Appendix D:

Regional Resiliency Assessment Report

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Executive Summary

The goal of this resiliency review is to provide critical information and recommendations that will enable the communities in the National Security Crossroads defense ecosystem to make informed decisions related to resiliency and enable partnerships with appropriate agencies to identify, address, and mitigate activities that may impair military installation missions. Information presented in this study was gathered by a thorough process of in-person engagements across the National Security Crossroads that included stakeholders from all major military installations in Kansas and Missouri and from critical industries, academia, and defense communities throughout the region. Engagements were conducted using a strengths, weaknesses, opportunities, and threats (SWOT) framework to best determine the most actionable data and synthesize recommendations.

This study found that the defense communities with the National Security Crossroads defense ecosystem are largely resilient against the various general hazards included in the analysis. No single community appears in dire need of intervention to prevent a negative environmental, economic, or infrastructure-related event. However, within all regions studied, there were multiple identified weaknesses that expose communities and defense assets to potential risk which may become more pronounced over time. These weaknesses also provide corresponding opportunities for investment of resources and planning to provide greater resiliency for communities across the National Security Crossroads.

While multiple analysis points are presented for each of the defense assets and communities included in this study, the following are holistic recommendations identified to improve the resiliency of military installations, defense communities, and the defense industry in the overall National Security Crossroads defense ecosystem:

- Expand Community–Military Collaboration
- Regularly Reassess Resiliency
- Explore Economic Diversification Opportunities

Introduction

Methodology

This Regional Resiliency Review evaluates the ability of military installations and defense assets in Kansas and Missouri (also called the National Security Crossroads defense ecosystem) to withstand and recover from a range of challenges. The review is structured to analyze these assets as part of six distinct geographic regions:

1. Eastern Missouri
2. Central Missouri
3. Kansas City Metropolitan Area
4. Northeast Kansas
5. Flint Hills, Kansas
6. Central Kansas

Each region is examined for its general hazards and its resiliency in the areas of infrastructure, economy, and community. Additionally, the review assesses the resiliency of key national security assets within these regions. Lastly, the review identifies major sectors of the Missouri and Kansas economies that are vital to national security. These sectors are explored through the Cybersecurity and Infrastructure Security Agency's (CISA) critical sector framework.

Definitions

This review utilizes the Department of Defense's (DoD) definition of resiliency which, as defined by DoD Directive 4715.21, is "the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions." This regional resiliency review utilizes a strengths, weaknesses, opportunities, and threats (SWOT) framework to identify internal and external factors affecting the region's ability to withstand and recover from disruptions and to strategically evaluate and enhance the resiliency of a broader region. Strengths are internal factors like infrastructure, workforce, and systems that contribute to resiliency. Weaknesses, both internal and external, may include workforce training gaps, limited resources, or outdated technologies. Opportunities are external factors that can enhance future resiliency, such as emerging technologies, potential partnerships, or growing resources. Threats are external factors that pose a risk to the resiliency of the region, such as the potential for natural disasters, political instability, or economic downturn.

The National Risk Index

This regional resiliency review includes additional analysis from the Federal Emergency Management Agency's (FEMA) National Risk Index (NRI). Since the NRI's analysis is localized to the county level, the analysis in this report is focused on counties where installations and critical facilities exist. This index allows for a holistic and comparative analysis of different installations' resiliency to natural hazards, a key component of overall resiliency. This index identifies potential for negative impacts due to natural hazards

and is based on three components: a natural hazards component (expected annual loss), a consequence-enhancing component (social vulnerability) and a consequence-reduction component (community resiliency). The expected annual loss represents the average economic loss in dollars resulting from 18 natural hazards each year. The loss score represents a community's relative level of expected losses each year when compared to other similar communities. The higher the score, the greater the expected annual losses. The social vulnerability score is the susceptibility of social groups to the adverse impacts of natural hazards. This score considers disproportionate death, injury, loss, and disruption of livelihood and represents the relative level of a community's social vulnerability compared to other similar communities. The higher the score, the higher the vulnerability. The final aspect of the National Risk Index is the community resiliency score. This score represents the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and recover rapidly from disruptions. The higher the score, the more resilient the community. Relevant NRI graphics for each of the six distinct regions can be found in the General Hazards portion of each region's explanatory section.

Region 1: Eastern Missouri

Key National Security Assets

National Geospatial Intelligence Agency–St. Louis

The National Geospatial Intelligence Agency (NGA) maintains a network of facilities throughout the greater St. Louis Metropolitan Area. The NGA is currently building a new 97-acre campus with 712,000 square feet of workspace. Collectively, these facilities serve as a major hub of geospatial intelligence, data processing, and accounting for the national security industry. NGA–St. Louis has a unique mission set within the intelligence community and annually updates nearly 50,000 airfield maps from around the world.

In addition to its main mission, the NGA is a fixture of the broader regional economy. The NGA maintains partnerships with a variety of local universities and colleges. The NGA also entered into a partnership intermediary agreement (PIA) with the T-Rex Innovation and Entrepreneur Center in St. Louis. The agreement supports NGA–St. Louis' vision for the development of the next-generation workforce and geospatial technology to address evolving challenges to national security

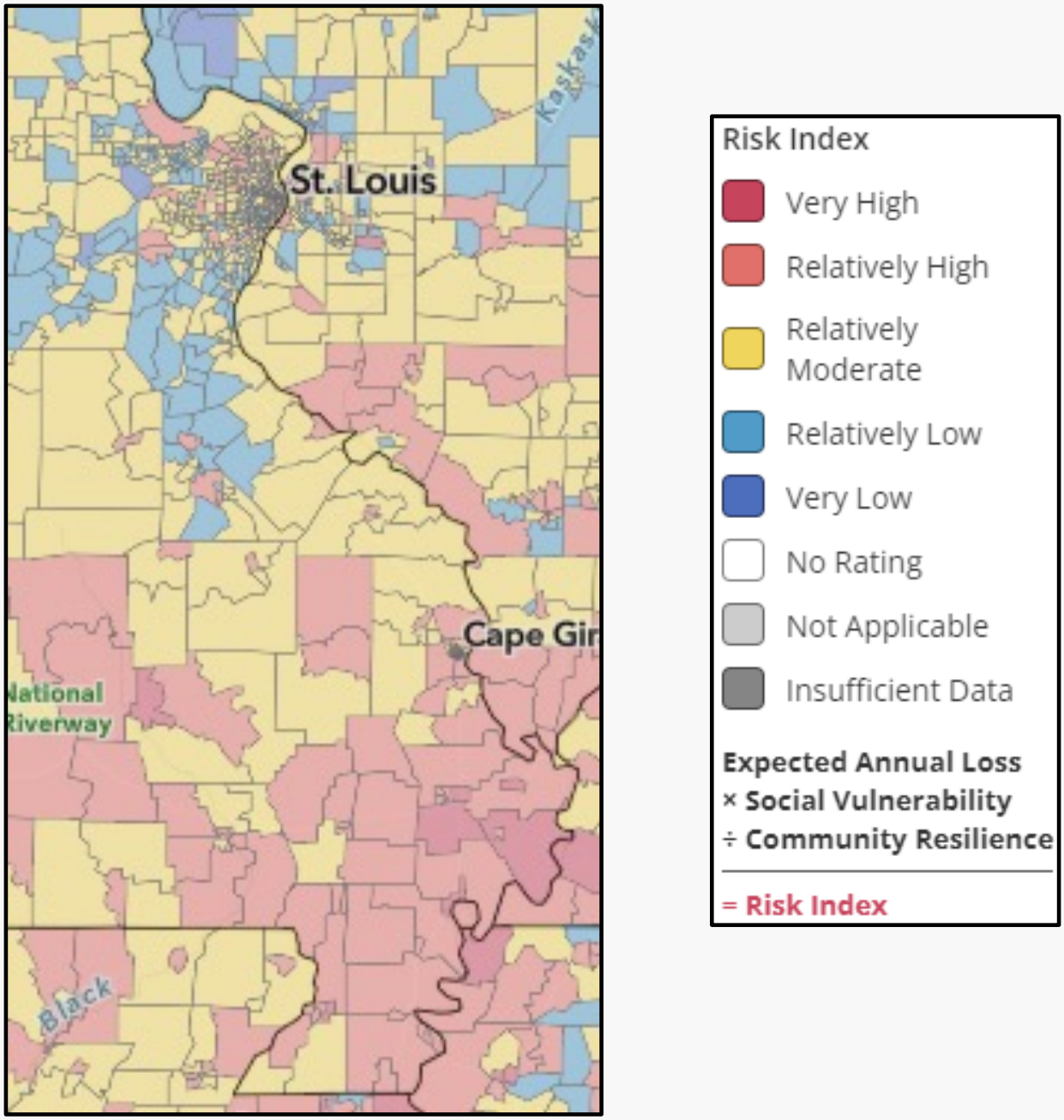
Boeing–St. Louis

The Boeing–St. Louis system is a large network of aerospace and defense manufacturing facilities located in the St. Louis metro region. This site plays a crucial role in Boeing's Defense, Space, and Security division. The facilities here produce important military aircraft such as the FA-18 Super Hornet, the F-15 Eagle, and the EA-18G Growler. The site also manufacturers munitions including Joint Direct Attack Munitions (JDAMs) and the Harpoon anti-ship missile. Boeing's Phantom Works facility conducts cutting-edge research and development with new virtual modeling capabilities.

Boeing maintains major partnerships with regional universities including Washington University of St. Louis, Missouri University of Science and Technology (Missouri S&T), and the University of Missouri. These partnerships create a direct workforce pipeline for employment at Boeing. Boeing offers internships, fellowships, and scholarships to assist students with the goal of alleviating challenges in recruiting and retention. Boeing also is a DoD SkillBridge partner company that hosts transitioning service members.

General Hazards

Figure 1. NRI for Eastern Missouri



The St. Louis Metropolitan Area faces several general hazards that could impact infrastructure, communities, and the economy.

Severe Weather

Flooding: Eastern Missouri is prone to significant flooding, particularly along the Mississippi and Missouri Rivers. Record-breaking rainfall and severe flash flooding have caused extensive damage to homes, businesses, and infrastructure.

Missouri National Guard in support of flood relief efforts (Valley Park, 2015)

Tornadoes: The region is part of "Tornado Alley," experiencing frequent tornadoes that can cause widespread destruction.

Earthquakes: Although less frequent, the New Madrid Seismic Zone poses a risk of earthquakes, which could have severe impacts on the region.

Climate Change Impacts

Climate change can continue to exacerbate extreme weather occurrences. It has led to and is projected to continue to lead to more intense and unpredictable weather patterns. In the case of Eastern Missouri, this could be longer, more impactful droughts followed by extremely heavy rainfall and flooding around major waterways. More frequent severe weather systems can negatively impact agricultural productivity, further stress aging infrastructure, and increase the demand on social services.

Infrastructure Resiliency

Transportation Infrastructure

Eastern Missouri has an extensive transportation network featuring key interstates such as I-70 and I-55, both of which play a critical role in regional connectivity. The St. Louis metro area features a robust public transport network including bus and light rail services which provide essential transportation services to urban areas of the region, but coverage is lacking in neighboring rural areas. Although the transportation networks are reasonably strong in normal conditions, they are vulnerable to severe weather events and require routine maintenance to ensure resiliency.

Utilities and Energy

Electricity: The power grid in Eastern Missouri is well-developed, with multiple providers ensuring redundancy. However, aging infrastructure and the risk of natural disasters like tornadoes and ice storms can pose challenges to reliability.

Water Supply and Sewer Systems

The region has a comprehensive water and sewage system, but some areas face issues with aging pipes and contamination risks. Investments in modernization and maintenance are crucial for resiliency.

Economic Resiliency

Eastern Missouri's economic resiliency is bolstered by a diverse economic base, comprised of a vast array of industries including, but not limited to, agriculture, aerospace and defense, manufacturing and financial services. This can reduce or prevent overreliance on any single industry and provide stability during downturns. The region benefits from low unemployment rates (3.9% as of August 2024 according to the U.S. Bureau of Labor Statistics) and high job diversity, indicating a robust labor market capable of adapting to changes. Access to capital supports business growth and innovation, while well-maintained infrastructure enhances economic activity and recovery. A strong small business sector, coupled with high educational attainment, ensures a workforce ready to meet evolving demands. Innovation and technology adoption further drive competitiveness, and social safety nets provide stability during economic shocks. Active community engagement and environmental sustainability practices also contribute to long-term economic stability.

Community Resiliency

Eastern Missouri features a network of major hospitals and healthcare facilities essential for emergency response and public health, though rural areas often struggle with access to advanced care. Emergency services, including police, fire, and medical teams, are well-distributed and coordinated for disaster response, but face challenges due to resource constraints and staffing shortages. Educational institutions are crucial for community resiliency, with urban areas benefiting from strong infrastructure while rural regions encounter difficulties related to resources and technology access.

Region 2: Central Missouri

Key National Security Assets

Fort Leonard Wood

Fort Leonard Wood, located in the Missouri Ozarks, is a major U.S. Army installation established in 1940. It serves as a primary training center for military personnel across multiple branches of the Armed Forces. The base hosts the U.S. Army Maneuver Support Center of Excellence (MSCoE), which includes the Army Chemical, Biological, Radiological, and Nuclear School (CBRN), the Engineer School, and the Military Police School. These institutions provide specialized training in engineering, military policing, and CBRN defense.

Fort Leonard Wood is known for its extensive training facilities, which support a wide range of training exercises and simulations. The base also contributes significantly to the local economy, providing jobs and supporting businesses in the surrounding community. Its comprehensive training programs and strategic importance make it a critical asset to the U.S. Army and the broader defense infrastructure.

Jefferson City/Missouri National Guard

The Missouri National Guard is a reserve military force comprised of two main branches: the Army National Guard and the Air National Guard. The Army National Guard currently has 8,400 personnel with an additional 2,000 in the Air National Guard. Based in Jefferson City, the Missouri National Guard maintains several major units including the 110th Maneuver Enhancement Brigade, the 35th Military Police Brigade, and the 131st Bomb Wing. One unit unique to the Missouri National Guard is the 7th Civil Support Team. This team supports civil authorities in responding to suspected weapons of mass destruction.

The Missouri National Guard is a participant in the State Partnership Program which facilitates international military exchanges. Missouri has been partnered with Panama since 1996. Missouri and Panama conduct regular exercises and provide logistics, engineering, and police support. In addition, the Missouri National Guard maintains a large and successful counternarcotics program. The Guard's Counterdrug Task Force supports local, state, and tribal law enforcement in counternarcotics efforts.

Knob Noster School District/Whiteman Area Leadership Council

The Knob Noster School District, located in Knob Noster, Missouri, serves a small but diverse student population, including many children from Whiteman Air Force Base. As a result, the district has a strong focus on supporting military families and providing a high-quality education tailored to the needs of a mobile student body. The district consists of three schools: Knob Noster Elementary School, Knob Noster Middle School, and Knob Noster High School.

The district has gained recognition for its innovative programs and commitment to personalized learning. It has implemented initiatives such as a science, technology, engineering, and mathematics (STEM)-focused curriculum and partnerships with local businesses and the Air Force Base to offer students hands-on learning experiences. The district earned several accolades for its efforts, including the 2019 Pete Taylor Partnership of Excellence Award from the Military Child Education Coalition.

The Whiteman Area Leadership Council (WALC) is a nonprofit organization dedicated to supporting Whiteman Air Force Base (WAFB) and strengthening the relationship between the base and surrounding communities in Missouri. The council advocates for the base's long-term sustainability and growth by fostering collaboration between military leaders, local businesses, civic organizations, and government officials. WALC plays a key role in addressing issues such as infrastructure, workforce development, and quality of life for service members and their families. WALC is actively lobbying for future missions to be placed at WAFB, most notably the B-21 bomber.

Whiteman Air Force Base

Whiteman AFB, located near Knob Noster in west-central Missouri, is a key U.S. Air Force installation. Established in 1942, the base is home to the 509th Bomb Wing, which operates the B-2 Spirit stealth bomber, a critical component of the United States' strategic bomber force. The base also hosts the 131st Bomb Wing of the Missouri Air National Guard (ANG), the 442nd Fighter Wing, and several other tenant units. The 131st Bomb Wing is the eighth-oldest ANG unit and the only ANG unit certified to use nuclear weapons.

Whiteman AFB is renowned for its strategic importance, particularly in terms of its long-range strike capabilities provided by the B-2 bomber fleet and because it is one of only two bases in the Air Force to garrison the B-2 bomber. The base supports a variety of missions, including nuclear deterrence, global strike, and conventional operations. Additionally, Whiteman AFB plays a significant role in the local economy, providing jobs and contributing to the economic stability of the surrounding communities. Its advanced facilities and diverse tenant units make it a crucial asset to the Air Force and national defense.

The University of Missouri (MU)

The University of Missouri, often referred to as Mizzou, is the state's largest and oldest public university and is located in Columbia, Missouri. It is a land-grant institution and a member of the Association of American Universities (AAU), known for its strong academic and research programs. Mizzou's School of Journalism is one of its most distinguished departments, consistently ranked among the best in the world, and it is recognized for pioneering the world's first journalism school in 1908. The university is also known for its College of Agriculture, Food, and Natural Resources, which has received numerous accolades for its work in agricultural sciences, plant genetics, and food sustainability. The Trulaske College of Business and School of Law are also recognized for their academic excellence and impactful research.

In recent years, MU has undergone significant expansion and modernization, both in terms of infrastructure and research capabilities. The NextGen Precision Health Institute, launched in 2021, is one of the university's most ambitious projects, bringing together top researchers in medicine, engineering, and data science to develop innovative health solutions. This expansion reflects the MU's commitment to leading-edge research and interdisciplinary collaboration. Additionally, the university has invested in new facilities for its engineering and business schools, enhancing both research output and student experiences. These developments have strengthened MU's position as a leading public research university.

Missouri University of Science and Technology

Missouri S&T, located in Rolla, Missouri, is a leading public research university known for its emphasis on engineering, science, and technological innovation. One of its most distinguished departments is the Department of Engineering, consistently ranked among the top in the nation. Within this, the civil, mechanical, and aerospace engineering programs have garnered national and international recognition for their rigorous curricula, cutting-edge research, and real-world application of engineering principles. Missouri S&T's Department of Computer Science has also gained prominence for its research in cybersecurity and artificial intelligence, with faculty members receiving national awards and research grants. Additionally, the Materials Science and Engineering program is highly regarded, producing breakthrough research in advanced materials, nanotechnology, and metallurgy.

Missouri S&T has actively expanded its infrastructure and academic reach in recent years. The launch of the Kummer Institute for Student Success, Research, and Economic Development is a major initiative funded by a historic $300 million donation, aimed at enhancing research in advanced manufacturing, artificial intelligence, and infrastructure development. This expansion also includes building new research facilities, investing in student innovation spaces, and increasing support for entrepreneurship and economic development in Missouri. These efforts, alongside new partnerships with industries and government agencies, have positioned Missouri S&T as a leader in technological research and education, attracting top talent and fostering innovation across various engineering and science disciplines.

University of Central Missouri

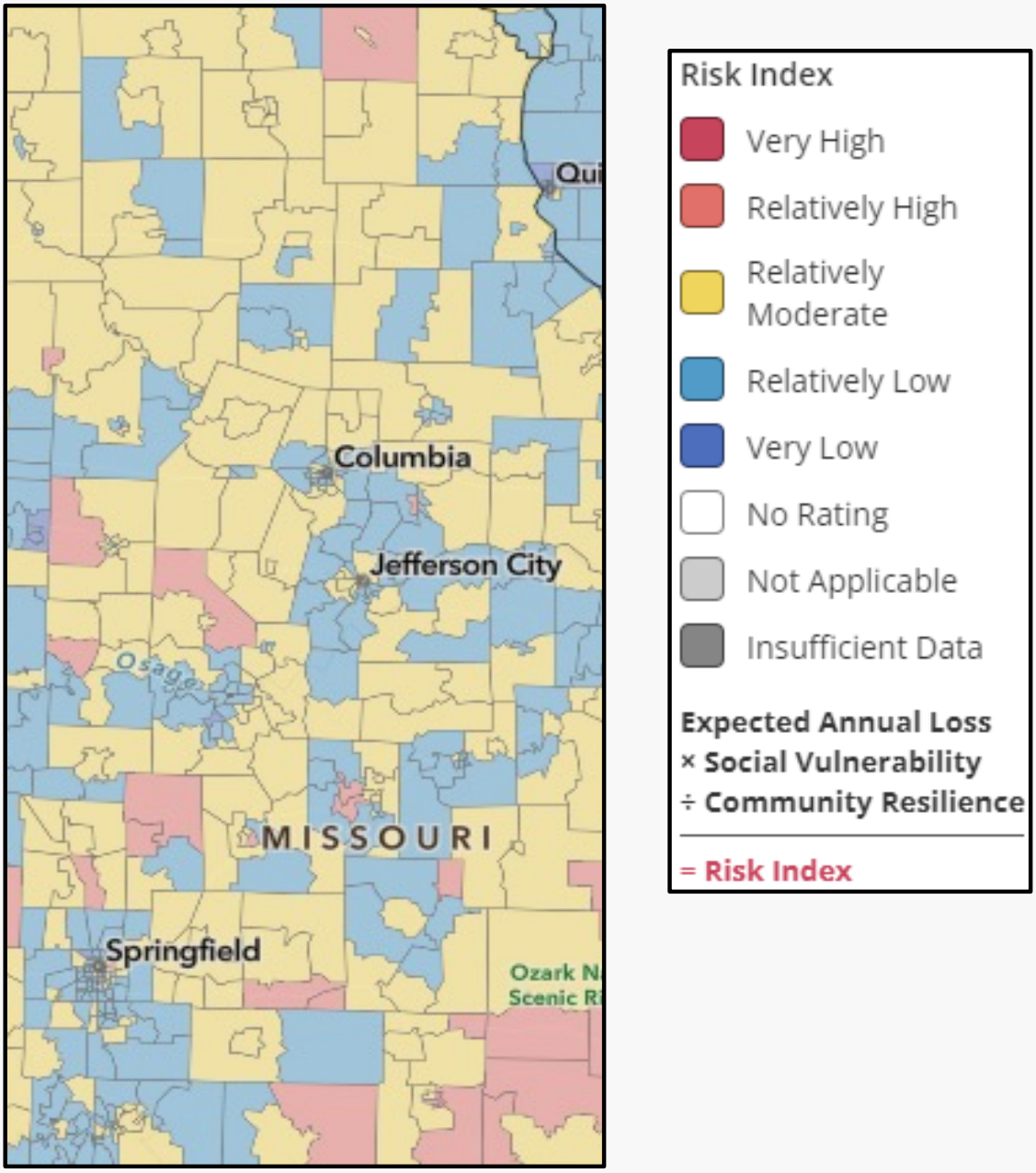
The University of Central Missouri (UCM), located in Warrensburg, Missouri, is known for its strong emphasis on hands-on learning and academic excellence in several key fields. One of its standout departments is the Harmon College of Business and Professional Studies, which includes nationally recognized programs in aviation and accounting. The School of Aviation is particularly noteworthy, having earned accreditation from the Aviation Accreditation Board International (AABI), and it is regarded as one of the top aviation programs in the Midwest. The Criminal Justice and Criminology department is also highly regarded, known for its cutting-edge research and comprehensive programs that prepare students for careers in law enforcement, legal fields, and public safety.

UCM has expanded its facilities and academic offerings in recent years to meet growing student demand and enhance its educational impact. A significant expansion includes the development of the Missouri Innovation Campus (MIC) in Lee's Summit, a collaborative effort with local businesses and educational institutions designed to provide advanced training and degree programs in high-demand fields such as cybersecurity, information technology, and healthcare. This initiative has gained national attention for its innovative approach to reducing student debt while providing pathways to high-paying jobs. UCM's investments in modernizing its main campus facilities, especially in STEM disciplines, further reflect its commitment to staying at the forefront of academic and technological advancements.

UCM and the Missouri National Guard sign a partnership agreement for cybersecurity training

General Hazards

Figure 2. NRI for Central Missouri



With the exception of severe flooding, which is avoided because of its significant distance from major water systems that line the eastern boundary of the state, Central Missouri faces similar general hazards as Eastern Missouri as described above.

Infrastructure Resiliency

Transportation Networks

Central Missouri's transportation infrastructure includes highways, bridges, and public transit systems. According to the U.S. Department of Transportation, following the recently passed Bipartisan Infrastructure Law, "Missouri would expect to receive approximately $7 billion over five years in federal highway formula funding for highways and bridges." Such significant funding and investment are positive actions toward rectifying an aging network of over 2,190 bridges and 7,576 miles of highway that are considered to be in poor condition.

Utilities

Central Missouri's utility systems are generally reliable but face challenges in recovery from disruptions. These systems are critical for supporting both urban and rural communities. However, severe weather events can still lead to significant outages, particularly in less-accessible areas. Continued investment in infrastructure modernization, redundancy, and emergency preparedness will be essential to enhance the overall resiliency of utility systems in the region

Economic Resiliency

Key Industries

Healthcare: This is a significant sector in urban centers, providing a wide range of services and employment opportunities. The presence of major hospitals and medical facilities enhances economic stability.

Education: Institutions like the University of Missouri play a crucial role, contributing to both local economies and workforce development. Education fosters innovation and supports a skilled labor pool.

Agriculture: A foundational industry in rural areas, agriculture contributes substantially to the regional economy. However, it is subject to market fluctuations and climate-related risks.

Central Missouri typically maintains an unemployment rate close to the national average, reflecting a stable labor market. However, rural areas often experience higher unemployment due to limited job opportunities.

Community Resiliency

The University of Missouri Health Care system serves as the backbone of regional healthcare, providing advanced medical services and research. Its network includes seven hospitals and more than 50 outpatient clinics across the region. The system's mobile health units have significantly improved access to care in rural areas, conducting over 5,000 visits annually to underserved communities.

Region 3: Kansas City Metropolitan Area

Key National Security Assets

Lake City Army Ammunition Plant

The Lake City Army Ammunition Plant (LCAAP), located in Independence, Missouri, is a critical facility for the U.S. Department of Defense, responsible for producing a significant portion of the military's small-caliber ammunition. As the largest producer of such ammunition in the United States, LCAAP manufactures a wide range of munitions, including 5.56 mm, 7.62 mm, and .50 caliber rounds for military use. The facility plays a key role in ensuring that the U.S. Armed Forces have a reliable supply of high-quality ammunition for training and combat operations. Operated in coordination with Winchester, LCAAP has maintained its reputation for efficiency and precision in the production of ammunition.

In recent years, LCAAP has undergone significant modernization and expansion to enhance its production capabilities and improve operational efficiency. The installation is currently building a new 500,000-square-foot facility to increase total production. This construction is one of 16 ongoing projects at LCAAP. Until recently, infrastructure investment had stalled at LCAAP. The installation's infrastructure is rapidly aging. The fence line is a particularly notable example of this degradation. The fence line is in a state of disrepair and large portions are unmonitored, presenting a potential security risk.

Kansas City Area Development Council (KCADC)

The KCADC is a key organization dedicated to promoting economic growth and attracting businesses to the greater Kansas City region. KCADC works with various industries, including technology, logistics, and manufacturing, but it places a significant emphasis on the defense and aerospace sectors. The region has seen substantial growth in defense-related industries, thanks to its strategic location and robust infrastructure. KCADC actively collaborates with defense contractors, the military, and local governments to foster the expansion of companies specializing in aerospace engineering, defense manufacturing, cybersecurity, and related fields. By providing incentives, workforce development programs, and infrastructure support, KCADC has successfully attracted defense industry giants such as PAS Technologies and Honeywell.

The presence of the National Security Campus, operated by Honeywell, drives job creation and investment in advanced manufacturing and technology. Additionally, the region's proximity to major military installations, such as Fort Leavenworth and Whiteman Air Force Base, further strengthens its defense ties. The Missouri National Guard's Rosecrans Air National Guard Base is in nearby St. Joseph, Missouri. This installation hosts the Advanced Airlift Tactics Training Center and the 139th Airlift Wing.

University of Missouri–Kansas City

The University of Missouri –Kansas City (UMKC) is a public research university that plays a significant role in the Kansas City Metropolitan Area's educational and economic landscape. As one of the region's largest institutions of higher education, UMKC contributes substantially to workforce development and research innovation. UMKC's urban location in the heart of Kansas City provides unique opportunities for community

engagement and partnerships with local businesses and organizations. The university collaborates with various industries to align its academic programs with the needs of the regional job market, thus contributing to the area's economic growth and development.

The university is known for its strong programs in health sciences, particularly its School of Medicine and School of Dentistry. These programs not only produce healthcare professionals for the region but also engage in research that benefits the local and wider community. The health sciences focus may lead to partnerships with local hospitals and healthcare systems, fostering innovation in medical treatments and healthcare delivery.

The university's location in a major urban center allows for extensive internship and cooperative education opportunities for students, bridging the gap between academic learning and practical experience. This would enhance the employability of graduates and strengthen ties between the university and local employers.

Kansas City National Security Campus (KCNSC)

With over 75 years of experience, the Kansas City National Security Campus (KCNSC) leverages its unique multi-mission capabilities to deliver exceptional value within the Department of Energy (DOE). As a vital component of the National Security Agency (NSA), KCNSC excels in nuclear oversight and secure manufacturing. Its distinct Management and Operations (M&O) structure enhances operational flexibility and efficiency, while its advanced engineering expertise and robust supply chain capabilities ensure seamless integration across diverse projects in support of a variety of missions.

Since 2016, KCNSC has more than doubled its workforce, expanding from 2,800 to over 7,100 employees. This growth not only makes KCNSC one of the largest employers in the region but also significantly contributes to the local economy. By creating thousands of high-quality jobs, KCNSC supports a diverse range of skilled positions, from engineering to manufacturing, fostering economic development and stability. The campus's commitment to job growth enhances the area's overall prosperity, strengthens community ties, and drives regional innovation and workforce development, solidifying KCNSC's role as a cornerstone of economic prosperity in the region.

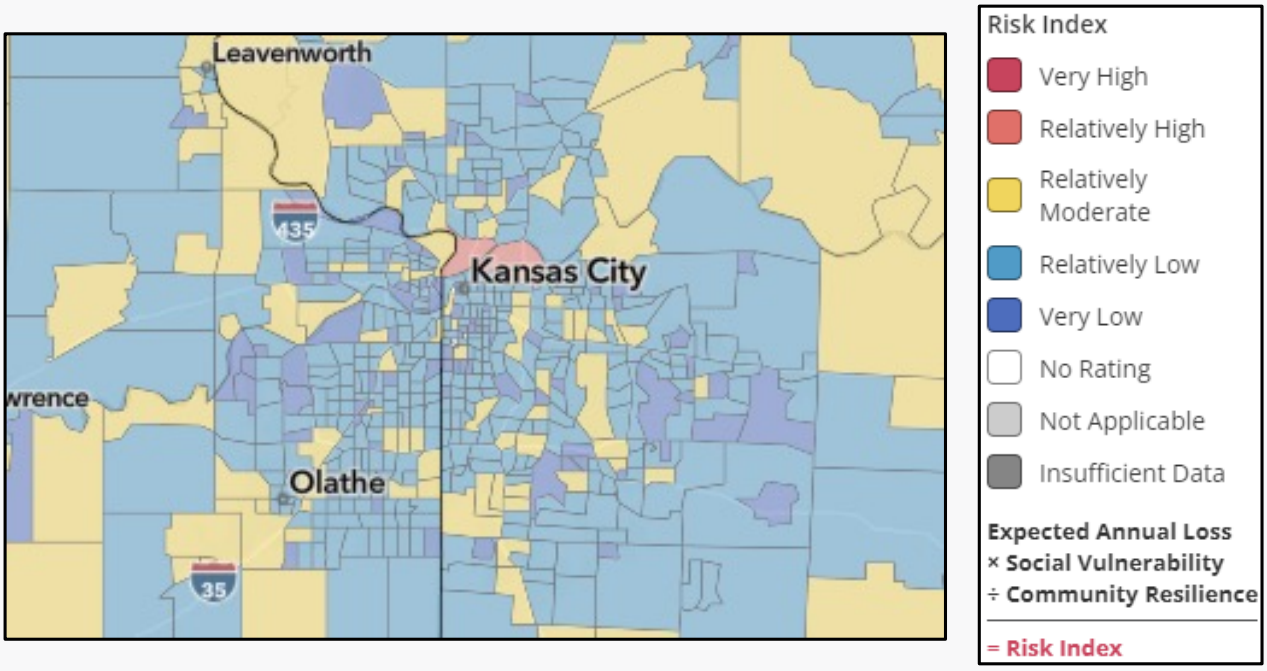
University of Kansas–West Campus

The University of Kansas–West Campus (KU) is a key regional driver producing workforce talent and research expertise. Additionally, the campus has closely aligned the KU Economic Development Plan with the objectives of the KU Innovation Park, a key economic development partner for the region, supporting businesses and fostering growth and innovation in a high-density live-work environment.

The Office of National Security Initiatives underscores the importance of strong connections and influence within national security circles. Through the Office of Economic Development, KU supplies a steady stream of talent and offers practical solutions to these challenges, leveraging the university's research capabilities to support national security efforts. Additionally, through the Intelligence Community Center of Academic Excellence, KU is increasing the diversity of those joining the intelligence community, offering a program that is compatible with various liberal arts and STEM degrees. The university also maintains a significant partnership with Fort Leavenworth, offering critical language education to service members.

General Hazards

Figure 3. NRI for the Kansas City Metropolitan Area



The Kansas City Metropolitan Area faces several general hazards that could impact infrastructure, communities, and the economy. General hazards facing this region include:

Severe Weather

Tornadoes: The region lies in Tornado Alley, making it highly susceptible to tornadoes, especially in spring and early summer.

Severe Thunderstorms: The region is also prone to severe thunderstorms which can bring heavy rainfall, strong winds, lightning, and hail.

Flooding: Intense rainfall and the soil conditions of the area make the region susceptible to flash floods, especially in low-lying areas and areas along rivers.

Drought: The region often experiences hot and dry conditions during the summer months, leading to periods of drought. Periods of extended drought can impact the water supply, burdening local communities and industry.

Severe Winter Weather: Winter in the region can bring freezing temperatures, ice storms, and heavy snowfall. Severe winter weather conditions can disrupt transportation services, cause power outages, and negatively impact safety and other services within the community.

Infrastructure Resiliency

Transportation Infrastructure

Roads and Highways: The Kansas City metro area has an extensive network of roads and highways, including major interstates like I-70 and I-35. While these are crucial for mobility and commerce, they can be vulnerable to extreme weather events (e.g., snowstorms, flooding) and require regular maintenance and upgrades.

Public Transit: The region has a developing public transit system, including buses and a streetcar line. Enhancing the resiliency of transit infrastructure involves expanding coverage and ensuring systems can operate during severe weather and emergencies.

Utilities and Energy

Electricity: The electrical grid in the Kansas City area is managed by utility companies that must address risks like storms, ice, and power outages. Resiliency can be improved through grid modernization, backup power systems, and increased capacity for renewable energy sources.

Communication Systems: Reliable communication networks (including internet and mobile services) are critical for emergency response and daily activities. Resiliency can be enhanced by investing in robust and redundant systems and preparing for disruptions from natural or man-made hazards.

Water Supply and Sewer Systems: The region relies on a network of water treatment plants and sewer systems. Resiliency involves managing risks from flooding, ensuring adequate infrastructure maintenance, and planning for drought conditions.

Economic Resiliency

Key Industries

Healthcare

Financial Services

Tech: The region is emerging as a significant tech hub, with companies like Garmin and Cerner (now part of Oracle) maintaining large operations.

This diversity provides a buffer against economic shocks and enhances recovery potential. As of early 2024, the Kansas City metro area had generally maintained lower unemployment rates compared to the national average. However, the region has faced challenges in addressing skill gaps, particularly in tech and advanced manufacturing sectors. Workforce development initiatives, including partnerships between local universities and industries, are aimed at addressing these gaps and improving long-term employment stability.

Community Resiliency

The Kansas City metro area is known for its strong sense of community, particularly evident in its neighborhood associations and civic engagement. The City of Neighborhoods program in Kansas City, supports over 240 registered neighborhood organizations, fostering local identity and collective action. These networks have proven crucial in times of crisis, mobilizing resources and support for affected communities. The region has a robust network of social service providers but faces challenges in meeting growing needs. The United Way of Greater Kansas City plays a pivotal role, coordinating with numerous local nonprofits to address issues like poverty, homelessness, and food insecurity. However, the demand for services often outpaces available resources, particularly in underserved areas. Additionally, the Mid-America Regional Council (MARC) coordinates emergency planning across the bi-state region, fostering collaboration between local governments, first responders, and community organizations. The region has comprehensive plans for various scenarios, including natural disasters and public health emergencies. Regular drills and exercises help maintain readiness.

Missouri: Critical Industries

The Cybersecurity and Infrastructure Security Agency has identified 16 critical infrastructure sectors that are considered vital to national security. The incapacitation or shutdown of these sectors would have a debilitating impact on national economic security, national public health and safety, or national security. Identifying key critical infrastructure sectors for the National Security Crossroads region is imperative to ensuring long-term growth and continued relevance. Matrix identified five of CISA's 16 critical infrastructure sectors that play a key role within the region's economy. These sectors are the defense industrial base, critical manufacturing, energy, food and agriculture, and information technology.

Defense Industrial Base

Missouri plays a key role in the national defense industrial base, particularly in the aviation sector. Missouri is home to more than 100 aerospace manufacturing companies including premier facilities such as Boeing's Defense, Space, and Security Facilities in St. Louis and the Honeywell Federal Manufacturing and Technologies Center in Kansas City. Aerospace manufacturing represents 33.5% of all Missouri DoD contracting, and over 65% of all Missouri DoD contracts are for durable goods manufacturing, further displaying the significance of defense industrial manufacturing in the state.

Critical Manufacturing

Manufacturing in Missouri accounts for over 12% of the state's total output. This amounts to more than $41 billion and 274,000 employees. The sector has global reach with Canada, Mexico, Germany, China, and Japan as major export partners. Notable manufacturers include Boeing in St. Louis, Honeywell in Kansas City, and O'Fallon Casting in O'Fallon.

Energy

Missouri has an extensive and intricate energy infrastructure with abundant room for growth. As of 2022, coal fueled most of the energy production in the state, with 66% of Missouri's electricity generation and eight of the 10 largest power plants in the state being coal-fired. Missouri has one nuclear facility, the Callaway Nuclear Power Plant located west of St. Louis, which accounts for an additional 11% of state power generation. Natural gas, wind, and hydropower account for most of the remaining power production. There are significant opportunities for power production expansion. The heavily forested Ozark Plateau has abundant biomass resource potential, and the open prairies of northern and western Missouri have significant wind power production opportunities.

Food and Agriculture

Missouri has a considerable agricultural sector comprised of nearly 88,000 farms that cover more than two-thirds of the state's total land acreage. Agriculture employs more than 500,000 people across the state and contributes $93 billion to the state economy. This agricultural production makes a global impact with the United Kingdom, France, China, South Korea, and Japan comprising the state's leading export partners. Agriculture is a key component of Missouri's economy.

Information Technology

Missouri's technology industry has exceeded national average growth over the past 10 years. This growth is expected to accelerate over the coming decade. Missouri's technology industry employs 159,000 people and contributes $38 billion to the state's economy. Major technology firms in Missouri include NetGain, Garmin, and T-Mobile.

Region 4: Northeast Region, KS

Key National Security Assets

Fort Leavenworth

Fort Leavenworth embodies a reach history of military tradition and adaptation. Established in the early 19th century, Fort Leavenworth has remained one of the most prominent military installations in the Army. Today, the Army's Combined Arms Center (CAC) is engaged in the primary mission of preparing the Army's leaders. The CAC develops and integrates doctrine, education, and lessons learned to develop the leaders of the Army to support mission command and successfully conduct unified land operations in a joint, interagency, intergovernmental, and multinational environment. Nearly every officer in the Army cycles through Fort Leavenworth to receive this education, offering great exposure for the installation and the community.

Additionally, Fort Leavenworth is heavily involved with the local community. Fort Leavenworth has a robust mutual aid program with the local community for fire and police emergency response. This program fosters a close-knit relationship between the installation and the surrounding Leavenworth community through shared resources, joint emergency response efforts, and coordinated training exercises. By working together, Fort Leavenworth and local agencies enhance their capabilities to respond to natural disasters, emergencies, and other critical incidents, ensuring the safety and well-being of both military personnel and civilians on and off the installation.

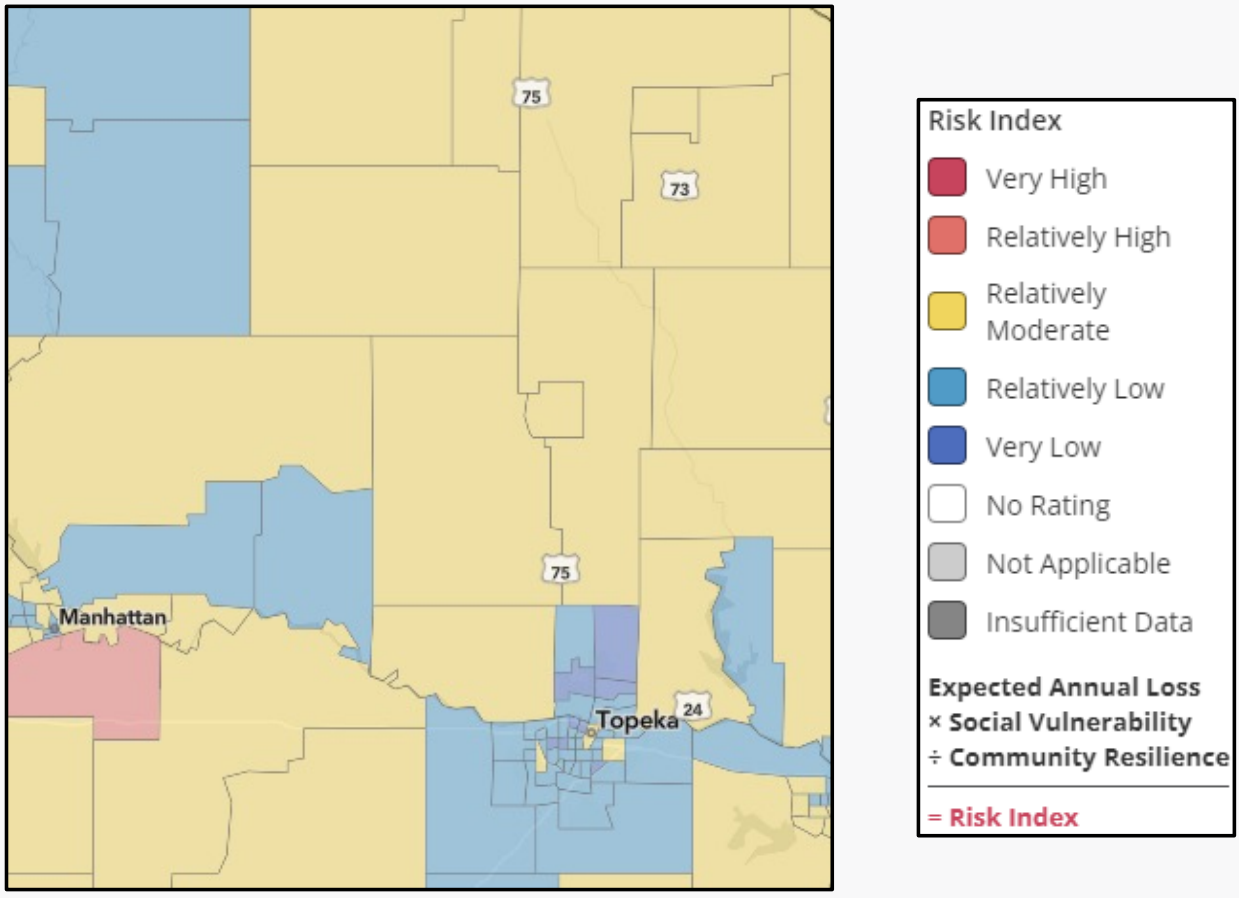
Forbes Field

Forbes Field is home to the 190th Air Refueling Wing (ARW). The mission of the 190th ARW is flying the KC-135 air refueling aircraft in support of worldwide aerial refueling as part of the Kansas Air National Guard. Located just outside of the state's capital of Topeka, the Kansas Air National Guard is essential for ensuring national security, protecting public safety, and supporting for emergency response efforts.

Forbes Field is a candidate for Main Operating Base (MOB) 7 to host the KC-46A Pegasus. This presents an amazing opportunity for the Kansas ANG to capture an increase in defense spending. This new investment will help protect and grow the mission at Forbes Field and benefit the surrounding area.

General Hazards

Figure 4. NRI for Northeast Kansas



Northeast Kansas faces several hazards that can impact the area, primarily natural disasters such as tornadoes, severe storms, and flooding. The region is situated in Tornado Alley, making it particularly susceptible to tornado activity in spring and early summer. Additionally, heavy rainfall can lead to flash flooding, especially in low-lying areas. Beyond natural disasters, Topeka also contends with risks related to transportation accidents due to its highways and railways, as well as the potential for economic challenges linked to changes in the agricultural sector, which is vital to the local economy. These hazards necessitate ongoing preparedness and community resiliency efforts.

Severe Weather

Tornadoes: The region lies in Tornado Alley making it highly susceptible to tornadoes, especially in spring and early summer. Although rare, Northeast Kansas has experienced devastating tornadoes. In 1966, a monster tornado swept through Topeka, causing over $200 million worth of damage, killing 17 people, and injuring hundreds more.

Severe Thunderstorms: The region is also prone to severe thunderstorms which can bring heavy rainfall, strong winds, lightning, and hail.

Flooding: Intense rainfall and the soil conditions of the area make the region susceptible to flash floods, especially in low-lying areas and areas along rivers.

Drought: The region often experiences hot and dry conditions during the summer months, leading to periods of drought. Periods of extended drought can impact the water supply, burdening local communities and industry.

Severe Winter Weather: Winter in the region can bring freezing temperatures, ice storms, and heavy snowfall. Severe winter weather conditions can disrupt transportation services, cause power outages, and negatively impact safety and other services within the community.

Infrastructure Resiliency

Topeka's infrastructure demonstrates a proactive approach to enhancing its resiliency against various hazards. The city's transportation network, including roads and bridges, undergoes regular assessments and upgrades to withstand severe weather events and ensure safety. Investment in stormwater management systems aims to mitigate flooding risks, incorporating green infrastructure practices that enhance both functionality and environmental sustainability.

Moreover, Topeka's utilities, including water and electricity, are being modernized to improve reliability and reduce vulnerability to outages during extreme weather. Community facilities, such as emergency shelters and medical centers, are designed to be adaptable and capable of withstanding natural disasters. Overall, Topeka's commitment to resiliency is evident in its strategic planning and community engagement initiatives, fostering a robust infrastructure that supports public safety.

Economic Resiliency

Topeka's economy is anchored by several critical sectors, including government, healthcare, education, and manufacturing. The presence of state government offices provides a stable employment base, while the healthcare sector, bolstered by facilities like Stormont Vail Health and the University of Kansas Health System, contributes significantly to local jobs and economic activity. Manufacturing, particularly in food processing and machinery, also plays a vital role, providing resiliency through varied job opportunities.

The combination of a stable government sector, a strong healthcare system, and diversified economic activities positions Topeka to recover more effectively from economic shocks. While challenges remain, such as adapting to shifts in the manufacturing landscape and responding to economic fluctuations, community engagement and strategic planning continue to bolster resiliency.

Community Resiliency

Topeka, the capital city of Kansas, exemplifies community resiliency through its vibrant and diverse population, rich history, and commitment to fostering social cohesion. Recognizing the importance of a connected community, Topeka has developed initiatives that enhance local culture and economic opportunity. The NOTO (North Topeka) Arts District stands out as a hub for local artists and businesses, breathing new life into the area and creating a dynamic cultural landscape. Efforts to revitalize Great Overland Station with a comprehensive master plan aim to enhance the surrounding riverfront, transforming it into an attractive destination that not only serves residents but also draws visitors to the city.

In addition to cultural development, Topeka prioritizes support for its military community through the Military and Veterans Affairs Council, which integrates industry and military leaders to create tailored employment opportunities for transitioning service members. This collaboration not only addresses local workforce needs but also strengthens the bonds within the community by leveraging the diverse skills and experiences of veterans. The city's affordable housing market and "big small town" feel provide residents with an exceptional quality of life, blending the charm of a close-knit community with the amenities of a larger city. Institutions like Washburn Tech work hand-in-hand with local businesses to ensure that students acquire high-demand skills, while Washburn University's partnership with the Kansas Bureau of Investigation to launch a forensic investigative sciences degree prepares students for meaningful careers. Together, these efforts highlight Topeka's resiliency, creating a supportive environment where individuals and families can thrive and contribute to their communities.

Region 5: Flint Hills, KS

Key National Security Assets

Fort Riley

Fort Riley stands as a cornerstone of military readiness and community integration, covering 150 square miles of dedicated training area equipped with cutting-edge facilities. Home to the historic 1st Infantry Division, the installation supports approximately 15,000 active-duty service members and their families, alongside a vibrant population of veterans, retirees, and civilian employees. Nestled in the picturesque Flint Hills region of Kansas, Fort Riley not only provides quality accommodations and resources for soldiers and their families, but also serves National Guard and Reserve units, enhancing their training and operational capabilities.

Manhattan

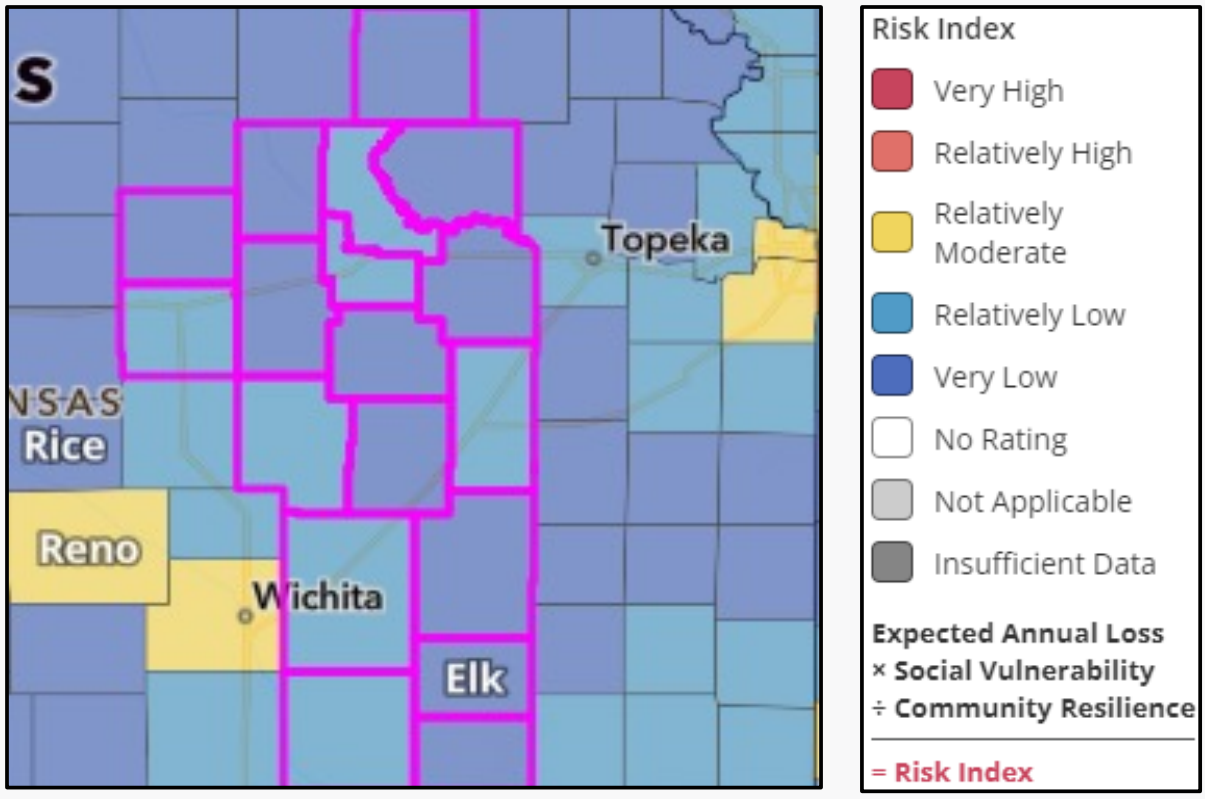
Manhattan, Kansas, known as the "Little Apple," is a vibrant college town that blends rich history, cultural diversity, and a strong sense of community. Home to Kansas State University, Manhattan boasts a youthful energy and a thriving arts scene, alongside unique attractions like the scenic Flint Hills and the historic downtown district.

Junction City

Junction City, Kansas, located at the confluence of the Republican and Smoky Hill Rivers, serves as a hub for military families and boasts a diverse population. Known for its rich history, Junction City was founded in the 19th century and has evolved into a vibrant community marked by its strong ties to Fort Riley, as well as its unique blend of cultures. The city features charming historic districts, local festivals, and recreational areas like the scenic Milford Lake, making it an attractive place for both residents and visitors.

General Hazards

Figure 5. NRI for Flint Hills, Kansas



The Flint Hills region faces several hazards that can impact community resiliency. The natural and socioeconomic hazards facing the region can significantly impact the inhabitants and infrastructure of the communities.

Severe Weather

Severe weather events, such as thunderstorms, tornadoes, and heavy snowfall, pose immediate threats, often resulting in damage to homes and disruption of essential services. Flooding, particularly in areas near the Republican and Smoky Hill Rivers, can also lead to significant risks, impacting transportation, agriculture, and local businesses.

In addition to these immediate hazards, Flint Hills faces long-term challenges such as drought, which can severely affect the agricultural economy — a cornerstone of the region's identity. The region's grasslands are also susceptible to wildfires, especially during dry seasons, threatening both property and natural resources. Economically, the community's reliance on military activity and agriculture makes it vulnerable to fluctuations in both sectors, underscoring the need for diversified economic strategies to bolster resiliency.

Tornadoes: The region lies in Tornado Alley making it highly susceptible to tornadoes, especially in spring and early summer. Although rare, the Flint Hills region has experienced devastating tornadoes.

Severe Thunderstorms: The region is also prone to severe thunderstorms which can bring heavy rainfall, strong winds, lightning, and damaging hail.

Flooding: Proximity to rivers increases the risk of flooding, particularly during heavy rainfall or rapid snowmelt. Flooding can affect homes, businesses, and essential services.

Drought: The region can experience periods of drought, impacting agriculture, water supply, and local economies that rely on farming and livestock.

Wildfires: The dry grasslands of the Flint Hills region are prone to wildfires, especially during hot, dry periods. Wildfires can threaten homes, wildlife, and natural resources.

Infrastructure Resiliency

Fort Riley, like many other installations, receives inadequate funding for its aging infrastructure, with the Army only able to cover approximately 28% of the necessary requirements. This funding shortfall poses serious risks, as deferred maintenance and outdated infrastructure and facilities could impact operational readiness, safety, and overall mission effectiveness.

Economic Resiliency

The economic resiliency of the Junction City, Fort Riley, and Manhattan region is anchored in its strategic location and robust infrastructure. Junction City benefits from excellent connectivity through major transportation routes, including rail and interstate networks, making it an attractive site for industrial growth. The opening of Camso's 140,000-square-foot manufacturing facility in 2020 exemplifies this potential, as it taps into the local workforce and complements nearby operations in Emporia.

In response to housing challenges, Junction City is leveraging a land bank to increase affordable entry-level homes. With over 1,000 available lots equipped with essential infrastructure, the city provides significant opportunities for prospective residents and developers, encouraging cost-effective housing solutions. This innovative approach comes in the wake of the city's preparation for a proposed troop expansion at Fort Riley, which ultimately did not materialize, leaving behind valuable land and infrastructure.

Fort Riley serves as the largest employer in the Central Flint Hills region, stabilizing the local economy and supporting a wide array of businesses. Its economic impact attracts ancillary services and enhances regional infrastructure, such as the expansion of Manhattan Regional Airport. Additionally, the National Bio and Agro-Defense Facility (NBAF) has established a vital presence in the area, creating jobs and advancing research in animal disease protection, with over half its workforce being veterans.

The Flint Hills Regional Council plays a pivotal role in fostering collaboration among local governments to enhance economic vitality and quality of life. Meanwhile, Kansas State University serves as an economic driver for Manhattan and its surroundings, significantly increasing its military-connected student population and strengthening ties with Fort Riley and Fort Leavenworth. Together, these elements underscore the region's resiliency, positioning it for continued growth and stability in a dynamic economic landscape.

Community Resiliency

The community resiliency of the Fort Riley, Manhattan, and Junction City region is strengthened through collaboration and engagement among local entities. Fort Riley's current focus on educational partnerships can be enhanced by actively involving small businesses and fostering economic growth and deeper community ties. By integrating local resources into its outreach strategy, Fort Riley can create mutual support systems that benefit both the military and surrounding communities.

Innovative initiatives like Intergovernmental Support Agreements (IGSAs) demonstrate Fort Riley's commitment to efficient facility management while supporting local economies. These agreements allow for significant cost savings on projects and facilitate collaboration with local school districts, keeping funds within the community and enhancing regional economic ties.

The Manhattan Military Relations Committee plays a vital role in building connections between Fort Riley and the local community, ensuring a welcoming environment for service members and promoting sustained collaboration. Additionally, Manhattan Area Technical College prepares students for in-demand careers, with a significant percentage choosing to remain in Kansas post-graduation, further bolstering the local workforce.

Junction City's diverse and youthful population presents significant economic potential, driving innovation and productivity. The Junction City Military Affairs Council fosters mutual respect between the military and community through various engagement activities, strengthening their interdependence. Recent investments in infrastructure, such as a state-of-the-art high school, enhance educational opportunities, preparing students for future careers.

However, challenges remain, particularly in affordable childcare, which limits workforce participation and hinders economic growth. Addressing this issue is crucial for attracting new residents and businesses, ensuring that families can thrive in the region. Overall, the collaboration between the military and civilian sectors underscores the resiliency and potential of this dynamic community.

Region 6: Central Region, KS

Key National Security Assets

Salina

Salina, Kansas, is a vibrant city known for its rich history and diverse economy. Located at the crossroads of major highways, it serves as a regional hub for commerce and culture in Central Kansas. The city boasts a mix of agricultural, manufacturing, and service industries, contributing to its economic stability. Salina is also home to educational institutions like Kansas Wesleyan University and Salina Area Technical College, which provide valuable workforce training and development. Salina also boasts an airport, with Salina Regional Airport servicing commercial travel to Denver and Chicago, as well as serving as the home base for a wide variety of businesses and operations. With a strong sense of community and a commitment to the arts, exemplified by events such as the Smoky Hill River Festival, Salina offers residents a blend of small-town charm and access to urban amenities.

Wichita State University

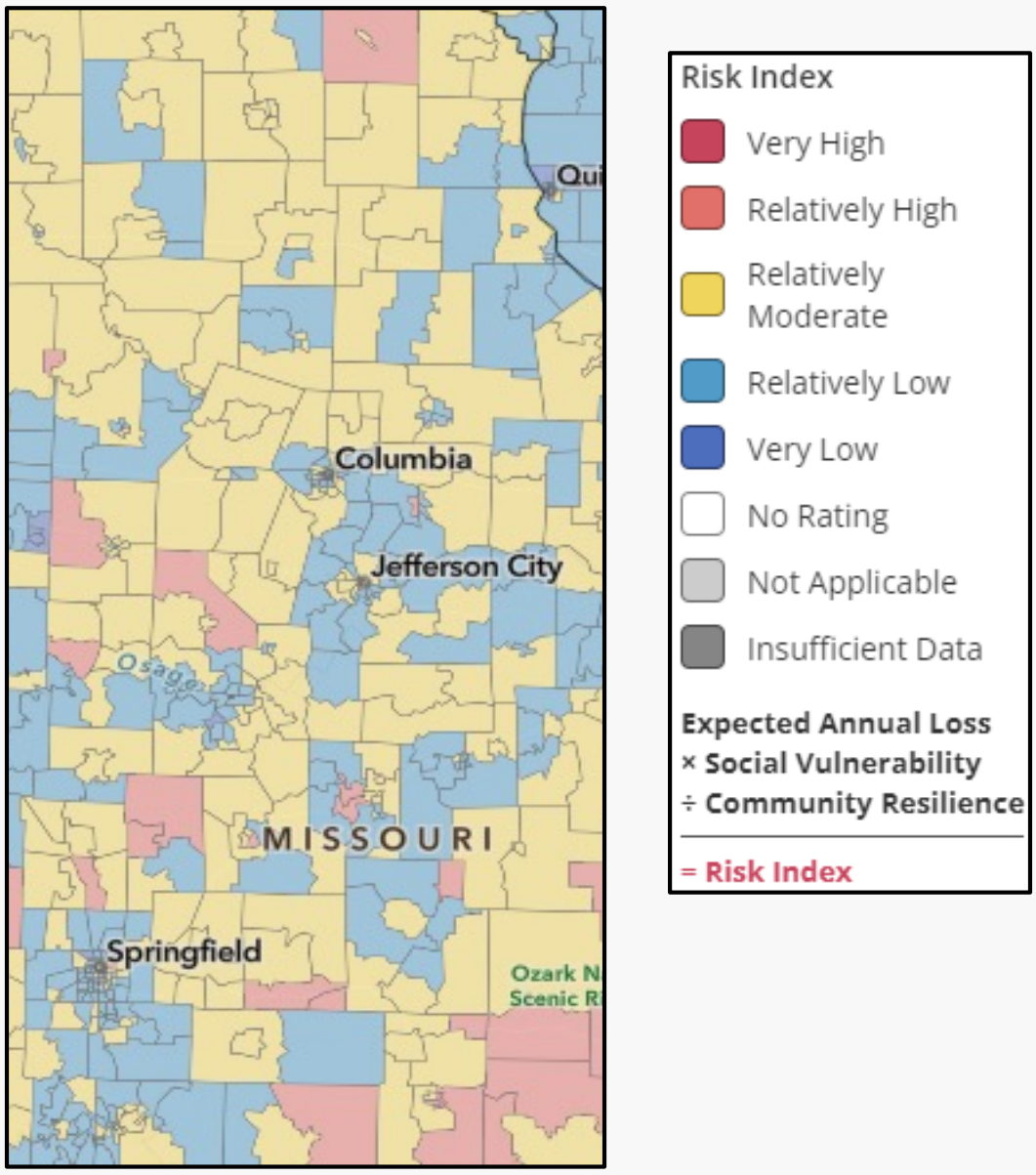
Wichita State University (WSU) is a dynamic institution located in Wichita, Kansas, renowned for its commitment to innovation, research, and community engagement. With a diverse array of undergraduate and graduate programs, WSU emphasizes experiential learning, providing students with hands-on opportunities in fields such as engineering, business, and health sciences. The university is also recognized for its strong partnerships with local industries and its focus on entrepreneurship, making it a key player in driving economic development in the region. Additionally, WSU's vibrant campus life, marked by cultural events and a strong athletics program, fosters a sense of community and school spirit among its students and alumni.

McConnell Air Force Base

McConnell Air Force Base, located in Wichita, Kansas, serves as a critical installation for the United States Air Force, primarily supporting air refueling and strategic operations. Home to the 22nd Air Refueling Wing, McConnell plays a vital role in enhancing global reach and operational readiness through its fleet of KC-135 Stratotankers and the newest refueling platform, the KC-46A Pegasus. Additionally, the installation is home to the 184th Wing of the Kansas Air National Guard and the 931st Air Refueling Wing of the Air Force Reserve. The base not only contributes to national defense but also significantly impacts the local economy, providing jobs and fostering partnerships with nearby communities and businesses. With a commitment to community engagement, McConnell hosts various events and initiatives that strengthen ties between military personnel and local residents, promoting a collaborative environment that benefits both the base and the Wichita area.

General Hazards

Figure 6. NRI for Central Kansas



Severe Weather

Severe weather events, such as thunderstorms, tornadoes, and flooding, pose immediate threats, often resulting in damage to homes and disruption of essential services. The region is also prone to severe winter weather, particularly ice storms.

Thunderstorms: The Central Region of Kansas encompassing Wichita and Salina experiences severe thunderstorms that can pose significant hazards, particularly during the spring and summer months. These thunderstorms are characterized by intense rainfall, strong winds, hail, and the potential for tornadoes. The severity of these storms is influenced by the region's geography and climate, which create ideal conditions for storm development.

Tornadoes: The region is known for its tornado activity, especially in the spring. Severe thunderstorms can develop into supercells, which are capable of producing strong tornadoes. These tornadoes can cause catastrophic destruction along their paths, leveling homes, uprooting trees, and creating debris that poses additional hazards. The unpredictability of tornadoes makes preparedness essential for residents and emergency services alike, especially when it comes to early detection and notification.

Flooding: Both urban and rural areas in the region are susceptible to flooding, particularly after heavy rainfall. This is exacerbated by the flat terrain and the presence of rivers and creeks that can overflow. Flooding can lead to property damage, loss of crops, and contamination of water supplies. Developing effective drainage systems and floodplain management practices is crucial for mitigating these risks and enhancing community resiliency.

Ice Storms: Ice storms pose a significant hazard to the region during winter months, resulting in dangerous conditions and severe disruptions. These storms occur when warm air traps precipitation between layers of cold air, leading to freezing rain that coats surfaces with ice. Even minimal ice accumulation can cause widespread power outages as ice-laden power lines sag or break, impacting heating and essential services. Transportation becomes hazardous due to icy roads, increasing the risk of accidents and complicating emergency responses. Property damage is common, with roofs collapsing and trees falling under the weight of ice. To enhance resiliency, communities must prioritize emergency preparedness plans, invest in robust infrastructure, and establish effective public communication to ensure safety during ice storms.

Drought: The region experiences periods of drought, which can severely impact agricultural production — a key economic driver for both Wichita and Salina. Prolonged dry spells can lead to water shortages, affecting not only farming but also municipal water supplies. Implementing water conservation measures and sustainable agricultural practices can help communities adapt to and mitigate the effects of drought.

Preparing for these events requires robust infrastructure safeguards, emergency management plans, and community awareness programs to ensure safety and swift recovery.

Infrastructure Resiliency

Salina and Wichita have made significant strides in enhancing infrastructure resiliency to better withstand severe weather and other hazards. Both cities have prioritized upgrading stormwater management systems to mitigate flooding, exemplified by Wichita's improvements to the East Harry Street drainage project, which targets critical flood-prone areas. In Salina, efforts have focused on maintaining and enhancing roadways, ensuring they are equipped with adequate drainage and built to endure severe weather conditions. Additionally, both cities have adopted building codes that emphasize the construction of durable structures capable of withstanding high winds and heavy snowfall.

Despite these advancements, there are areas for improvement. Wichita has made progress in enhancing its power grid's resiliency, yet vulnerabilities persist, particularly with aging infrastructure that may falter during ice storms. Similarly, Salina could benefit from further investments in retrofitting older buildings and bridges to meet modern resiliency standards, ensuring they can better withstand extreme weather events.

Moreover, expanding transportation infrastructure, particularly through Salina Regional Airport, is vital for bolstering regional connectivity. Currently, the airport offers two daily flights to Denver and Chicago via SkyWest, and there is community support for adding a third flight to Houston, which would benefit local businesses with direct ties to that city. Salina Regional Airport's primary runway (12,300 feet x 150 feet) is capable of accommodating any aircraft currently in service, ensuring flexibility and accessibility for a wide range of flights, as well as for military readiness. Additionally, the presence of three other runways enhances operational efficiency and provides redundancy, allowing the airport to manage varying traffic volumes and weather conditions effectively. The airport has also demonstrated its critical role in safety; for instance, on September 21, 2024, JetBlue Flight 1189 made an emergency landing at Salina Regional Airport due to a smoke alert in the cargo hold, successfully ensuring the safety of 146 passengers and crew.

By continuing to prioritize infrastructure upgrades and actively seeking funding for these initiatives, both cities can bolster their resiliency against future challenges.

Economic Resiliency

The region is actively addressing its workforce challenges through targeted development initiatives that aim to foster economic resiliency. The workforce shortage in Salina presents a unique opportunity for targeted workforce development initiatives that can transform this challenge into a driver of economic growth. By focusing on attracting and retaining skilled talent, Salina can implement specialized training programs and partnerships with local educational institutions to bridge the gap between available labor and industry needs. Engaging local businesses in these workforce development efforts will create a cohesive strategy, allowing companies to offer internships, apprenticeships, and on-the-job training to develop a pipeline of skilled workers. Addressing the workforce shortage through these initiatives not only meets the demands of the growing industrial sector but also fosters economic growth and community development, positioning Salina as a hub for innovation and expansion.

Salina Regional Airport has significant potential for development, with 300 acres on the west side yet to be fully utilized. Plans are in place to separate Department of Defense and civilian operations at the airport, with the Kansas National Guard indicating plans to develop an Army aviation support facility there. Additionally, there is potential for the site to host the MQ-9 Gray Eagle, an advanced unmanned aircraft

system. Salina is also welcoming Pure Imagination Labs, a leader in virtual reality and special computing, which is moving its research operations from California and constructing a $41 million facility on the KSU-Salina campus. This augmented reality training environment will not only benefit the university but also foster partnerships for military training.

Kansas State University has a strong partnership with Salina Regional Airport, boasting the largest manned aviation program in the country and producing over 100 pilots annually with a goal of graduating 600 pilots by 2030. KSU also offers critical career paths for aircraft maintainers, supporting the growth of the aviation industry in the region. The university's collaboration with the National Oceanic and Atmospheric Administration (NOAA) further enhances its role, as KSU has been named an aviation training center to supply pilots directly to the administration. Programs like the Aviation Innovation and Maintenance (AIM) Center of Excellence provide six-week pre-apprenticeships that give students hands-on training and competency-based micro-credentials, making them accessible to transitioning service members, high schoolers, and underserved populations.

Salina has fostered vibrant industry growth, exemplified by over 170 businesses within the city's industrial park, including Schwan's, Vortex, and Geoprobe. This dynamic sector generates more than 7,000 jobs and contributes $1.3 billion to the local economy, underscoring Salina's significance in regional and national markets. The recent acquisition of 80 acres for a new tenant further enhances the industrial park's appeal, while new businesses, such as a pizza manufacturing plant and a cold storage facility, continue to establish operations in Salina.

Wichita, meanwhile, holds the top spot in the U.S. for manufacturing and STEM occupations, ranking third nationwide for engineers per capita. The National Institute for Aviation Research (NIAR) at Wichita State University is a key player in this landscape, employing over half of its 1,800 staff from WSU students engaged in applied learning. This collaboration highlights WSU's leadership in science, technology, and engineering fields, driving innovation and providing students with real-world experience.

The Wichita Chamber of Commerce is deeply integrated into the community and the defense/aviation industry, advocating for workforce recruitment and retention through initiatives like "Five and Thrive" and Home Base Wichita. Currently, 22 SkillBridge programs support transitioning veterans, while the chamber has established the Workforce Alliance to protect and grow the mission at McConnell Air Force Base. Their successful partnership with the local YMCA addresses childcare challenges faced by service members, expanding care during military family events. The Wichita Chamber's participation in the Governor's Military Council further amplifies its efforts, ensuring that concerns related to the workforce and military needs are heard at the state leadership level. Together, these efforts in both Salina and Wichita aim to build a resilient economy that can adapt to changing workforce demands.

Community Resiliency

Wichita State University excels at attracting talent by recognizing the region's role as a key economic driver for drawing students to Kansas, Wichita, and the university itself. Since 2015, WSU has offered in-state tuition to students from neighboring states, leading to a significant boost in both student enrollment and retention post-graduation. This initiative has resulted in over 49% of graduates choosing to remain in the area, a trend largely attributed to the university's strong industry connections and hands-on experiences gained during their studies. Additionally, many students through applied learning connections are able

to work their way through their studies, earning over $30M/year in wages on and off campus to fund their education.

In the Central Kansas region, community resiliency is being strengthened through strategic initiatives aimed at addressing housing, education, and healthcare challenges. The insufficient availability of housing in Salina presents a significant opportunity for strategic growth, reflecting the city's commitment to aligning housing development with industrial expansion. While proactive measures have been implemented, there remains potential for targeted initiatives that can further enhance the housing infrastructure. By investing in this area, Salina can attract and retain skilled workers, fostering a thriving community and bolstering the local economy. This strategic approach positions Salina as an appealing destination for both businesses and residents, ultimately driving the city's growth and development.

Wichita State University exemplifies innovation and adaptability in meeting market demands, particularly demonstrated during the COVID-19 pandemic when it leveraged its research capabilities to produce COVID-19 tests. This swift response showcased the university's commitment to addressing urgent public health needs and highlighted its role as a dynamic contributor to the local economy. WSU's partnership with WSU Tech, the local community college, further enhances educational opportunities. Students have been able to progress from earning a GED to achieving a PhD, while many high school students can graduate with an associate's degree, allowing them to complete their bachelor's degree in just two additional years.

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The healthcare collaboration between McConnell Air Force Base and the surrounding community highlights several strengths and efficiencies. The transition to a command structure on the medical side has streamlined business operations and improved readiness, although it presents challenges in ensuring consistent healthcare availability across different communities. A notable strength is the partnership with Wichita State University, which helps leverage staff to increase patient capacity. Additionally, the dental department on base effectively manages patient care by referring less-complex cases to community providers while retaining more specialized procedures in-house. Collaborative efforts extend to partnerships with Wesley Medical Center for emergency room and intensive care unit (ICU) services, and with the Veterans Affairs (VA) department through a memorandum of understanding (MOU) to integrate regional medical clinics. Despite challenges such as licensing differences that affect physician assistants working across base and VA facilities, there is solid coverage in mental health, pediatric development, general surgery, and women's health. Currently, over 2,300 beneficiaries receive their healthcare needs within the community. Maintaining this coverage remains a priority as the installation continues to address evolving healthcare needs.

Together, these efforts in Salina and Wichita enhance community resiliency and position the region for continued growth.

Kansas: Critical Industries

The Cybersecurity and Infrastructure Security Agency has identified 16 critical infrastructure sectors that are considered vital to national security. The incapacitation or shutdown of these sectors would have a debilitating impact on national economic security, national public health and safety, or national security. Identifying key critical infrastructure sectors for the National Security Crossroads region is imperative to ensuring long-term growth and continued relevance. Matrix identified five of CISA's 16 critical infrastructure sectors that play a key role within Missouri and Kansas's economies. These sectors are the defense industrial base, critical manufacturing, energy, food and agriculture, and information technology.

Defense Industrial Base

Kansas holds an esteemed place in the national defense industrial ecosystem. Wichita is known the "Air Capital of the World" and is home to the third-largest concentration of aviation workers in the United States. Kansas is home to three of the world's premier aviation aircraft manufacturers: Bombardier Learjet, Textron Aviation, and Spirit AeroSystems. Defense industries contribute more than $7 billion to Kansas's GDP and account for more than $2.25 billion in annual aerospace exports.

Critical Manufacturing

Kansas has a robust manufacturing center primarily focused on aviation, machinery, and computers. Manufacturing in Kansas accounts for 15% of the state's total output, employing 12% of the workforce. The sector's output amounted to $28 billion as of 2021 with over 165,000 employees. Notable manufacturers include Spirit AeroSystems in Wichita, Textron Aviation in Wichita, and Garmin International in Olathe. Spirit AeroSystems recently announced its acquisition by Boeing. It manufactures airframes for commercial and defense purposes. Textron Aviation manufactures Beechcraft and Cessna aircraft. Garmin International manufactures navigation devices and wearable technologies.

Energy

Kansas has considerable crude oil, natural gas, and renewable energy resources. Kansas maintains a network of pipelines delivering crude oil to the state's three refineries which can process over 400,000 barrels of crude oil per day. The state's extensive agricultural sector produces significant amounts of ethanol at 12 production plants, with a combined capacity of 601 million gallons per year. Wind is the largest singular source of electricity production for Kansas, accounting for 47% of the state's total net generation. The state's one nuclear power plant, Wolf Creek Generating Station, accounts for an additional 14% of generation. Kansas has significant opportunities for further energy production, particularly because its geography makes it one of the best-suited states for wind power production. Kansas's rivers also present substantial hydropower opportunities.

Food and Agriculture

Kansas is a national leader in wheat, grain, and beef production and possesses a rapidly expanding dairy sector. Approximately 88% of the state's land is involved in agricultural production, supporting nearly 59,000 farms. The sector contributes $53 billion to the state economy and directly employs 136,000 people. The state's largest single agricultural export market is Mexico, which accounts for over $3 billion.

Information Technology

Kansas similarly has a respectable information technology sector valued at more than $8 billion in economic output. Major technology firms in Kansas include Pulse Systems, High Touch Technologies, and Koch Disruptive Technologies.

Overall Recommendations

Expand Community–Military Collaboration

There are numerous methods for building collaboration between military assets and the communities that support them, and many of the defense communities within the National Security Crossroads defense ecosystem have excellent structures to facilitate collaboration with their neighboring military installations or other defense assets. The following are recommendations to consider to enhance this collaboration where it exists or to ensure it is established in communities where it is lacking.

Build and Coordinate Military Affairs Committee (MAC) Organizations: Resiliency of national defense assets is dependent upon the ability of military installations to work closely with their surrounding communities to develop holistic, mutually beneficial solutions to common problems. Establishing a MAC, such as the Whiteman Area Leadership Council which supports Whiteman AFB, is the best way for military communities and installations to facilitate regular dialogue and build a foundation for mutual collaboration. Kansas and Missouri should work with the local defense communities in their respective areas to help resource and support these organizational partnerships and foster local-level collaboration.

Assist Localities in Capturing Federal Funding Opportunities for Resiliency: There are multiple federal programs which provide funding for local infrastructure resiliency. These programs include the Defense Community Infrastructure Project (DCIP) administered by the Department of Defense's Office of Local Defense Community Cooperation, the Defense Access Road Program administered by the Federal Highway Administration, and various opportunities through the Federal Emergency Management Agency such as Hazard Mitigation Grants. State and regional entities can assist localities to successfully participate in these programs by providing support in developing requirements or by helping to provide the matching funds required to develop a competitive application. Examples of state-level success in this area can be found in Florida and Texas, both of which have established a line of state funding designed to be used by localities applying for federal grant funding opportunities.

Intergovernmental Support Agreements and Other Mutual Aid Structures: IGSAs are valuable tools to promote coordination, resource sharing, and cost savings between military installations and local government partners. These agreements are public-public partnerships formed between an installation and local or state-level governments and are designed to streamline support services for military installations. Benefits for an installation include cost savings and less administrative requirements, while a local government entity may benefit from direct contracted business with the installation. Local governmental IGSAs have been created across the nation for services such as environmental testing, waste management, and joint emergency services training. Higher-level IGSAs have also been developed in states such as Texas, which has an agreement with all in-state military installations allowing the Texas Department of Transportation to perform road maintenance functions on the installations.

Mutual aid agreements and other memorandums of understanding, while more limited in scope, are also extremely beneficial for military installations and their surrounding communities. A common use of these agreements is the coordination of emergency medical services, police departments, and fire services between the installation and neighboring communities.

Regularly Assess Resiliency

With shifting climate trends and an uncertain economic future, the ability of communities, economies, and military installations to adapt to change is especially critical. Communities in the National Security Crossroads should regularly assess their resiliency in all categories presented in this study to ensure they have the ability to weather hardships and react to rapidly evolving events. Likewise, the National Security Crossroads, either on a state or a regional level, should have an established process to survey the defense industry assets, defense communities, and military installations within their defense ecosystem and update their resiliency plans. In particular, the next resiliency study of the National Security Crossroads defense ecosystem should be created with the goal of developing a comprehensive action plan to promote the region's resiliency at the individual community and installation levels. This comprehensive plan should, at minimum, present actions to improve local and regional resiliency in the following areas of emphasis:

- ***Community Preparedness:*** Community-based programs which strengthen social networks, emergency preparedness, and support for vulnerable populations are essential components of resilient communities and are particularly valuable for defense communities which depend on social networks to support military families.
- ***Climate Change Adaptation Strategies:*** The Department of Defense is dedicated to improving its installation infrastructure to combat climate change.
- ***Communication Systems:*** Communication systems, communication system redundancies, and communication plans are critical factors in emergency planning between defense communities and military installations. Communication barriers or conflicting operating procedures frequently hamper coordination between military and civilian authorities, first responders, and leaders. Assessing and eliminating these barriers will improve resiliency and collaboration between these entities.
- ***Infrastructure Resiliency:*** Physical infrastructure is one of the most important topics in any resiliency review and has particular importance for military and defense assets where the successful accomplishment of military missions is frequently tied to the quality and capabilities of infrastructure.

Explore Economic Diversification Opportunities

Economic diversification is important for a community, state, or region to reduce dependency on a single industry and improve overall economic stability. The National Security Crossroads defense ecosystem has a variety of economic activities in which it possesses a very clear economic advantage such as aerospace and related manufacturing, agriculture, and energy production. It is also clear that the region has the tools to expand its economy and compete at the national level in additional industry sectors, especially in defense industry research and development. The National Security Crossroads, in partnership with Kansas and Missouri state legislatures and advocates, should explore opportunities to invest in and develop its defense research industry. This effort could include specific actions to support the KCNSC and other organizations that link local academia and the defense industry or the development of targeted research and innovation incubator programs to attract additional defense contractor entities to the National Security Crossroads defense ecosystem.

Conclusion

The defense communities within the National Security Crossroads defense ecosystem are largely resilient against the various general hazards explored in this study. No single community appears in dire need of intervention to prevent a negative environmental, economic, or infrastructure-related event. However, within all regions studied, there were multiple identified weaknesses that expose communities and defense assets to potential risk which may become more pronounced over time. Examples of these weaknesses include drought and other severe weather factors in the Northeast Kansas region, lack of adequate infrastructure funding at Fort Riley and other military installations across the region, and the identified need for utility infrastructure upgrades in the Central Missouri region. However, these weaknesses also identify opportunities for investment of resources and planning to provide greater resiliency for communities across the National Security Crossroads defense ecosystem.

While multiple analysis points are presented for each of the defense assets and communities included in this study, the following are holistic recommendations identified to improve the resiliency of military installations, defense communities, and the defense industry in the National Security Crossroads defense ecosystem:

- Expand Community–Military Collaboration
- Regularly Reassess Resiliency
- Explore Economic Diversification Opportunities

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