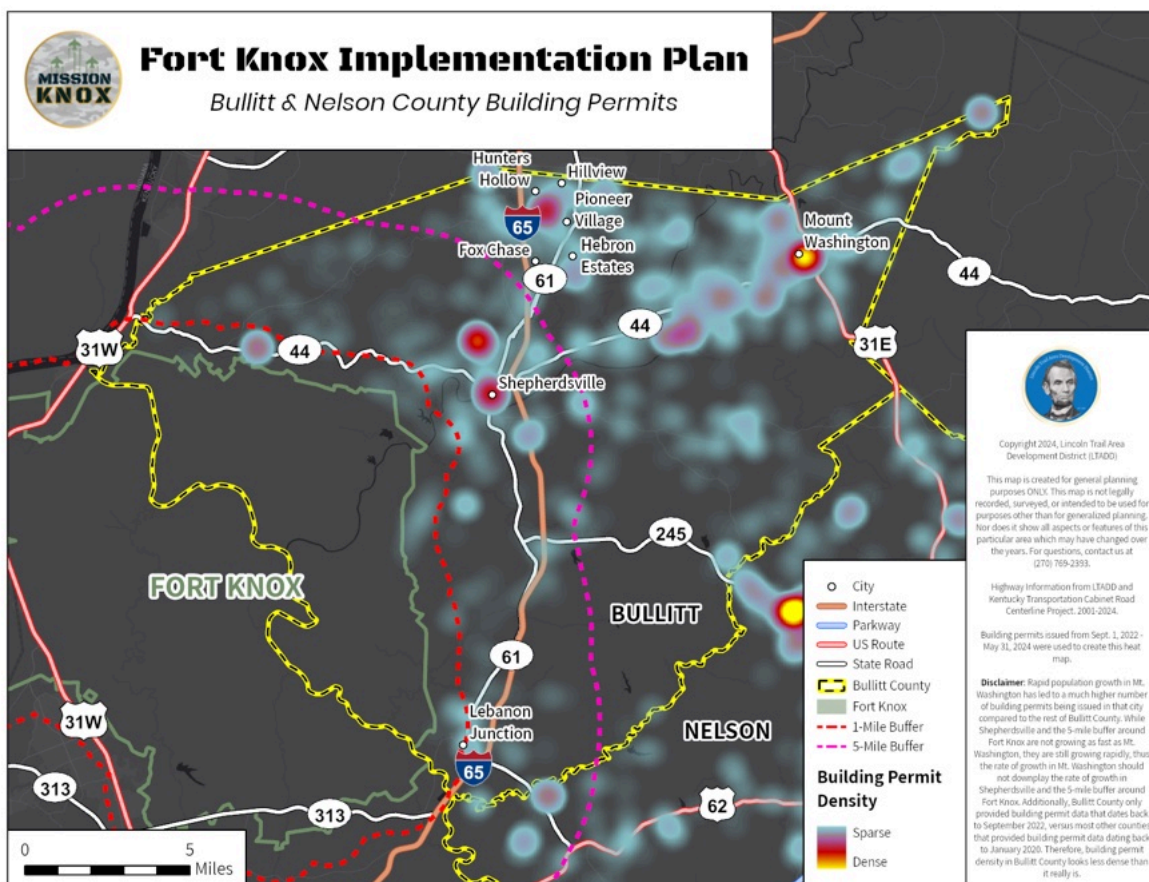
The map below displays the density of where permits are being issued throughout the region and in particular, the 5-mile buffer zone surrounding Fort Knox. A separate heat map for LaRue County will be included in the appendix.



Map 6.1: Building Permit Heat Map: 5-Mile Buffer Zone



Map 6.2 Hardin County Building Permits Heat Map



Map 6.3 Bullitt & Nelson County Building Permits

Additional mapping outlining the other counties from the study can be found in Appendix X.

As shown in the maps above, there is substantial new development occurring in the cities and counties surrounding Fort Knox, especially in the 5-mile buffer zone, with notable activity in the City of Vine Grove. This highlights a few key trends: first, the region is growing at an accelerated rate, faster than in previous years; second, there is a strong local demand for living in close proximity to Fort Knox.

This desire may, for many people, stem from the convenience of a shorter commute to work on post. However, there could be other motivations as well. Some individuals may wish to live closer to family or friends who work or reside on post, while others might be drawn to the economic opportunities that often arise around a military installation. Regardless of the reason, there is clearly a demand for housing near the installation.

While the demand for housing near Fort Knox clearly indicates where people want to live, it does not necessarily mean that these areas are the most suitable for new housing developments. As emphasized throughout this study, building within the 5-mile buffer zone could lead to significant compatible use issues and potentially interfere with the installation's mission. Therefore, indiscriminate construction within this area should be avoided whenever possible. This does not

imply that all housing development within the buffer should be excluded, but rather that such projects must be carefully managed, with a thorough evaluation of the compatible land use, costs, and benefits before proceeding. This is especially important for any development within the 1-mile buffer, where the potential for significant land use conflicts is higher. Housing in this zone requires particularly careful consideration.

Other areas outside the 5-mile buffer that have experienced significant construction in recent years include the Cities of Brandenburg (just outside the buffer zone), Mount Washington (which has seen rapid growth over the past decade), and Bardstown. These communities are likely facing a need for additional housing to meet growing demand. As available land within the 5-mile buffer becomes increasingly limited, the demand for housing in surrounding areas will intensify. Cities like Brandenburg, Mount Washington, and Bardstown, along with Elizabethtown, are expected to be among the first to experience overflow from areas within the buffer, such as Radcliff, Vine Grove, and Shepherdsville.

Interest Rates

As of June 2024, the current interest rate in Kentucky for a 30-year fixed mortgage is 7.14% and 6.55% for a 15-year fixed rate mortgage. These rates are significantly higher than they have been in recent years. If they continue to increase, it will make owning a home further out of reach for the average family.

6.3 Housing Insights

This section of the study analyzes the current housing market in the focus area. The housing data analysis focuses primarily on the market's ability to adapt to changing population demands, as well as the affordability and long-term vitality of the housing market in meeting the needs of Fort Knox. To address the demand for housing, this section will discuss the following factors: the types of housing, availability and quality of housing, locations, affordability, interest rates, and availability of contractors.

Types of Housing

Housing is not a one-size fits all solution. What one person considers sufficient housing may not meet the needs of another. It is essential for a healthy and robust housing market to offer a diverse range of options, ensuring the needs of all types of people are adequately met.

Single Family Homes

Single family homes encompass a wide variety of housing types. This group covers all houses that do not include shared walls, as found in apartments and multi-family dwellings, and excludes transportable prefabricated homes.



Apartments

An apartment is a set of rooms that constitute a single residence, typically located within a building containing multiple units.

Multi-Family Housing

Multi-family dwellings are housing units designed to accommodate multiple families, distinct from apartments in layout or structure.



Mobile Homes

Mobile homes are larger trailers or transportable prefabricated structures designed to serve as permanent residences.

What is Affordable Housing?

There are three dimensions of housing affordability: affordable to build, affordable to rent or own, and affordable to live in.

Ensuring construction of housing remains affordable is key for maintaining affordable housing prices. Building types, design, materials, and methods all contribute to the cost of constructing a new structure. By keeping housing costs low, prospective buyers and renters are provided more options and affordable prices.

Affordability, whether for renting or owning, depends on factors such as mortgage or rental costs, land value, lending conditions, and subsidies. The higher the price to purchase land, the higher mortgage rates or rental prices will be, exceeding what the average individual can afford. Thus, acquiring housing becomes a significant challenge.

Affordability, in terms of ongoing expenses of homeownership, is just as important to consider when it comes to housing costs. Rent or a mortgage is not the only expense accrued when buying or renting a new home. Utility bills, transit costs, operating expenses, and property taxes all contribute to the cost of housing.

This raises the question, what makes housing affordable in the Fort Knox Region?

Housing is considered affordable when the average monthly cost is less than or equal to 30% of a family's monthly household income. The true cost can vary significantly depending on a range of factors that differ from region to region and state to state.

What does this look like for Fort Knox and the focus area?

This will vary from county to county and will differ for each family, whether living on or off post.

Below is a breakdown of the average household incomes across the region.

Median Household Income (2022)						
	Hardin County	Meade County	Bullitt County	Nelson County	LaRue County	Fort Knox
Median Household Income	\$64,136	\$68,518	\$73,900	\$66,212	\$57,867	\$76,864
Maximum Affordable Monthly Housing Cost	\$1,603	\$1,713	\$1,848	\$1,655	\$1,447	\$1,922
Source: U.S. Census Bureau, 2022						

Table 6.13: Median Household Income (2022)

The maximum monthly housing allowance for Fort Knox, set at 30% of the median household income, is \$1,922. This is significantly higher than most of the surrounding counties in the region. Bullitt County has the highest allowance at \$1,848, while LaRue County has the lowest at \$1,447. Any housing with a monthly cost equal to or below these amounts can be considered affordable housing for the average Fort Knox household, based on this criterion.

The affordable monthly rent for someone living on post is around \$300 dollars more than the median for populations living off post in the surrounding communities. What is considered affordable to someone living on post can be a stark contrast to what the average civilian deems affordable. Therefore, if housing remains affordable for civilians, it can be deduced that it will likely be affordable to those stationed at Fort Knox as well.

The median income represents the average income for a household but does not indicate what is considered affordable for those who are lower income individuals or families. It is essential to define affordability when determining housing rates. Currently, there is a significant gap between what is considered affordable housing and the median monthly housing cost on post, which is \$1,178 for renters.

This is currently an advantage for Fort Knox, but it is important to remain aware of rising costs due to market pressures expected in the coming years.

For many, affordable housing is going to be determined by what is covered by the BAH. When considered from this perspective, the affordability of housing on post appears considerably less stable. The lowest BAH amount is \$996 for E1 grade service members without dependents. This differs substantially from the BAH for higher ranking military members (O1: \$1,188 a month without dependents). Fort Knox has an exceptionally high percentage of officers on post, approximately 50%. As a result, a significantly higher percentage of military personnel on this post fall into the higher range compared to other installations.

This significantly alters the perspective on affordability for Fort Knox personnel. With approximately 50% of personnel in the lower BAH ranges, the maximum affordable monthly cost falls well below that of the surrounding area. Ultimately, this places home ownership out of reach for many service members. The average monthly mortgage cost in the region—\$1,357 in Hardin County and even higher in some areas—exceeds the upper limit of the typical BAH range.

The current average mortgage cost is likely lower than that of a mortgage obtained today, given the rise in mortgage interest rates. Mortgage rates today could be double what they were a decade ago, significantly increasing monthly payments for new homeowners, including soldiers moving into the community. As a result, homeownership is becoming increasingly out of reach for the average service member stationed on post. increasingly out of reach for the average service member stationed on post.

When comparing BAH to rental prices, living on post appears more affordable. However, it remains borderline for those on the lower end of the BAH range. The median rent on post is \$1,178 per month, which is not covered by BAH for E1 service members and is only fully covered at O1 level. Off-post rental prices average in the high \$800s to low \$900s, making average or below-average rental housing affordable for those at the lower end of the BAH range. However, more desirable rental options can quickly approach or even exceed the cost of a mortgage in some areas.

BAH has not kept pace with the rapid rise in rental prices, which have increased significantly in recent years. Should this trend continue, and off-post housing costs begin to rival on-post rentals, personnel at the lower end of the BAH scale may be priced out of the local housing market. This could create significant challenges for Fort Knox, as it may soon struggle to secure adequate housing for its personnel. Given the already tight financial status based on BAH, any further price increases could severely impact soldiers' ability to find housing. If service members are unable to find housing, they will have to look for accommodations farther from the installation. This, in turn, could limit their ability to report to post at critical times, especially during unforeseen events, like traffic delays or weather conditions.

What level of price increase can residents realistically afford?

With inflation recently at record highs and housing demand expected to rise in the coming years, it is likely that housing prices across the region will experience a significant increase. To ensure that this does not hinder Fort Knox's ability to carry out its missions, it will be crucial to ensure that personnel can absorb these rising costs.

In the current rental market, there is a significant affordability gap, based on the median income of residents on post. A higher median income on post will help Fort Knox personnel absorb price increases in the market compared to those in surrounding communities. However, this is not necessarily the case for lower- income personnel, who are already disproportionately affected and less equipped to handle unexpected expenses or rising housing costs.

Lower-income individuals have a tendency to be renters, as they cannot afford the additional cost of a mortgage along with other miscellaneous costs associated with homeownership. When looking at mortgage costs and what potential homeowners would have to pay, a significant portion of the discrepancy is reduced.

Mortgage and Rental Cost Compared to Affordability						
	Hardin County	Meade County	Bullitt County	LaRue County	Nelson County	Fort Knox
Median Monthly Owner Cost (With Mortgage)	\$1,347	\$1,285	\$1,440	\$1,191	\$1,273	N/A
Maximum Affordable Monthly Housing Cost (For Households)	\$1,603	\$1,713	\$1,848	\$1,655	\$1,447	\$1,922 BAH (\$996-\$1,188)
Maximum Affordable Monthly Housing Cost (Individual Income)	\$1,202	\$1,284	\$1,386	\$1,241	\$1,085	BAH
Median Gross Rent	\$909	\$929	\$947	\$816	\$913	\$1,178
Source: U.S. Census Bureau ACS 2023						

Table 6.14: Mortgage and Rental Cost Compared to Affordability

The average mortgage cost is \$300-\$400 more per month than the average rental cost. Furthermore, the cost of housing is closer to the maximum affordable range for those within close proximity to the median income band. This discrepancy in costs is relatively small in Nelson County, where it decreases to \$174 dollars. As various costs fluctuate in the economy, they can place an additional burden on households, further depleting already strained finances. As this gap erodes, everyone, regardless of income level is impacted. For many, the “American Dream” still includes homeownership and if prices continue to rise disproportionately to income, it will become considerably more difficult to achieve this dream.

The maximum affordable monthly housing cost is based on the household income, not the individual income. When affordability is determined by the household income and not the individual income, it skews the costs and is not truly representative of affordability. In single-income households, the maximum affordable housing costs can be half or less. Nationally, more than 53% of households are considered dual-income. The average maximum affordable monthly housing cost based on household income will be 50% higher than if it were based on individual income. When making these calculations based on a single income, which apply to 47% of households, the maximum affordable housing cost becomes closer to \$1,200 a month in most counties and below \$1,100 in Nelson County. These rates are below the average mortgage cost and closer to the average rental cost. The figures are also based on the maximum affordable cost, representing the amount that a budget, stretched to its limits, could theoretically accommodate. As

total housing costs increase and narrow the gap between cost and affordability, there is less flexibility for unexpected expenses.

It is important to note the higher rental costs for living on post as compared to off-post. As previously mentioned, the average rental cost of living on post is nearly \$300 per month more than off-post. In LaRue County, the difference is even greater, reaching almost \$400 difference. It is clear that those choosing to live off post are doing so because of the increase in affordable housing options. Should prices change and communities off-post begin to approach on-post rates, these individuals would likely experience significant financial pressures.

Types of Housing Available

As discussed in the previous section, housing needs vary based on family composition and economic status. Therefore, a region's demographics will significantly influence the types of housing needed to meet demand. Housing in the Fort Knox Region leans toward single family housing units which is reflected in the types of housing available.

Housing Units						
County	Hardin	Meade	Bullitt	Nelson	LaRue	Fort Knox
Units	47,322	11,967	33,254	19,544	6,449	2,382
Vacant Units	3,736	898	1,295	1,254	595	188
Additional Need	4,578	669	3,749	1,726	500	N/A
Single Family Units	29,443	7,975	26,576	16,086	5,240	N/A
Multi-Family Units	14,143	3,094	5,383	2,204	614	N/A
U.S. Census Bureau, ACS Data 2023						

Table 6.15: Housing Units

As identified by the chart above, a variety of housing units are available across the focus area, indicating significant housing needs. As a caveat, just because there is housing available in an area, it is not a direct correlation to the accessibility of the available housing. The available housing must align with the income levels and specific needs of current and future residents. A more detailed explanation of this disparity will be provided in the *Needs Moving Forward* section of this document.

The Census' vacant housing data can be slightly misleading as to the amount of housing available in any given area. The data show the number of homes that are currently empty, not the number of homes that are currently available. Homes that are stuck in foreclosure proceedings or dilapidated/inhabitable, are counted in the Census as being vacant. The number of vacant homes actually available becomes even fewer than the vacancy numbers reflected in the Census data.

In recent years, there has been a rise in housing developments due to increasing regional demand for housing. Notable developments have occurred in Muldraugh as well as in larger cities like Elizabethtown. The housing developments in Muldraugh are particularly relevant to Fort Knox due to their close proximity, offering convenience for Fort Knox personnel while also raising potential encroachment concerns for the post. The City of Muldraugh is in the early stages of constructing a 70-unit low-income housing development. The project site is 6-7 km from a machine gun range and within the Fort Knox flight path. This proximity may lead to increased noise complaints, requiring awareness of the potential impacts. To ensure compatibility, the development should address factors such as lighting and noise. For example, lighting should be downward-facing to minimize disruption during night training. Additionally, the leasing process should include language informing prospective tenants of the nearby active military installation, requiring them to acknowledge and initial their understanding of potential impacts.

The City of West Point has property available for potential development. This parcel borders the base of a Fort Knox firing range, which may generate noise complaints and interfere with the installation's training due to encroachment. Despite these concerns, the region continues to face a significant housing shortage, requiring ongoing construction of housing units across various price ranges to meet growing demand.

Availability of Contractors

The COVID-19 Pandemic triggered supply shortages, leading to delays on critical infrastructure and construction projects. Consequently, this led to significant backlog and delays in construction as well as rising labor costs and supplies for contractors. Even now these ramifications are still present in various degrees. The region continues to experience a shortage of available contractors to manage the demand for construction projects across transportation, residential, industrial, and commercial sectors.

As the demand for construction projects grows alongside economic developments, these contractors will be stretched. In addition to the limited number of contractors, affordability remains a concern. Generally speaking, most contractors could be more likely to prioritize projects that offer the highest profit margins. These contractors tend to build larger single-family homes, which do not address this region's most pressing housing needs. Unfortunately, affordable housing may not entice contractors who seek more substantial profit margins. For cities and counties to effectively address the housing shortage in their communities, it will be crucial to find ways to incentivize contractors to take on a broader range of projects. Encouraging the development of diverse and affordable housing options will be key to making a meaningful impact.

The specific types of housing projects required will be discussed in greater detail later in this study, particularly in the "Needs Moving Forward" section. However, the greatest current demand is for affordable housing options.

Quality of Housing/Quality of Locations

If the quality of housing is vastly inadequate such that residents are unwilling to live there, or if the locations of available housing are uncomfortable or undesirable, it can have a deeply negative impact on the population across the entire region. Poor housing quality discourages new residents, makes it harder to retain current ones, and lowers overall quality of life. A high quality of life directly correlates with strong economic investment, as a satisfied workforce tends to be more productive.

Future Housing Location Concerns

It will be essential for every county and city in the region to keep building new housing or expanding their existing facilities. Logically, areas that offer easy access to Fort Knox are ideal locations for construction of affordable housing. However, this construction needs to be pursued with caution. To prevent land use conflicts and support both current and future missions at Fort Knox, local communities must carefully plan where they build, maintain existing land use patterns, and mitigate encroachment in key areas around the installation.

The map linked in Appendix 2.23 highlights critical priority areas surrounding Fort Knox. At present, the housing areas of greatest concern, both in terms of need and the potential risk of encroachment, are Zone A and Zone C. These zones have high-density residential development within the 1-mile buffer zone and are experiencing significant economic growth and development. The identified zones are also located in counties facing a critical shortage of housing to meet current demand. Local decision-makers must carefully evaluate the impact of low- to high-density housing developments in these priority zones, ensuring they support mission resiliency at Fort Knox.

Personnel Changes

Fort Knox personnel change frequently, as soldiers are relocated due to base realignment, Permanent Change of Station (PCS) orders, deployment cycles, career development and training, operational needs, or personal and family considerations. These transitions continually shift the demand for on-post housing. This section outlines both past and future personnel changes and how these impact future housing demands.

BRAC Realignment/Broad Personnel Shifts

Base Realignment and Closure (BRAC) in 2005 brought significant personnel changes at Fort Knox. Significant shifts in where commands are located can have a potentially massive impact on the personnel stationed on post.

Yearly Fluctuation

Fort Knox personnel movements fluctuate throughout the year, often aligning with the school year cycle. The month of August has the highest demand, as people seek to secure housing and move in before the school year begins. There tends to be a slight decrease in housing demand during the holiday season (December through January). Then, the numbers return back to normal before the summer season as personnel begin the process of moving again. Generally, throughout these cycles, as people transition out of their positions, others quickly step into them. Additionally, the rank of those filling the positions usually remains consistent. What changes significantly during this

process is the household composition of those taking on the positions. This variability makes it challenging to accurately forecast which types of housing will be in the highest demand each year.

REMPO Public Transportation Study

The Radcliff-Elizabethtown Metropolitan Planning Organization recently completed a public transportation study for the Radcliff-Elizabethtown metropolitan area. The study was conducted to determine the viability of establishing fixed-route public transportation services throughout Elizabethtown, Radcliff, and extending to Fort Knox. Although the findings of the study have yet to be implemented there appears to be significant demand and interest in establishing the service. If fixed-route services are established it will likely increase the demand for housing in and around those bus stop locations. Included in the appendices is a map indicating the proposed bus routes and stop locations. While these locations are not final, they could heavily influence where there will be increased housing demands moving forward.

6.4 Needs Moving Forward

As mentioned in previous sections, a simple snapshot of the current housing market might suggest that sufficient housing exists in the region. However, several other factors must be considered, which present a very different picture. This section explores these factors in greater detail and examines the needs they create for the region moving forward.

Issues and Opportunities

Recent population data reveals issues facing the current housing market. The primary obstacles to housing moving forward include steady population growth that exceeds national norms, the affordability of available housing, and the anticipated population increase due to the BlueOval SK Battery Plant in Hardin County.

The Kentucky Housing Corporation (KHC) currently ranks Hardin County 6th in the Commonwealth for its housing supply gap. The housing supply gap refers to the difference between available housing and the anticipated demand based on population projections and affordability. KHC projections estimate that Hardin County is approximately 4,578 units short of meeting current housing needs, with the gap nearly split between single-family homes and apartments. However, these estimates do not account for the surge in population expected when BlueOval SK becomes fully operational. Consequently, the housing shortage will further intensify if new housing options are not readily available. This ripple effect will extend beyond Hardin County, as new residents relocate and demand for housing spills into neighboring areas.

The region is anticipating accelerated growth due to BlueOval SK. Between 2010 and 2020, Hardin County's population grew by 4.9%, with the surrounding region experiencing a similar increase. In just the past three years, the population has risen by 2.3%. If this trend continues, the area will see an 8% population increase over the next decade, even without accounting for the growth directly attributed to BlueOval SK. This unprecedented growth will be a direct correlation to the demand for housing.

Affordability is a key factor in KHC's findings regarding Hardin County's significant housing shortage. While housing may be available, much of it is priced beyond the reach of lower-income residents. A region may have 10,000 homes, but if all of them are priced three times higher than what local residents can afford, it still faces a housing shortage.

It will be crucial to consider the circumstances of those living on post who fall within lower income brackets or have expenses that limit their ability to allocate additional income to housing. When the housing market is constricted and prices inflate, the first group affected is those living on the margins of the income range. Without affordable housing options available, this socio-economic group can quickly find themselves at risk of homelessness. The challenge of hard-working individuals being priced out of the market and unable to secure a home will need to be closely monitored moving forward, both for Fort Knox personnel and residents in the surrounding areas.

Community First Federal Mandate

To foster a community-first mindset and strengthen the relationship between military installations and the surrounding communities, the Department of Defense (DoD) has implemented the Community First Federal Mandate. This mandate requires 70% of Fort Knox personnel to reside in the surrounding communities, with the remaining 30% housed on post—capacity that Fort Knox currently has. To meet federal requirements and adequately house the remaining personnel, it is vital for adjacent local jurisdictions to provide sufficient housing options. Currently, 40% of personnel reside on post, equating to a reduction of 1,000 households off post to achieve the federal mandate. It will be crucial for local jurisdictions to support the military in efforts in absorbing the additional 10%.

Regional Opportunities for Growth

With this region's unprecedented growth comes both challenges and opportunities. It is important that the region prepares not only for the challenges but also capitalizes on the opportunities to foster positive growth that will benefit both Fort Knox and the surrounding counties for years to come.

One opportunity for the region, which could also present a significant challenge if not carefully managed, is the potential for substantial income growth tied to the upcoming BlueOval SK Battery Plant in Hardin County. The plant is expected to create around 10,000 jobs, many of which will offer wages above the current median income level. This influx of higher-paying jobs is likely to increase the average income, benefiting many residents by providing greater financial stability, flexibility, and opportunities.

A potential challenge arising from this economic growth is a corresponding increase in the cost of goods and services, as businesses may seek to capitalize on the influx of money into the regional economy. For those whose incomes haven't increased—primarily individuals not directly connected to BlueOval SK, whose jobs predate the economic boost—these rising costs could be financially devastating, particularly for those who are already facing financial challenges.

This shift is particularly relevant to Fort Knox, where personnel stationed on post are unlikely to be working at the BlueOval SK Plant and, as a result, won't directly benefit from the regional increase in average income. However, they will still be affected by the economic pressures, including rising costs for housing, groceries, and other essentials, which will inevitably take a toll on their monthly budgets.

Fortunately, the median income on post (\$76,864) is significantly higher than the regional median income (\$58,760), which means those living and working on post may be better positioned to handle a sudden rise in the cost of living. However, there are still important concerns that need to be addressed moving forward. The primary issue, as it is across many counties in the region, is how individuals at the lower end of the income spectrum will be impacted. For those on post who are already struggling financially, how will they adapt to these cost increases? Are there sufficient low-cost housing options available on post to accommodate these individuals? If so, can the current supply meet a sudden spike in demand for affordable housing? These are key questions that must be considered as the region's economy evolves.

Fort Knox's housing capacity is operating at 92%, but that rises to 98% most of the year. With limited housing options available, 60% of personnel living off-post may begin to relocate, leading to rising housing costs throughout the region. This raises the question: Will Fort Knox be able to accommodate a potential increase in demand for on post housing if off post housing costs continue to rise?

Fort Knox is somewhat dependent on the surrounding area to accommodate its overflow housing needs. In return, it stimulates the region's economy with its \$ 5.6 billion in economic influence. It is crucial that Fort Knox and the surrounding area collaborate and coordinate efforts to ensure that this momentum does not negatively affect the region's most established economic driver.

What Types of Housing are Needed?

As previously established, housing availability is a priority throughout the region, which raises the question: What specific types of housing are needed?

The Kentucky Housing Corporation (KHC) has provided a breakdown of the amount of the housing needed in the region to meet current demand. The chart below illustrates the housing needs by county to accommodate the current population demands.

KHC Housing Needs					
	Hardin County	Meade County	Bullitt County	LaRue County	Nelson County
Population	113,288	30,436	85,186	15,217	48,032
Total Households (TH)	44,237	11,315	32,730	6,039	19,181
Total Households Needed (THN)	4,578	669	3,749	500	1,726
Ration of TH to THN	10.0%	6.0%	11.0%	8.0%	9.0%
Source: Kentucky Housing Corporation					

Table 6.16: KHC Housing Needs

As noted in the demographic section, each county has a certain percentage of homes currently vacant. So, why is there still a need for more housing despite this vacancy? The answer is not entirely straightforward, as several factors can contribute to a home remaining vacant. One explanation mentioned earlier lies in how the census defines "vacancy" and how its criteria may not align with what is actually available for people to move into. Beyond this, a key factor contributing to vacant homes in the region is cost, as will be explained further below.

The previous section highlighted the importance of affordable housing in maintaining a healthy housing market. There is no doubt that a shortage of affordable housing exists across the region, and addressing this gap is a key priority. However, what is required to meet future housing needs overall? Below, is a breakdown of the current housing needs by county, covering all income levels.

Housing Unit Needs by County by Income Level						
	Number of Units Needed by Income Level (Based on Median Income)					
	≤ 30%	31-50%	51-80%	81-120%	121- 150%	151%+
Hardin County	1,600	659	926	573	282	538
Meade County	225	103	113	89	49	90
Bullitt County	1,079	599	741	590	337	403
LaRue County	204	88	82	60	29	37
Nelson County	553	291	277	249	147	209
Source: Kentucky Housing Corporation						

Table 6.17: Housing Unit Needs by County by Income Level

The chart, also generated from KHC analysis, illustrates that while housing shortages exist across all income levels, the most critical need is for those earning below the median income, particularly individuals earning less than 30% of the median. In Hardin County, of the 4,578 units needed, 1,600 are required for this lower-income group. For these residents, the main concern is not just finding a vacant home, but whether they can afford to pay for it. Beyond the humanitarian challenges of individuals being unable to secure housing, the broader economic impacts of increased homelessness due to a strained housing market could negatively affect the entire population. Ensuring the availability of affordable housing for lower-income residents will be crucial for the region moving forward.

Housing Cost and Affordability		
Share of Severe Cost Burdened Households		
County	Renter	Owner
Bullitt	15.9%	7.0%
Hardin	14.4%	5.5%
LaRue	19.1%	11.1%*
Meade	13.3%	6.9%
Nelson	20.0%	6.2%
*6th in the State		
Source: Kentucky Housing Corporation, Supply Gap Analysis: Phase 2 Report		

Table 6.18: Housing Cost and Affordability

Severely cost-burdened households are those that spend 50% or more of their income on housing, which, in the long-term, is not financially sustainable. The table above provides a breakdown of the percentage of households in each county that are severely cost-burdened, highlighting the strain on the current housing market. As these numbers rise, more families are being pushed into housing they cannot afford due to a lack of affordable options. Nelson County has the highest percentage of severely cost-burdened renters in the region, while LaRue County has the highest percentage of cost-burdened homeowners, at over 11%. This makes LaRue the 6th most cost-burdened county in the state for owner-occupied homes.

These breakdowns highlight the housing needs in the counties surrounding Fort Knox, but do not specifically address the housing concerns on the post itself. However, the needs remain highly relevant to the future housing stability at Fort Knox. Due to available housing on post being near full capacity, Fort Knox is unlikely to accommodate a significant influx of personnel currently living off post due to regional housing shortages. At present, the average wait for housing on post is about 30 days. Personnel are allotted 10 days in the hotel; however, additional hotel costs must be covered by the service member's BAH. For most active-duty personnel, BAH is unlikely to cover the cost of the remaining 20 days.

As the percentage of cost-burdened households continues to increase, the strain on the housing market around Fort Knox will only rise. This will place further pressure on personnel attempting to live off post, as an increasing number of them begin to fall into this cost-burdened category themselves. It will be important to address this issue to help maintain the long-term economic viability of living in the communities surrounding the post.

Potential Impact of Institutional Investors

Institutional investors are external companies or organizations that invest capital on behalf of individuals or groups. Typically, large firms face less oversight than individual investors. In the housing market, these investment groups often focus on building housing in areas they believe have strong potential for economic growth. While this can initially appear to be a positive development—bringing more investment and new housing to the region—it can also present certain challenges depending on the circumstances and the level of planning involved.

When these groups purchase large amounts of property, it can put additional strain on an already struggling housing market, especially as they acquire scarce resources like land or existing homes that individuals might otherwise be trying to buy. This can drive up prices across the market, making housing even less affordable for many people. As a result, more individuals are priced out of an already expensive market, further exacerbating the shortage of affordable housing. This cycle can contribute to a rise in homelessness, even as the overall housing supply increases.

Increasing Supply

Update Zoning & Limit Barriers to Development

Restrictive or outdated zoning regulations can pose significant obstacles for home builders seeking to develop new housing in the region. Even when builders have both the resources and the desire to construct new homes or apartment complexes in high-demand areas, restrictive zoning laws that render such projects either impossible or prohibitively expensive will likely drive them to seek opportunities elsewhere. This is particularly important when it comes to building housing near Fort Knox. While certain areas around the installation must be intentionally developed to mitigate encroachment, proximity to Fort Knox remains highly desirable for many personnel who work there. Therefore, it will be crucial for local jurisdictions in the focus area to closely monitor planning and zoning maps, ensuring that a myriad of building opportunities exist where feasible, while still safeguarding the installation's boundaries.

Create Build Ready Lots

A highly effective way to support housing developers in finding suitable locations for new construction—where it will not conflict with Fort Knox and where costs remain manageable—is by creating build-ready lots in areas that have been pre-screened for compatibility with housing. This approach enables city and county planners to strategically select locations for development, ensuring that housing projects will not cause any compatible use issues with Fort Knox. Additionally, preparing these lots in advance helps reduce construction costs for developers, as they will not face unexpected expenses that can arise when working with undeveloped or unprepared land. Lowering these costs makes it much more appealing for developers to proceed with projects.

Support and Promote Off-Site Construction

One effective way to reduce construction costs for homebuilding and encourage the development of more affordable housing is to support and promote off-site construction methods. While traditional stick-built construction is not inherently more expensive, advancements in prefabricated

and modular construction are making these alternatives increasingly appealing to builders. Although adjusting zoning regulations to permit these types of homes may not immediately lower costs for developers, it will provide them with more options when starting new projects, potentially leading to cost savings and greater flexibility in the long term.

Communicate with Legislators

Finally, and perhaps most importantly, local planners and officials must continue raising awareness across the Commonwealth about the urgent need for housing in the region. The more stakeholders who understand the issue, the higher the chances of effective action being taken. Addressing the housing shortage will require a coordinated, regional effort, and it is crucial that all levels of government actively engage to ensure the necessary resources to tackle the issue effectively and in a timely manner.

7

CONSERVATION & LAND RISK ANALYSIS



7

CONSERVATION & LAND RISK ANALYSIS

Section 7 analyzes historical data on natural disasters within the focus area to develop a land risk assessment. This analysis seeks to quantify the region's vulnerabilities and guide collaborative efforts in mitigation and conservation planning. To effectively manage these impacts, a range of conservation strategies and dedicated stakeholders must be engaged to achieve these goals.

7.1 Approach & Methodology

This section outlines the steps involved in conducting a comprehensive risk analysis and assessment, focusing on natural hazards and incompatible land use. The goal is to strengthen the partnership between the surrounding communities and the military. It details the process of data collection, risk analysis, regional mitigation and conservation planning, as well as the steps for implementation.

Data Collection and Mapping

Data on land use and natural hazard conditions were compiled utilizing Geographic Information System (GIS) tools to produce a variety of maps, including those depicting land use, zoning, hazard resource inventories, and demographic information.

Identifying Incompatible Land Uses

Incompatible land uses within the 1 and 5-mile buffer zones around Fort Knox can impede military operations and training activities, which, in turn, can negatively impact local communities. Identifying incompatible land uses involves overlaying current and planned land use data with military training areas to determine potential areas of incompatibility.

Risk Analysis

A comprehensive risk analysis evaluates the likelihood and potential impact of various incompatible land uses on both military operations and local communities. This process involves identifying areas most vulnerable to land use conflicts, determining land best suited for conservation easements, and assessing other land risks, including natural hazards.

Stakeholder Engagement

Engaging local stakeholders- including government agencies, community organizations, developers, and conservation groups - is essential for the comprehensive risk assessment. These stakeholders provide valuable insights into local land use trends, community concerns, and potential opportunities for collaboration on conservation and mitigation efforts.

Mitigation and Conservation Planning

A comprehensive list of mitigation and conservation strategies should be developed, outlining actions to prevent incompatible land uses, such as zoning changes, development restrictions, and strategic land acquisitions. Additionally, the list should identify parcels of land best suited for conservation easements, prioritizing those that provide significant natural benefits and help maintain buffer zone standards.

Implementation and Monitoring

Implementing the mitigation and conservation strategies requires collaboration and coordination among military officials, local governments, and conservation organizations. Forming a consortium will facilitate the development and communication of shared conservation objectives and mitigation efforts.

Regular reviews and updates to the risk analysis will ensure the continued protection of the buffer zones around Fort Knox, maintaining land use compatibility with both military operations and community needs.

7.2 Comprehensive Risks

Considering all potential threats and vulnerabilities when assessing risks within the 1 and 5-mile buffer zones, will lead to the development of robust and coordinated mitigation strategies. While all communities face natural hazards, such as storms, floods, and earthquakes, the level of risk can vary based on geographical location. Risks are influenced by environmental factors, social dynamics, and economic conditions. Some areas may experience specific hazards more frequently and intensely, resulting in varying impacts. To identify, assess, and mitigate these risks, FEMA, in collaboration with various federal, state, and local agencies, universities, nonprofit organizations, and businesses, developed the National Risk Index (NRI) as a comprehensive assessment tool.

The NRI scoring system provides a numerical representation of a community's vulnerability to natural hazards, factoring in exposure, societal vulnerability, and resilience. Scores range from 0-100 scale, reflecting a community's relative risk compared to others nationwide. Once the scores are aggregated, communities are assigned a risk percentile ranking, simplifying comparisons. These scores help decision-makers prioritize resources, planning, and mitigation strategies, with higher scores indicating areas that require more immediate attention. ¹

By utilizing the NRI, greater clarity and insights into the risks prevalent in the focus area counties were gained. This, in turn, enabled the development of a risk analysis for the region, ensuring the protection of military missions and training activities while also safeguarding the safety and security of surrounding communities.

Risk is categorized as low risk (0 - 30%), moderate risk (31 - 60%), and high risk (61 -100%). The severity of a natural disaster, depending upon the community, falls into one of these categories. After calculating the risk scores, Bullitt County was identified as having the highest overall threat score at 75%, followed closely by Hardin County at 72%, both classified as high risk for natural hazards. In contrast, Nelson County's risk severity was 54%, while Meade County had the lowest threat score in the focus area at 44%. Both Nelson and Meade Counties are considered moderate risk.

Bullitt and Hardin Counties are classified as high-risk, indicating that they are more likely to experience frequent or severe natural weather disasters, such as floods, tornadoes, and storms. This elevated risk makes these counties particularly vulnerable to the impacts of such events, potentially causing significant damage to infrastructure, property, and the local economy. Moreover, these counties may face increased societal vulnerability due to factors such as population density, socioeconomic conditions, and access to resources, which can exacerbate the effects of natural disasters.

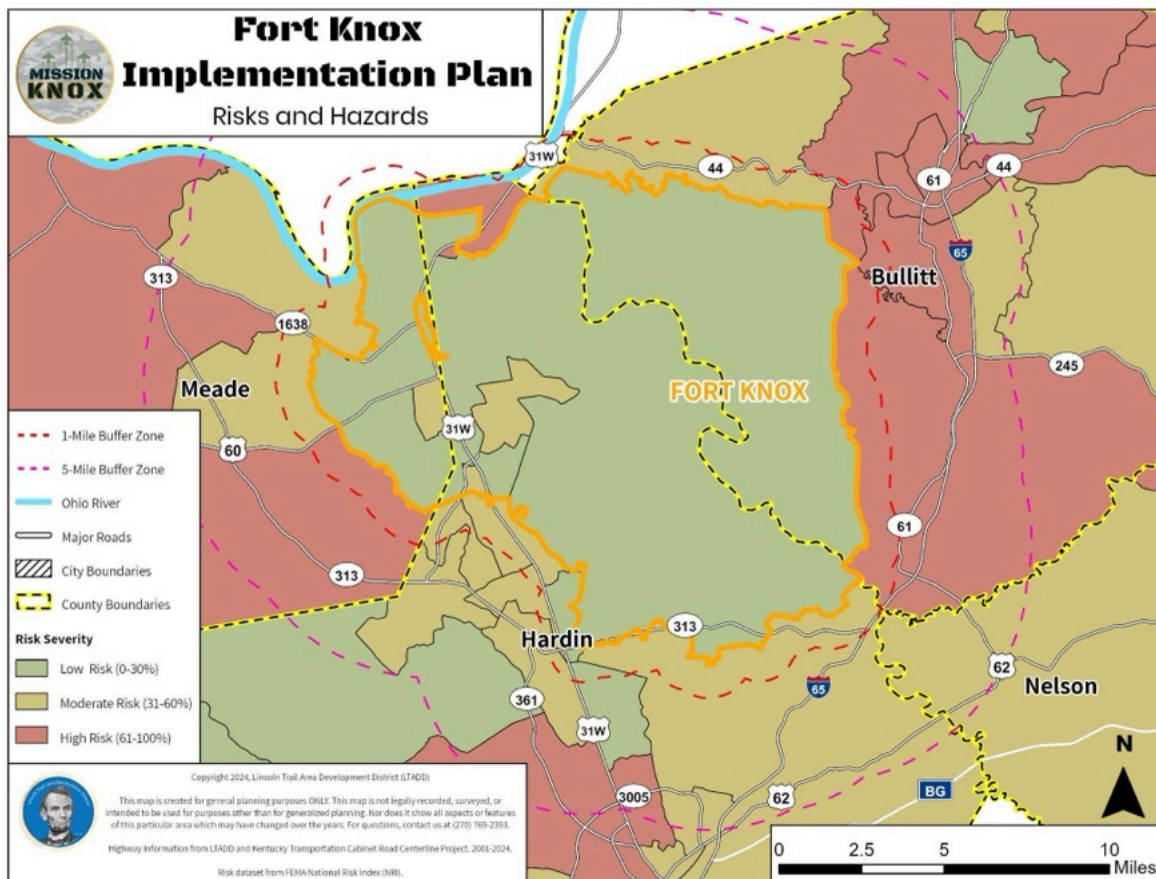
Despite these challenges, both counties may still possess resilience. This resilience can be reflected in factors such as community preparedness, emergency response systems, and the ability to adapt through mitigation efforts like enhanced building codes, land-use planning, and disaster recovery programs. The overall capacity for recovery and long-term sustainability will depend on how effectively these counties can leverage their resources and coordinate with local, state, and federal agencies to strengthen their disaster response and reduce future risks.

Meade and Nelson Counties fall within the moderate-risk category, indicating these areas experience a moderate frequency of natural hazards, such as storms, floods, and other weather-related events. While they may not face the same level of extreme or frequent disasters as high-risk counties, they remain vulnerable to the impacts of such events. These counties strike a balance between societal vulnerability and resilience. On one hand, their vulnerability may stem from factors such as population density, infrastructure, or limited resources, which can affect their ability to respond to or recover from natural disasters. On the other hand, they demonstrate resilience through established emergency response systems, community preparedness initiatives, and the ability to implement mitigation strategies like flood control, land-use planning, and disaster recovery programs.

This combination of moderate risk, along with a balance of vulnerability and resilience, places Meade and Nelson Counties in a unique position. While they may not require the same level of urgent intervention as high-risk areas, they must still prioritize disaster preparedness and mitigation efforts to minimize potential damage and ensure rapid recovery in the event of a disaster. Continued investment in infrastructure improvements and community education will strengthen their resilience, better equipping them to manage the challenges posed by natural hazards.

The natural hazards identified as prevalent within the region include karst, tornadoes, and flooding. These hazards will be described in further detail in the following section. Maps demonstrating the risk severity levels for all hazard types used in calculating the NRI, can be found in Appendix 2, Section 13 to 21.

The map below illustrates the risk severity levels within the 1 and 5-mile buffer zones.



Map 7.1: Risks and Hazards

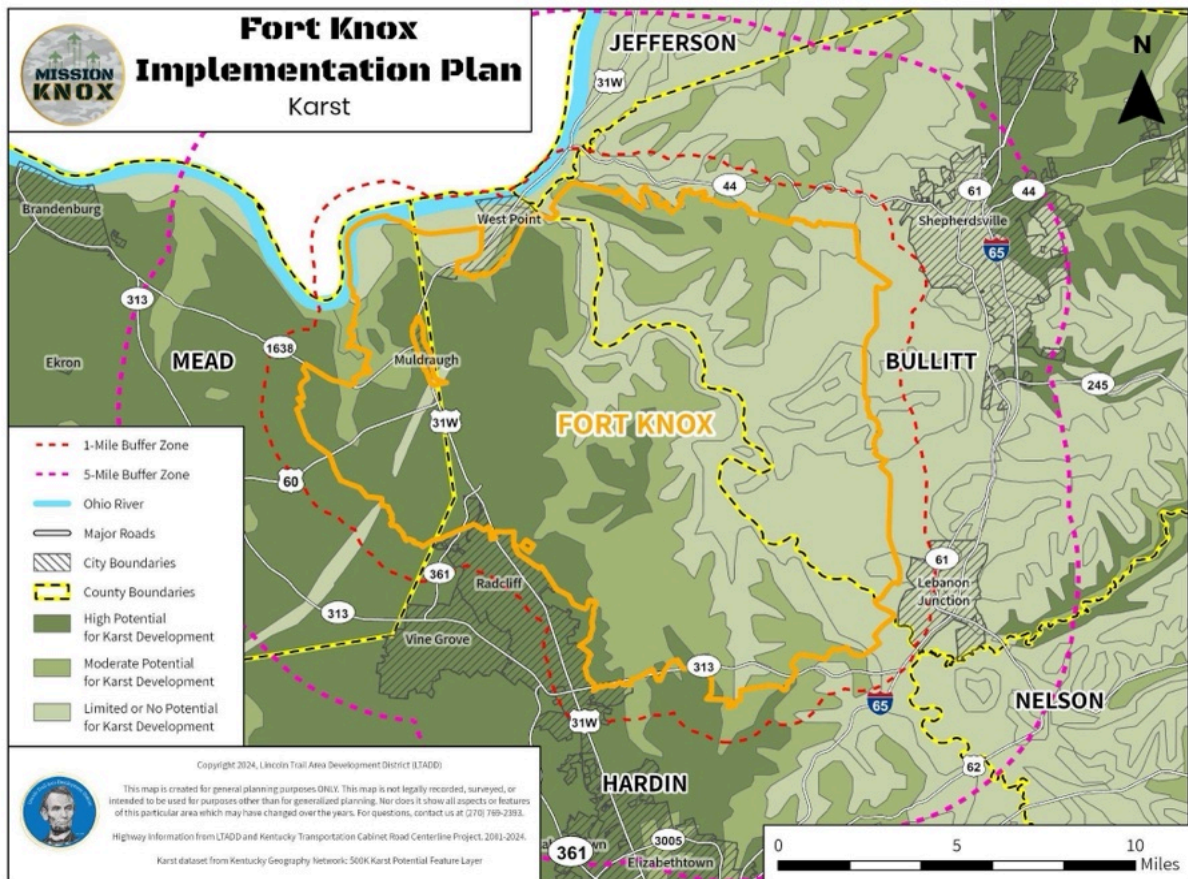
Karst

Karst landscapes are a prevalent natural hazard throughout the region, including within the installation. This landscape posed several risks, including sinkholes, flooding, and caves. Sinkholes can form suddenly, causing substantial damage to infrastructure, such as homes and public facilities. The environmental impact can disrupt natural water flow and lead to groundwater contamination if underground pollutants are exposed, potentially affecting local sewage systems and nearby communities.²

Military installations and surrounding communities must closely monitor and manage the risks associated with karst sinkholes to mitigate potential hazards and ensure safety and stability. Structures located in sinkholes or karst valleys are highly susceptible to flooding, and once built, the only solution to prevent future flood damage is relocation. The most effective approach to avoid the

risks of cover-collapse sinkholes and their associated damage is to refrain from purchasing or constructing buildings on filled sinkholes.

As shown on the map below, Fort Knox and its surrounding counties are at risk of sinkholes due to karst topography. The highest risk of sinkhole development in the western portion of the installation, where karst features are most prevalent.



Map 7.2: Karst

Flooding

Fort Knox is located within the Ohio and Salt River Basins, making it susceptible to flooding. Historically, flooding has been a recurring risk in this region. One of the most devastating events was the 1937 Ohio River flood, which caused extensive damage throughout the basin. Another major flood occurred in 2010, when heavy rainfall led to widespread flooding. ³

Flooding poses risks to Fort Knox and the surrounding community while also serving as a natural deterrent to encroachment. Nearby rivers and creeks can disrupt military operations, impact training activities, and damage infrastructure. Additionally, urban development near the installation increases flood risk. The construction of roads and parking lots creates more impervious surfaces, reducing rainwater absorption and exacerbating downstream flooding.

The map below highlights the flood risk zones within the focus area. The eastern boundary of Fort Knox is particularly vulnerable to flooding. The Ohio River, which borders the installation's northern edge, contributes to flooding in the City of West Point, especially due to the area's low elevation within the floodplain. On the northeastern boundary, the Salt River flows through Bullitt County and Fort Knox before emptying into the Ohio River, creating a significant flood risk. The southeastern border of the installation also faces a high flood risk, as the Rolling Fork River drains much of the surrounding land and plays a key role in the region's hydrology. The Rolling Fork is part of the Salt River Basin, which ultimately feeds into the larger Ohio River Basin.

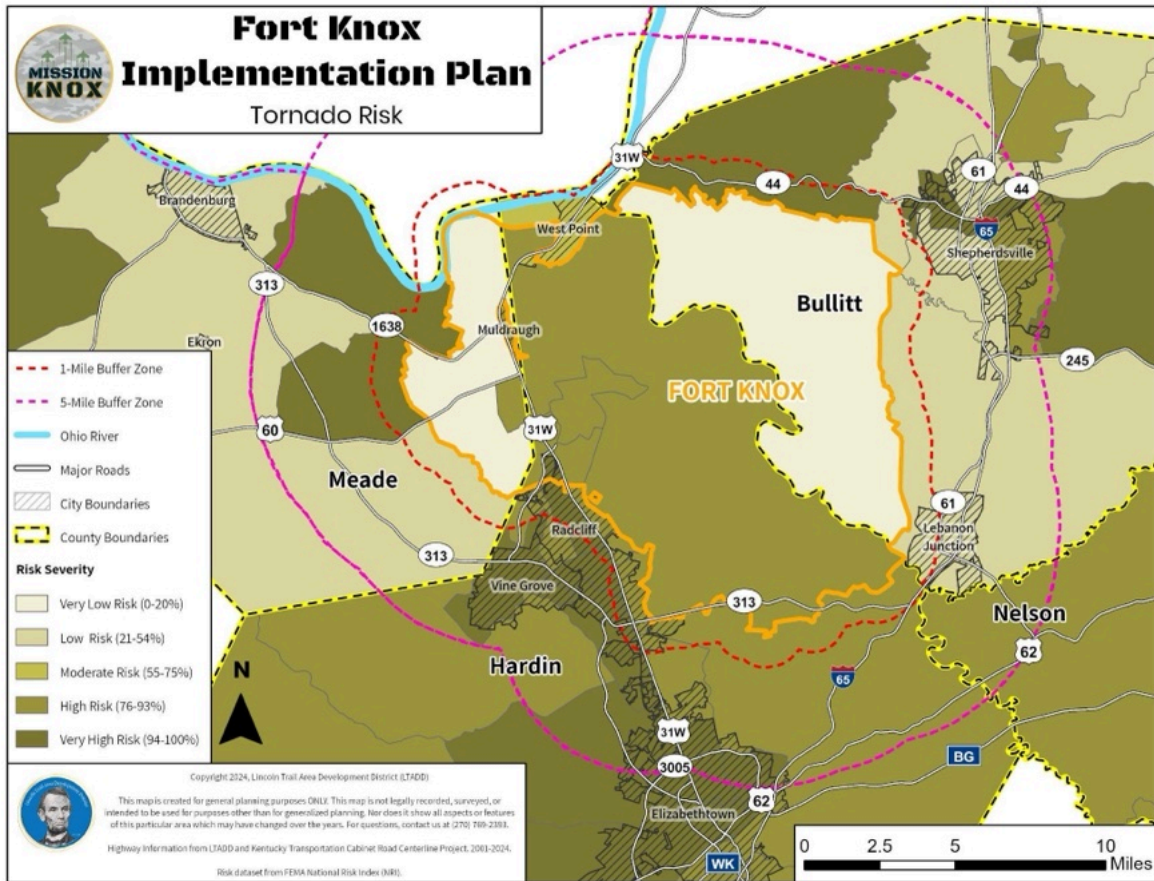


Tornadoes

Bullitt, Hardin, Meade, and Nelson Counties have a notable history of tornado activity, highlighting Kentucky's vulnerability to severe weather due to its central location in the U.S. Tornado Alley. The risk of tornadoes in Kentucky remains extremely high, as the state lies within Wind Zone IV, which is the most severe wind zone in the United States. Between 1950 and 2021, Kentucky recorded 1,214 tornadoes. Over the years, these counties have experienced both isolated tornadoes and those associated with larger storm systems.

A major event was the 1974 Super Outbreak, which caused widespread destruction across Kentucky. The most significant destruction occurred in the City of Brandenburg, which endured the only F5 tornado to touch down in the state's history. Located on the banks of the Ohio River, the City was decimated by 250 mph winds, with the impact permeated throughout the region. ⁴

The map below illustrates the tornado risk level based on the likelihood and intensity of occurrences, as determined by the NRI. Tornado risks are highlighted separately due to their prevalence within the focus area. Hardin County has recorded some of the strongest tornadoes in the region, while Bullitt and Meade counties have experienced frequent, though often less intense, tornado activity. Historically, tornadoes in Nelson County have been less frequent and less severe.



Map 7.4: Tornado Risk

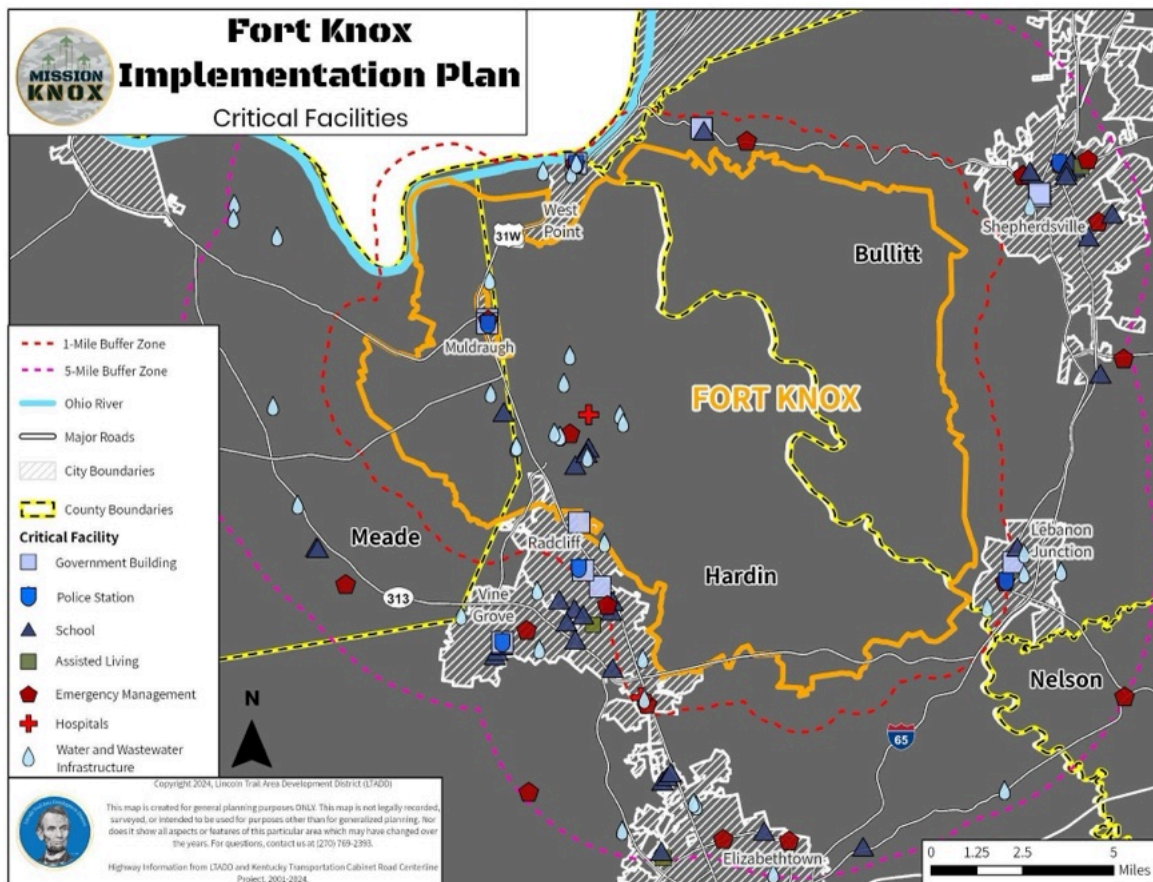
7.3 Critical Facilities

Within the 1 and 5-mile buffers surrounding Fort Knox, approximately 270 critical facilities have been identified, according to the 2023 Lincoln Trail Regional Hazard Mitigation Plan and data from the Bullitt County Property Valuation Administrator's Office. ⁵

The placement of critical facilities is essential for balancing operational needs with potential risks. To ensure their continued effectiveness and security, careful site selection, thorough risk assessments, and proactive mitigation strategies are necessary. Facilities located in areas prone to natural hazards face a higher risk of physical damage, which can disrupt operations and lead to costly repairs or shutdowns. Such damage can interfere with essential services like healthcare, electricity, water, and communication, ultimately affecting community safety and well-being. These facilities may also experience increased strain on emergency response systems, potentially delaying assistance. Additionally, natural hazards further pose direct health risks, such as waterborne diseases from flooding and poor air quality from wildfires. Operating in high-risk areas often results in higher insurance premiums, increased maintenance costs, and potential financial losses due to operational downtime.

Building critical infrastructure near a military installation presents various risks and challenges. Military activities, such as training exercises and flight operations, can interfere with the operation of nearby facilities, affecting both performance and safety. Additionally, environmental concerns, such as hazardous practices that may lead to contamination of the surrounding area, pose potential risks to public health and safety. According to the 2023 LTADD Hazard Mitigation Plan, 11 critical facility categories were identified, 7 of which are highlighted in the map below within the 1 and 5-mile buffer. These seven (7) categories were selected due to the potential incompatibility that may arise when locating critical infrastructure near an active military installation, as it can hinder missions and training activities.

The map on the corresponding page focuses on the location of critical facilities within the 1 and 5-mile buffers.



Map 7.5: Critical Facilities

Establishing a buffer zone around the Fort Knox Army Installation is essential for maintaining its operational readiness and environmental integrity. The buffer zone acts as a protective barrier, shielding the installation from disasters that could threaten its security and operational efficiency.

Protecting the installation from natural disasters is crucial to Fort Knox’s mission, but conservation efforts are equally important for ensuring long-term sustainability and operational readiness. Natural disasters, such as tornadoes, floods, and severe storms present immediate threats to infrastructure, personnel, and military operations, making disaster mitigation and preparedness top priorities. At the same time, conservation initiatives address broader challenges, such as preserving critical natural resources, protecting wildlife habitats, and preventing environmental degradation.

Maintaining green spaces, adopting sustainable land-use practices, and protecting ecosystems around the installation not only enhance the region’s overall vitality but also prevent

encroachment, ensuring that training and operational areas remain functional. These efforts are especially critical in regions where development pressures or environmental changes threaten the installation's mission effectiveness. A balanced approach that integrates disaster preparedness with conservation ensures that Fort Knox remains resilient, adaptable, and capable of supporting both military objectives and community needs over the long term.

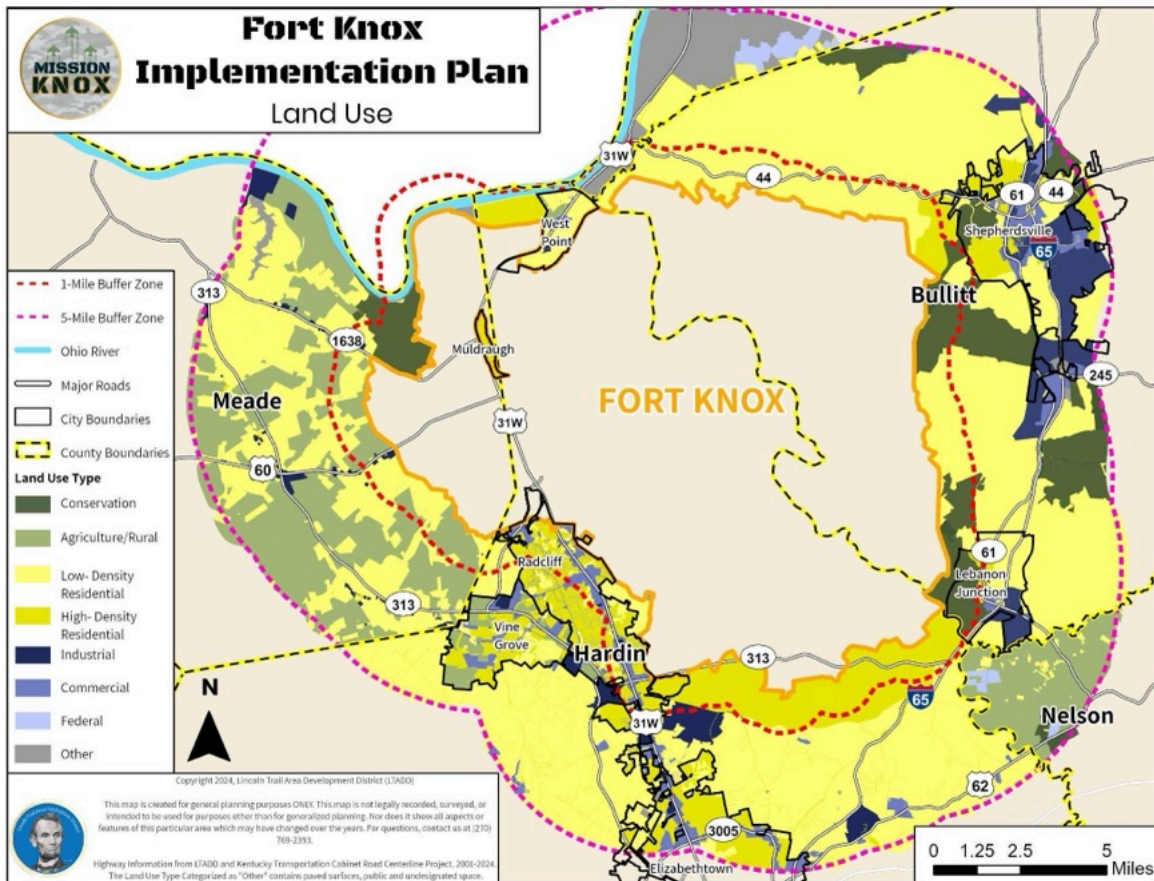
7.4 Conservation

The vast majority of the public views conservation protection as a clear-cut issue, and there is some truth to this perception. The rise of organizations like land trusts demonstrates a strong commitment to preserving natural areas and water resources from threats such as development and habitat degradation. When other safeguards are absent, even rudimentary protective measures can be highly effective.

In practice, land protection exists on a spectrum, with various factors that can widely vary across protected areas. These factors include management status, which evaluates the purpose, commitment, and effectiveness of current management practices; ownership, which examines who owns and oversees the area and how that influences its long-term preservation; durability, which refers to the stability of the protection over time, whether through legal mechanisms or other methods; and landscape condition and integrity, which assesses the overall health and cohesion of the ecosystem within the protected area.

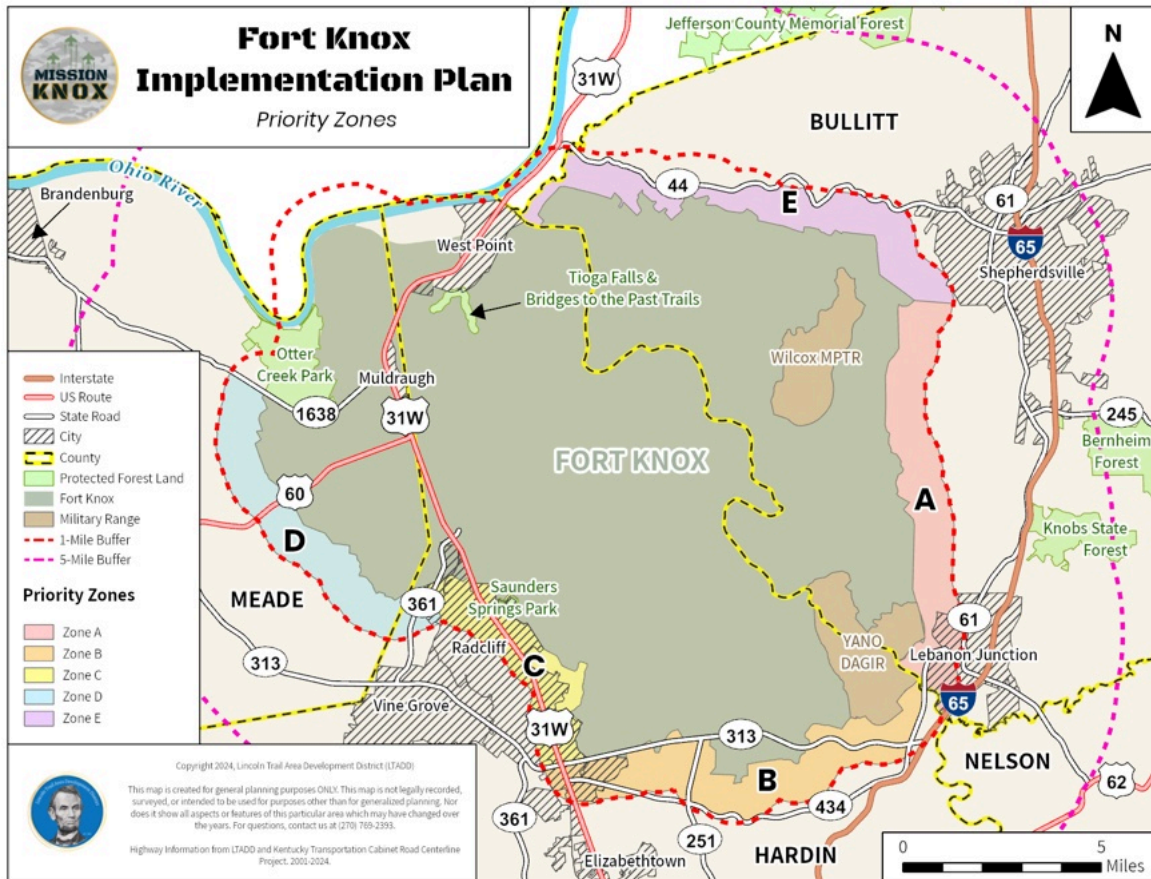
The map below illustrates the current land use types within the focus area, including federal lands. Within the 1 and 5-mile buffers, the western boundary of Fort Knox in Meade County is primarily characterized by agricultural and rural land use. A smaller, concentrated area of agricultural land is located along the northwestern edge of Nelson County. Scattered parcels of conservation land are primarily found in Bullitt and Meade Counties. In Meade County, adjacent to the installation's boundary, Otter Creek Park spans 2,221 acres of recreational land.

Bullitt County contains three primary conservation areas. Two of these are located adjacent to Fort Knox's border—one near Lebanon Junction and the other south of Shepherdsville. The third area is the Knobs State Forest, located just outside the 5-mile buffer to the east of Lebanon Junction. Additionally, Bernheim Forest & Arboretum lies within the 5-mile buffer.



Map 7.6: Land Use

The priority zones map outlines the five zones surrounding Fort Knox, identifying the main risk factors for each. From a conservation perspective, the priority areas of concern are Zone A, B, and D, ranked in order of priority. Zones C and E, which are primarily residential or commercial areas with low- and high-density, are not considered priority areas for conservation or agricultural easement efforts.



Map 7.7: Priority Zones

Zone A

Zone A, located in Bullitt County, is the top priority for conservation efforts due to its proximity to Yano and Wilcox Ranges. Encompassed within Zone A are two conservation easements, secured and managed by the Kentucky Natural Land Trust (KNLT), covering a total of 462 protected acres. Zone A is characterized by a large concentration of agricultural land, wetlands, conservation areas, and rural landscapes. The primary encroachment threats in area include:

- Growing commercial development
- Increased road traffic
- Rising residential development density
- Noise and light pollution

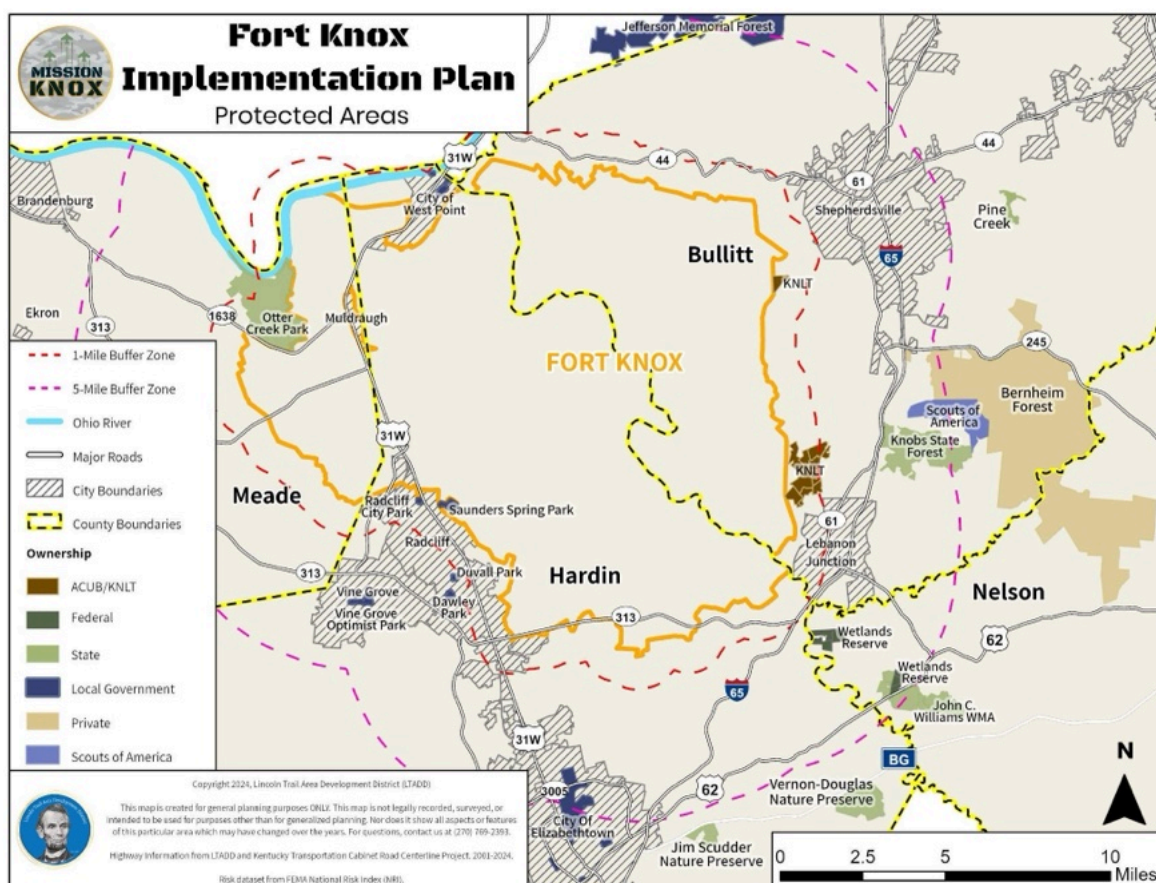
A potential opportunity to promote conservation in Zone A is the creation of a conservation corridor between Bernheim Forest & Arboretum and Fort Knox. The distance between the Fort Knox boundary and Bernheim is 4.98 miles. A tract of land connecting both areas, currently consisting of conservation land, could form a fully protected corridor benefitting both entities. Bernheim has

been working toward this goal for decades and has cultivated strong relationships with landowners. Fostering these partnerships is crucial to turning this vision into a reality.

An additional advantage of partnering with Bernheim is the strong foundation it provides for future efforts to secure agricultural and conservation easements, as well as attain Sentinel Landscape Status. Bernheim is part of a broad network of conservation-focused individuals and organizations, which are essential for forming the conservation consortium needed to secure these easements and ultimately achieve Sentinel Landscape Status.

As Bernheim prepares to celebrate its 95th anniversary, this milestone presents an excellent opportunity to raise funds and expand its conservation footprint in the region. With the centennial on the horizon, Bernheim promoted the pursuit of conservation easements, further strengthened coalition-building efforts, and secured private funding to support these initiatives.

Bernheim's long-term vision is to create a conservation corridor that expands northward, connecting Bernheim with Knobs State Forest, and extends westward across I-65 to the Ohio River. This vision, aligned with Fort Knox's objectives, promotes compatible land use through conservation efforts and lays the foundation for the creation of a future Sentinel Landscape map.



Map 7.8: Bernheim - Ohio River Corridor

Conservation in this zone is particularly significant due to the proximity to Wilcox Range and the Yano Range, which now hosts the newly operational Digital Air-Ground Integration Range (DAGIR). A buffer exists between the ranges and communities along the eastern and southeastern boundaries to mitigate potential noise and vibration complaints, ensuring that land use remains compatible with military operations.

Zone B

Zone B serves as a well-maintained buffer along the southern border of Fort Knox, consisting of agricultural land, undeveloped rural areas, and woodlands. KY-313 acts as the primary connection between 31W and I-65. The 313 Corridor in Hardin County was established to prevent proposed and future developments from negatively impacting Fort Knox's missions and training activities. To achieve this, specific guidelines were implemented for future developments, including larger residential lot sizes- 10 acres- creating a more substantial buffer between the installation and surrounding communities. This zone benefits from strong, intentional development policies aimed at preserving its integrity, with enforcement provided by local real estate agencies and governments.

The greatest hindrance to maintaining the criteria of this corridor is the pressures to develop housing and commercial properties along KY-313. This growth is largely driven by the rapid expansion of the City of Elizabethtown and the increased development along Shepherdsville Road, which directly correlates to the population surge in Elizabethtown and surrounding areas, fueled by industrial and economic growth.

A portion of the land within this zone is owned by Fort Knox, meaning it cannot be protected by traditional easements due to its federal ownership. However, while federal land is ineligible for standard conservation easements, federal agencies can use similar legal tools to restrict development and safeguard the land's conservation values. This is often achieved through internal management plans or specific designations, such as wilderness areas, which function similarly to conservation easements but are applied to federally owned land. These mechanisms include:

- **Wilderness Designation:** Federal designation of land as wilderness severely limits human activity and development.
- **Management Plans:** National parks and forests have comprehensive plans that direct land use and conservation efforts.
- **Special Designations:** Federal agencies can designate specific areas as wildlife refuges or conservation areas, providing additional protections.

Zone C

Zone C includes the City of Radcliff and a small unincorporated portion of Hardin County, characterized by high-density residential and commercial development. This area is not conducive to conservation measures due to the existing high-density development. The only exception is

Saunders Springs, which was previously owned by Fort Knox and was deeded to the City of Radcliff for recreational and tourism activities.

Zone D

Zone D, located along the western boundary completely and entirely within Meade County, consists of diversified land use, including leased farmland, low-density residential, and moderate industrial development. This zone faces significant challenges, particularly the loss of farmland, which is one of the greatest threats to conservation. Agricultural easements are crucial for preserving farmland as farmland, so these easements must allow landowners to continue leasing their land. The loss of woodlands, wetlands, and conservation areas presents further barriers to preservation efforts. To address these challenges, conservation easements, wetland mitigation strategies, and forestry protections are necessary to safeguard the remaining natural areas.

Zone E

Land use in Zone E, encompassing the northeastern area, is predominantly low-density residential and governed by the policies and procedures outlined in the Bullitt County Comprehensive Plan and the Bullitt County Planning & Zoning Commission. Conservation measures are not a primary focus for this area. As identified in the Bullitt County Comprehensive Plan update, future land use plans do not make provisions for high-density development in this area.

7.5 Compatible Land Use

Compatible land use is pivotal for safeguarding the mission of Fort Knox and its strategic ranges. The placement of select ranges at the installation's boundaries amplifies the importance of this effort. While preventing encroachment is a significant challenge, leveraging proper channels not only protects the installation's mission but also provides significant benefits for agricultural and conservation lands. Additionally, it supports preservation of native wildlife that traverses the installation's boundaries.

The Protected Area Map, found in Appendix 2.25, highlights areas preserved through easements acquired in the Army Compatible Use Buffer (ACUB) Program, representing significant strides in conservation efforts. These easements, held in perpetuity by the Kentucky Natural Land Trust (KNLT)⁶, play a crucial role in preserving the ecological integrity and natural resources of the region. Through intentional development and the maintenance of these lands for conservation purposes, these easements ensure the protection of critical habitats, support biodiversity, and strengthen the area's environmental resilience.

Furthermore, these protected areas lay the groundwork for future conservation efforts, providing a model for sustainable land management and fostering partnerships between local stakeholders, private landowners, and conservation organizations. The map not only demonstrates the achievements of past programs but also emphasizes the importance of continued efforts to expand the protected area network. These initiatives align with regional goals to promote compatible land use, reduce environmental impacts, and create a healthier ecosystem for future generations.

Through collaboration and partnership, the military community, local businesses, ⁶ conservationists, environmentalists, wildlife preserves, and agricultural organizations can achieve their respective goals while supporting the missions of the military installation. Securing easements and designating land as protected helps prevent encroachment and promotes compatible land use within the 1 and 5-mile buffers around Fort Knox. The goal is to identify and implement strategies that will preserve and expand this critical buffer area.

This section will focus on three key areas:

- 1) Pursuing a REPI (Readiness and Environmental Protection Integration) Agreement
- 2) Seeking a Sentinel Landscape Status
- 3) Establishing effective partnerships

7.6 Readiness and Environmental Protection Integration (REPI) Program

The Department of Defense's (DoD) REPI Program plays a crucial role in preventing encroachment that could hinder military training and operations. The program focuses on safeguarding military missions by mitigating land-use conflicts near installations and addressing regulatory challenges that may limit military activities. The REPI Program is managed by the Office of the Secretary of Defense (OSD).

A central element of the REPI Program involves establishing partnerships among the Military Services, private conservation organizations, and state and local governments, as authorized by Congress under 10 U.S.C. § 2684a. These collaborative efforts enable shared costs for acquiring easements or other land interests from willing sellers to protect compatible land uses and natural habitats around military installations and ranges. This approach helps preserve critical military mission capabilities.

REPI supports large-scale landscape partnerships that provide cross-jurisdictional solutions, connecting military readiness, conservation, and communities through a cooperative framework involving federal and state partners. Notable examples include the Southeastern Regional Partnership for Planning and Sustainability (SERPPAS) and the Western Regional Partnership (WRP). REPI is also involved in the Sentinel Landscapes Partnership, a collaboration among the DoD, and the Departments of Agriculture, and the Department of the Interior. The significance of Sentinel Landscapes will be further discussed in the following sections.

Since its inaugural partnership in 2003, REPI has evolved, leading to a significant shift in how the DoD addresses conservation and military training concerns while expanding land-use planning beyond installation boundaries. Through collaboration with federal, state, and local stakeholders, REPI continues to seek policy and regulatory solutions to challenges such as incompatible development, off-installation species habitats, and other issues that affect mission sustainability.

Fort Knox previously participated in a REPI Agreement, which concluded in 2012. Although no longer active, the agreement led to significant progress in maintaining compatible land use in the surrounding areas, including the acquisition of 462 protected acres.

The agreement focused on areas along Fort Knox's Eastern Corridor, where development pressures posed a risk to training, maneuvering, and night operations. Through the acquisition of conservation easements and the limitation of incompatible land use, the REPI Program effectively reduced ambient lighting, minimized noise disturbances, and preserved critical habitats, supporting both military readiness and environmental conservation.

Acknowledging the significance and impact of the REPI Agreement, re-engagement is imperative to achieving the overarching conservation goals. To renew this agreement, the following steps are required.

Steps to Renew a REPI Agreement:

- 1) **Access Information and Resources:** Gather information, training materials, primers, policy guidelines, and resources on REPI projects and the associated Military Service programs.
- 2) **Identify Potential Partners:** Once land trust organizations are identified as potential partners, those interested in partnering should contact the local or regional installation office. For the Army, this involves reaching out to the Plans, Analysis, and Integration Office (PAIO), the DoD REPI Program (OSD), and the Public Affairs Office (PAO).
- 3) **Engage in Early Discussions:** Installations and prospective partners should initiate discussions to better understand the installation's mission and operations, identify shared goals, and discuss the need for a Compatible Use Implementation Plan. If necessary, a site visit to training ranges and facilities should be arranged in coordination with the installation.
- 4) **Share Key Information Early:** Effective communication from the outset is vital during the project development phase. Installations should assess mission capabilities affected by encroachment, analyze threats, and develop potential solutions for inclusion in comprehensive planning. Partners should provide feedback and input early in the process.
- 5) **Establishing Goals for the Partnerships:**
 - **Create focus area maps:** Include detailed parcel information identifying key areas of interest.
 - **Understand the military footprint:** Clearly define the specific operational boundaries and mission-critical areas of the installation.
 - **Align land-use and conservation goals:** Develop shared objectives for land-use management and conservation efforts that support both the military and the environment.
 - **Recognize state and regional goals:** Incorporate broader environmental and development strategies at the state and regional levels to ensure alignment.
 - **Identify overlapping partner interests:** Identify areas where the priorities of potential partners overlap with the installation's conservation and land-use goals.
 - **Conduct an inventory of surrounding land uses:** Assess current zoning, development trends, and surrounding land-use patterns.
 - **Map the ecological landscape:** Survey and map key ecological areas of interest.
 - **Engage landowners:** Reach out to and survey landowners to gauge potential interest in participating in conservation efforts.
- 6) **Seek Additional Partners and Funding:** Contact potential partners and explore diverse funding sources, including:

- Federal grant programs
 - State and local grants
 - State military planning commission funds
 - Land and conservation easement programs (to be presented later in the report)
 - Land exchanges
 - Transfer of Development Rights (TDR) programs
 - Wetlands Bank Programs
- 7) **Agree on a Long-Term Strategy:** Develop flexible land protection strategies that meet flexibility, accommodate landowner needs, preserve the military mission, and optimize available resources. Successful collaboration among local jurisdictions and stakeholders is vital for ensuring long-term success. Given that the REPI process can span several years, it is crucial to establish a clear and sustainable long-term strategy.
 - 8) **Raise Matching Funds:** While there is not a fixed minimum cost-share requirement, each Military Service may have specific funding targets. Partners should focus on securing the necessary matching funds to ensure the success of the project.
 - 9) **Engage the Community:** Regularly reach out to landowners who may be interested in participating. Consistent community outreach helps build support for the project and raises awareness about its benefits.
 - 10) **Maintain Communication and Celebrate Success:** Keep all stakeholders updated on the project's progress and achievements. Celebrate key milestones to maintain momentum and encourage continued collaboration. 7

The impact of incompatible land uses and habitat loss near military installations cannot be overstated. These issues directly affect military readiness, as degraded training environments make it difficult for service members to practice essential combat and tactical skills. Inadequate training due to such constraints can result in unsafe practices and may jeopardize real-world performance. Preventing incompatible development and safeguarding natural habitats is not only critical for ensuring effective training but also for avoiding costly adjustments down the road. Collaborating to address these challenges helps reduce future expenditures, while supporting military readiness and securing the long-term strength of national defense capabilities.

The potential threat to Fort Knox's capacity to fulfill its mission goes beyond training restrictions—it could also trigger a Base Realignment and Closure (BRAC) process. A BRAC action could result in the downsizing or relocation of critical units, organizations, and infrastructure, which would severely impact the economic stability of Hardin, Meade, Nelson, and Bullitt Counties. The loss of such a vital installation would have a ripple effect on local businesses, employment, and the overall economy, highlighting the importance of maintaining Fort Knox's operational integrity and preventing encroachment.

The REPI Program is indispensable in ensuring that land use around military installations remains compatible with military operations. Much of the land surrounding Fort Knox, particularly within the 1 and 5-mile buffers, has already been heavily developed in ways that are not compatible with military needs. While the 1-mile buffer, especially along the Route 313 corridor, remains largely protected due to comprehensive local policies, it faces mounting pressure from industrial, commercial, and residential growth. Therefore, the primary focus must be on preserving the current compatible land use and preventing further incompatible development. To clarify, the focus is NOT on eradicating development in the 1 and 5-mile buffers, but rather on intentionally developing the land surrounding Fort Knox in a way that aligns with its operational needs and ensures compatibility.

The strength of a REPI agreement and the partnerships it cultivates provide access to various federal, state, and local programs that benefit both landowners and military installations. Through easements and trust programs, landowners can receive compensation comparable to what they would have earned from selling their property to developers. These innovative programs are typically designed to last in perpetuity, ensuring the long-term preservation of the land's intended purpose and maintaining its compatibility for future generations.

In December 2002, Congress authorized the Military Services to enter into agreements with qualified organizations and non-federal agencies to prevent encroachment, as outlined in Section 2684a of Title 10 of the United States Code (10 U.S.C. § 2684a). This authority was further expanded by the Fiscal Year 2019 National Defense Authorization Act to include agreements focused on enhancing or improving the resilience of military installations. Under the expanded authority, qualified partnerships now include state or local governments and private conservation organizations, enabling them to share the costs of acquiring easements or other land or water rights from willing sellers.

This authority allows for cost-sharing partnerships to acquire real property interests for three main purposes: preventing development or land uses that conflict with the installation's mission; protecting habitats to alleviate existing or potential restrictions on military operations; enhancing the resilience of military installations against extreme weather events or environmental changes that could affect military activities. REPI funding is provided by both the Department of Defense (DoD) and its partners. The two main sources of DoD funding for REPI projects are Military Service funds and REPI Program funds, which are allocated by Congress as a specific line item in the DoD budget.

REPI projects are classified into three categories:

- **REPI Program Funds:** These funds are allocated by Congress as part of the DoD's annual budget.

- **O&M Funds:** These funds come from the Operations and Maintenance (O&M) budgets of the Army, Navy, Marine Corps, or Air Force, as well as funds generated through the exchange of excess property under Base Realignment and Closure (BRAC).
- **Partner Funds:** These funds include a variety of resources, such as federal, state, and local grants or cost-share programs, private funding from conservation organizations, bargain sales or donations from willing landowners, and in-kind services provided by partners. Contributions from partners do not necessarily need to be in the form of cash.

REPI is one of several tools available to address encroachment, alongside numerous federal, state, and local programs that landowners and organizations can utilize to protect against incompatible development. ⁸

7.6 Sentinel Landscapes

The Sentinel Landscapes Partnership is a collaborative effort involving federal agencies, state and local governments, nongovernmental organizations, and private landowners. Launched in 2013 by the U.S. Department of Agriculture, the Department of Defense, and the Department of the Interior, this coalition aims to promote sustainable land management around military installations and ranges. The partnership's goals include enhancing military readiness, conserving natural resources, supporting agricultural and forestry economies, and increasing resilience to climate change.

Sentinel Landscapes achieves its goals by connecting private landowners with voluntary state and federal programs that provide agricultural loans, disaster relief, educational resources, financial and technical support, and funding for conservation easements.

Once a location is designated as a Sentinel Landscape, local partners collaborate with federal agencies to help private landowners access resources that support sustainable land management practices. These practices, which include farming, ranching, and forestry, provide both economic and ecological benefits, while also safeguarding defense facilities from incompatible development that could hinder the military's ability to conduct operations and training activities.

After a foundational REPI Agreement has been fully implemented and active for at least two years, the military installation becomes eligible to apply for the third level of REPI, which is Sentinel Landscape status. This process is a significant step, and the following section outlines the broader scope of the REPI program and its connection to Sentinel Landscape designation. ⁹

Therefore, to re-engage and initiate Sentinel Landscape Status(SLS), Fort Knox must first renew its REPI agreement. By acquiring the necessary easements to protect and expand the surrounding land, it will help promote compatible land use in the area.

During discussions with two Sentinel Landscape directors, the benefits of the program became evident. Daniel Oppenheimer, the Sentinel Landscape Coordinator (SLC) for Camp Bullis Military Base in San Antonio, TX, explained that the Sentinel Landscape designation was crucial for securing the easements needed to maintain compatible land use. Oppenheimer outlined the four key components of Sentinel Landscape: agricultural production, natural resources, military readiness, and resilience. He emphasized, "What happens OFF post impacts what happens ON post,," highlighting the significance of securing easements, forming agreements, and building partnerships around Fort Knox to achieve similar success.

Four Key Benefits of Achieving Sentinel Landscape Status, as outlined by Oppenheimer:

1. Although not assured, securing priority access to funding significantly enhances the chances of receiving financial support.

2. The ability to match federal funds with other federal resources boosts land productivity.
3. Long-term funding to hire a Sentinel Landscape Coordinator will be vital to its success.
4. Gaining access to a national network of individuals and organizations dedicated to helping achieve mutually shared conservation goals provides valuable support.¹⁰

Thanks to its Sentinel Landscape Status, Camp Bullis, in collaboration with the *Hill Country Alliance*, and led by Oppenheimer, has united 57 organizations to support ongoing conservation efforts and secure easements. Assembling a team of dedicated partners is essential to successfully achieving Sentinel Landscape Status.

Camp Bullis in San Antonio leveraged the established *Hill Country Alliance* to provide solid leadership and a strong foundation in their pursuit of achieving Sentinel Landscape Status. The organization's mission statement clearly embodies the collaborative approach of their strategy.

*"The mission of Hill Country Alliance is to bring together a diverse coalition of partners to preserve the open spaces, starry night skies, clean and abundant waters, and unique character of the Texas Hill Country."*¹¹

Similarly, Rose McCarthy, coordinator for the Kittatinny Ridge Sentinel Landscape, emphasized how the project in Pennsylvania benefited from the involvement of over 150 individuals already engaged in conservation efforts through the Conservation Landscapes Group. From this extensive network, McCarthy assembled a leadership team comprising four state agencies, the Department of Military Affairs, the Department of Agriculture, the Department of Natural Resources, and the Department of the Interior—all of which are essential federal partners. Together, they strategically coordinated and set clear objectives to advance their goals. For example, Phase 2 of their process involves establishing four key goals to guide their efforts.¹²

Sentinel Landscape Status places significant emphasis on addressing climate concerns. To qualify for SLS, an applicant must demonstrate a concerted effort to reduce carbon emissions and combat the ongoing climate crisis. This can be achieved through a variety of initiatives, with supporting evidence reflected in proposed projects and partnerships actively engaged in efforts such as net-zero initiatives, carbon reduction programs, preserving natural resources, protecting native wildlife, and minimizing emissions that negatively impact the environment and atmosphere.

The 2026 Sentinel Landscape Designation Cycle began in January 2024 and is currently accepting Expressions of Interest. Interested entities can access forms on the website, with submissions due by April 9, 2025. The SLS Federal Coordinating Committee will review submissions and invite selected applicants to submit full proposals within sixty (60) business days of notification. The new SLS Designations will be announced in February 2026, and the next cycle will begin in 2027, following a two-year interval.¹³

The Strength of Partnerships

The success of the Sentinel Landscape initiative relies on a steadfast coalition of partners who collaborate across organizational lines, uniting around common goals to achieve outcomes related to conservation, agriculture, and military-compatible land use. By securing conservation and agricultural easements, mutual benefits are created for both conservation organizations and the agricultural community.

This process cannot be delayed until the application phase begins. Rose McCarthy emphasized that their efforts in Pennsylvania began 25 years prior to the official application process, with the creation of the Conservation Landscapes Group. This initiative focused on designating protected lands and securing federal grants to establish easements for conservation. Forming a consortium of partners is a crucial first step in the process to raise awareness, engage stakeholders, and establish the long-term partnerships essential for success.

Easement Acquisition

A critical component of the partnerships is securing an "eligible entity" that will collaborate with Fort Knox in identifying and developing relationships, as well as acquiring and maintaining the easement deeds in perpetuity. Three eligible entities manage the easement process: KNLT, CLF, and Bluegrass Conservancy. In the previous Army Compatible Use Buffer (ACUB) agreement, the Kentucky Natural Land Trust (KNLT) was responsible for this task.

In addition to KNLT, the Compatible Lands Foundation (CLF) has successfully secured thousands of acres of easements for Fort Campbell and other military installations as part of the compatible use initiative. CLF, a specialized land trust headquartered in Oklahoma, is a potential partner for future easement acquisitions. This organization is dedicated to enhancing military readiness and resilience through land conservation.

It is evident that CLF possesses the tools, experience, and knowledge necessary to advance the goals of this implementation project. Their experience, particularly their success in acquiring over 10,000 acres of easements at Fort Campbell, coupled with the military expertise of their staff, positions them as an excellent candidate for the Eligible Entity role.

The Bluegrass Land Conservancy (BLC) is another eligible entity in Kentucky, recognized for its success in preserving farmland and securing conservation easements. To date, BLC has protected more than 33,000 acres across 162 farms, along with numerous historic sites and waterways.