





This study was prepared under contract with the Association of South Central Oklahoma Governments, with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of the Association of South Central Oklahoma Governments and JLUS Partners and does not necessarily reflect the views of the Office of Economic Adjustment.



FORT SILL JOINT LAND USE STUDY

J o i n t L a n d U s e S t u d y R e p o r t

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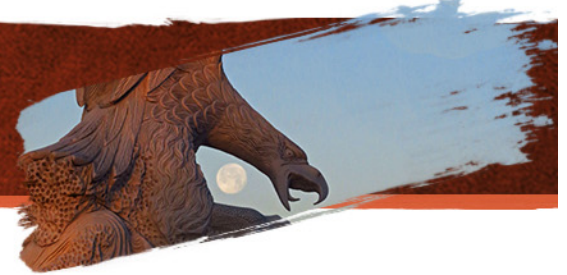


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The Policy Committee (PC) served an active and important role in providing policy direction during the development of the Fort Sill Joint Land Use Study (JLUS). The PC comprised the following individuals:

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FORT SILL JOINT LAND USE STUDY

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Please see the next page.



ACRONYMS

A

ACUB	Army Compatible Use Buffer
ADA	Air Defense Artillery
AFB	Air Force Base
AGL	Above Ground Level
AICUZ	Air Installation Compatible Use Zone
APZ	Accident Potential Zone
AQ	Air Quality
ASCOG	Association of South Central Oklahoma Governments
ASR	Airport surveillance radar
AT	Anti-Terrorism / Force Protection

B

BIO	Biological Resources
BUG	Backlight, Uplight, and Glare

C

COE	Center of Excellence
COM	Communication / Coordination
CR	Cultural Resources
CZ	Clear Zone

D

DA	Department of the Army
dB	decibel
DNL	Day Night Average A-weighted Sound Level
DoD	Department of Defense
DSS	Dust, Smoke, Steam

E

e.g.	for example
EA	Environmental Assessment
ED	Energy Development
ESQD	Explosive Safety Quantity Distance

F

FAA	Federal Aviation Administration
FCoE	Fires Center of Excellence
FSI	Frequency Spectrum Interference / Impedance
FY	Fiscal Year

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G

GIS Geographic Information Systems

H

HPAAF Henry Post Army Airfield
HTA Helicopter Training Area

I

i.e. in other words
ICRMP Integrated Cultural Resources Management Plan
ICUZ Installation Compatible Use Zone
IE Infrastructure Extensions

J

JLUS Joint Land Use Study
JPADS Joint Precision Air Drop System

L

LAS Land, Air, and Sea Spaces
LAW Lawton-Fort Sill Regional Airport
LEG Legislative Initiatives

LG Light and Glare
LMPO Lawton Metropolitan Planning Organization
LU Land Use

M

MCA Military Compatibility Area
MCAOD Military Compatibility Overlay District
MLRS Multiple Launch Rocket System
mm millimeter
MOA Memorandum of Agreement
MTR Military Training Route

N

NDAA National Defense Authorization Act
NGO Nongovernmental Organization
NM Nautical Mile
NOAA National Oceanic and Atmospheric Administration
NOI Noise

O

OAC Oklahoma Aeronautics Commission
ODWC Oklahoma Department of Wildlife Conservation
OEA Office of Economic Adjustment
OK Oklahoma

ACRONYMS

P

PC	Policy Committee
POC	Point of Contact
PS	Public Services

R

R-	Restricted Airspace
RC	Roadway Capacity
REPI	Readiness Environmental Protection and Integration
ROC	Radar Operations Center

S

SA	Safety Zones
§	Section
SDZ	Surface Danger Zone
SWODA	Southwestern Oklahoma Development Authority

T

TBD	to be determined
TWG	Technical Working Group

U

UAS	Unmanned Aerial System
US	United States
USAHAS	United States Avian Hazard Advisory System
USFWS	US Fish and Wildlife Service

V

V	Vibration
VO	Vertical Obstructions

W

WASH	Wildlife Aircraft Strike Hazard
WQQ	Water Quality / Quantity

Please see the next page.



INTRODUCTION

The Fort Sill Joint Land Use Study (JLUS) is a collaborative planning effort led by the Association of South Central Oklahoma Governments (ASCOG) in partnership with the Towns of Indianahoma, Medicine Park, and Sterling, Cities of Apache, Cache, Elgin, Frederick, and Lawton, Comanche and Kiowa Counties, and the Kiowa Nation. The Fort Sill JLUS was undertaken in an effort to guide land use planning and development in the areas surrounding Fort Sill to help mitigate any future issues and enhance coordination among all entities involved in the process.

The Fort Sill JLUS encourages a proactive approach to promote increased communication about the important decisions surrounding land use regulation, conservation, and natural resource management issues that affect both the local communities and the military. The aim of the process is to establish and encourage a working relationship between Fort Sill and the neighboring communities that surround it so encroachment issues related to current and future missions and local growth can be reduced or prevented. Encroachment issues refer to the conflicting uses of land, air, water, and other resources that can individually, or cumulatively, impact the military's ability to carry out its training missions.

The compatibility factors considered in this document are described in the Compatibility Assessment (Chapter 5 of the Fort Sill JLUS or the Fort Sill JLUS Background Report). A review of these factors led to the development of a set of issues, which resulted in the strategies to address compatibility concerns. The recommended strategies are based on a toolbox of collective methods used to address the application of policy, planning and zoning, coordination and communication, and outreach methods. One of the key recommendations is the formation of a Fort Sill JLUS Coordination Committee responsible for overseeing the implementation progress in the months and years after the JLUS is completed. The recommended strategies are outlined in more detail in Chapter 6, Implementation Plan.

What Is a Joint Land Use Study?

A Joint Land Use Study (JLUS) is a community-led planning process accomplished through the collaborative efforts of stakeholders in a defined study area to identify compatible land uses and growth management guidelines within jurisdictions, and for land adjacent to an active military installation. The JLUS stakeholders include local community, state, and federal officials, residents, business owners, federal resource agencies, landholders, nongovernmental organizations, and the military. The JLUS process is intended to establish and encourage a working relationship among military installations and proximate communities to prevent and / or reduce encroachment issues associated with future mission expansion and local development growth. Although primarily funded by the Department of Defense (DoD) Office of Economic Adjustment (OEA), a JLUS is produced by and for local communities. The project sponsor and grant administrator for the Fort Sill JLUS is the Association of South Central Oklahoma Governments.

JLUS Goal and Objectives

The goal of the Fort Sill JLUS is to protect the viability of current and future military missions and operations, while simultaneously guiding compatible community growth, sustaining the environmental and enhancing the economic health of the region, while protecting public health, safety, and welfare.

The Fort Sill JLUS goals are achieved through application and reinforcement of three primary JLUS objectives:

- **Understanding.** Convene community and military representatives to identify, confirm, and understand compatibility issues and concerns in an open forum. Consider both the community and military perspectives and needs. This effort includes increasing public

awareness, education, and opportunities for input organized in a cohesive outreach program.

- **Collaboration.** Encourage cooperative land use and resource planning among Fort Sill and surrounding communities so that future community growth and development are compatible with the Fort Sill's missions and operations, while seeking ways to reduce operational impacts within the study area.
- **Actions.** Provide a set of mutually supported tools, activities, and procedures from which local jurisdictions, agencies, and Fort Sill can select, prepare, and approve / adopt in order to implement recommendations developed during the JLUS process. The actions include both operational measures to mitigate installation impacts on surrounding communities and local government and agency approaches to reduce community impacts on military operations. These tools help decision makers resolve compatibility issues and prioritize projects within their annual budgeting cycles.

Why Prepare a Joint Land Use Study?

Collaboration and joint planning among military installations, local jurisdictions, and agencies protects the long-term viability of existing and future military missions. Working together also enhances local economies and industries before compatibility becomes an issue. Recognizing the close relationship that should exist between installations and adjacent communities, the OEA implemented the JLUS program to mitigate existing and future conflicts and enhance communication and coordination among all affected stakeholders. This program aims to preserve the sustainability of local communities while protecting current and future military missions, this JLUS effort is centered on Fort Sill's military operations.

Economic Importance

For the region, Fort Sill contributes nearly \$2 billion annually to the Lawton-Southwest Oklahoma region. This economic impact is characterized by salaries, contracts, and the purchase of goods and services within the local area. From an employment standpoint, Fort Sill is the third largest employer in Southwest Oklahoma, supporting over 16,500 military personnel and their family members and employing over 7,000 civilian personnel.

It is important for stakeholders to partner with Fort Sill on relevant and long-range planning projects to facilitate the future viability of the military training mission and continue to benefit from the economic impact that the installation's activities provide now and into the future. The JLUS process strives to deepen the understanding of and enhance the mutual benefit shared between Fort Sill and the Lawton-Southwest Oklahoma Region.

A Part of the Local Community

Fort Sill contributes to the local community much more than just economically. Fort Sill, working alongside the surrounding communities, has not only improved the quality of life of its soldiers and personnel but also native residents through contributing to regional best practices for a host of community topics including Emergency Services, Housing, Education, Retail, and Employment. Fort Sill leadership, soldiers, and personnel are active in the religious aspect of the surrounding communities volunteering their time in church events and participating and attending local churches.

Both Fort Sill and the surrounding communities are truly dedicated and committed to continuous strengthening and support of the surrounding communities and organizations and the military presence. Fort Sill's leadership are actively involved in numerous educational and community boards including the Lawton-Fort Sill Chamber of Commerce Legislative

Affairs Committee, which works closely with the military to understand and identify local priorities and encourage state and federal legislative support.

The Lawton Fort Sill Cooperative Program (Co-Op) was established for the purpose of encouraging and fostering a spirit of friendship, mutual cooperation and understanding between military and civilians in the Lawton-Fort Sill region. The program affiliates the military from Fort Sill with civilian businesses and organizations in the community. Co-Op members work together on community service projects and participate in sporting and social events, both at Fort Sill and in Lawton. The Co-Op Program creates joint opportunities for the military and community volunteers including organizations and units on Fort Sill, numerous local and regional businesses, and community schools to continuously improve the quality of life in the region.

Military Strategic Importance

Fort Sill is vital to both the nation's defense and the regional economy. For national defense, Fort Sill is the home of the U.S. Army Fires Center of Excellence (COE), an organization combining the U.S. Army Artillery Center and School and the U.S. Army Air Defense Artillery (ADA) Center and School. Principal operational units at Fort Sill include the 75th Field Artillery Brigade, the 428th and 434th Field Artillery Brigades, and the 30th and 31st ADA Brigades. Fort Sill is also one of the five locations for Army Basic Combat Training. As the home of the Fires COE, the installation mission set includes training soldiers and developing field artillery and ADA leaders, designing and developing fire support for the force, supporting unit training and readiness, mobilizing and deploying operating forces, and maintaining the installation's infrastructure and services.

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Public Outreach

The JLUS process was designed to create a locally relevant document that builds consensus and garners stakeholder support. To achieve the JLUS goals and objectives, the Fort Sill JLUS process included a public outreach program providing a variety of participation opportunities for interested parties.

Stakeholders

An early step in any planning process is stakeholder identification. Once identified, informing and involving them early is instrumental to identifying, understanding, and resolving their most important issues through the development of integrated strategies and measures. Stakeholders include individuals, groups, organizations, and governmental entities interested in, affected by, or affecting the outcome of the JLUS process and eventual development of the JLUS document.

Stakeholders identified for the Fort Sill JLUS include:

- Local jurisdictions (Towns of Indianola, Medicine Park, and Sterling, Cities of Apache, Cache, Elgin, Frederick, and Lawton, Comanche and Kiowa Counties)
- DoD officials (including OEA Representatives) and military installation personnel
- Planning, regulatory, and land management agencies from the local, county, regional, and state levels
- Landholding and regulatory federal agencies
- The public (including residents, businesses, and landowners)

- Environmental advocacy organizations
- Native American Tribes (Apache Nation and Fort Sill-Apache Tribe)
- Nongovernmental organizations (NGOs)
- Other special interest groups (including local educational institutions)



Policy Committee and Technical Working Group

The development of the Fort Sill JLUS was guided by two committees, comprising community leaders, Fort Sill personnel, federal and state agencies, resource agencies, local governments, and other stakeholders. The two committees were the Policy Committee (PC) and the Technical Working Group (TWG).

JLUS Policy Committee (PC). The PC consisted of elected officials from participating jurisdictions, Fort Sill leadership, and representatives from other interested and affected agencies. The PC was responsible for the direction of the JLUS, preparation and approval of the study design, policy recommendations, and both the draft and final JLUS documents.

Technical Working Group (TWG). The TWG was responsible for identifying and studying technical issues, providing feedback on report drafts, and assisting in the development and evaluation of implementation strategies and tools. Membership included area planners, military base planners, business and development community representatives, and other subject matter experts as needed to assist in the identification and evaluation of implementation strategies and tools. Items discussed by the TWG were brought before the PC for consideration, approval, and action.

Public Workshops

A series of public workshops were held throughout the Fort Sill JLUS process. These workshops provided an opportunity for the exchange of information with the greater community, assisted in identifying issues to be addressed, and provided an opportunity for community input on proposed strategies. Each workshop included a traditional presentation and a facilitated exercise providing a “hands on,” interactive opportunity for the public to participate in the JLUS development.

Public Outreach Materials

JLUS Fact Sheet / Compatibility

Factors Brochure. At the beginning of the JLUS process, a Fact Sheet (JLUS Update #1) was developed describing the JLUS program, objectives, methods for public input, and proposed the Fort Sill JLUS Study Area.

This Fact Sheet was made available at the meetings for review by interested members of the public and on the project website.

Strategy Tools Brochure.

JLUS strategies incorporate a variety of actions or tools that local governments, military installations, agencies, and other stakeholders can take to promote compatible land use planning. This brochure provided an overview of strategy types that can be applied as tools to address study area compatibility issues.

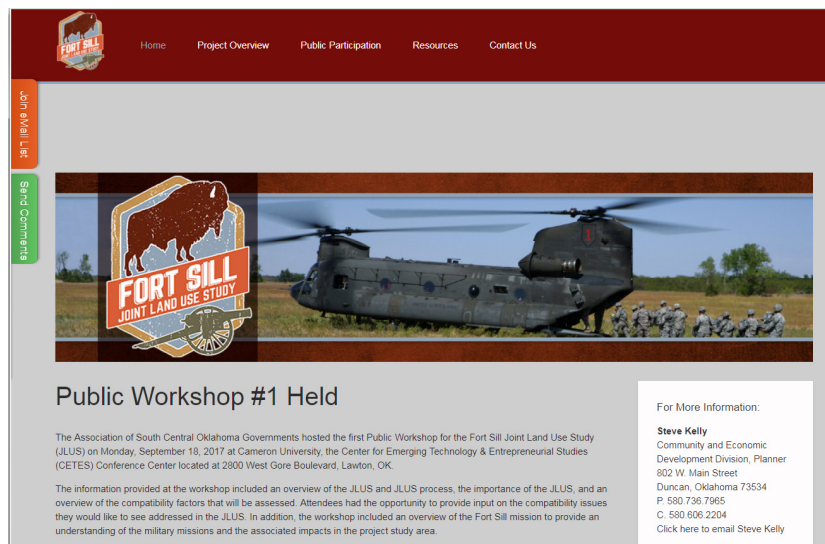


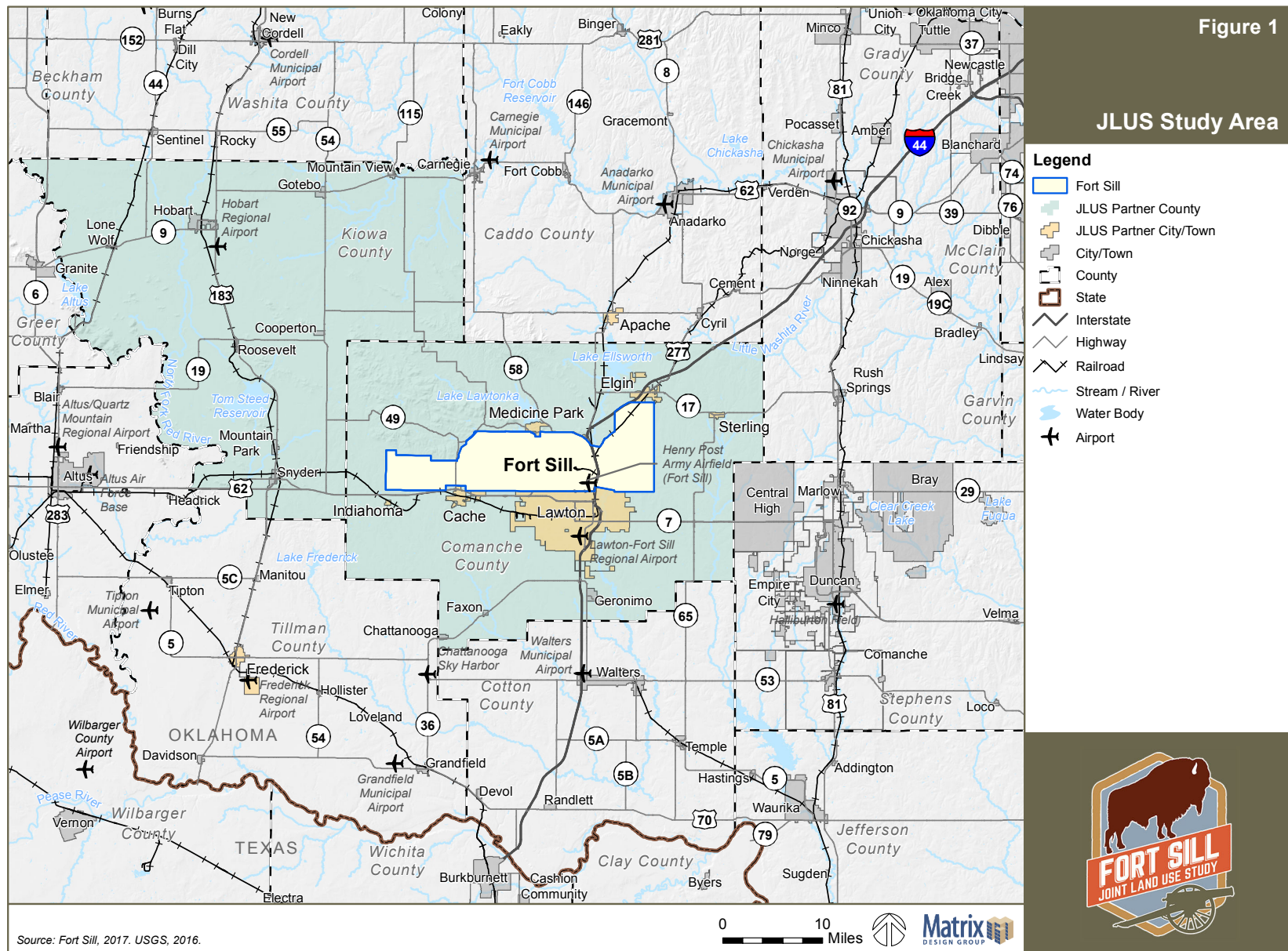
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Website. A project website was developed to provide stakeholders, the public, and media representatives with access to project information. The website was maintained for the entire duration of the project to make information easily accessible. Information contained on the website included program points of contact, schedules, relevant documents and maps, public meeting information, and downloadable comment forms. The project website is located at <http://www.ftsilljlus.com/>.

JLUS Study Area

The Fort Sill JLUS Study Area, as depicted on Figure 1, is designed to address all lands near Fort Sill, where community uses and activities may impact current or future military operations or where such uses and activities may be impacted by operations. Fort Sill is located in the Lawton-Southwest Oklahoma region situated within Comanche County.





Please see the next page.



COMMUNITY PROFILES

2

The study area for the Fort Sill JLUS covers a large area of south-central Oklahoma and is focused on Fort Sill. The study area includes several communities in south-central Oklahoma. These communities are: Comanche and Kiowa Counties, the cities of Apache, Cache, Elgin, Frederick, and Lawton, and the Towns of Indianahoma, Medicine Park, and Sterling. The Apache Nation and the Fort Sill Apache Tribe are also JLUS Partners. An overview of the JLUS study area communities is provided to gain a better understanding of the activities outside the fence line and how those activities may impact mission operations.

Study Area Growth Trends

It is important to examine past, current, and future growth trends to understand the types and amount of growth and development occurring in the JLUS Study Area. Identifying growth patterns for the area surrounding Fort Sill is one element in determining potential future compatibility issues or areas of concern. Growth that may extend or intersects that the Fort Sill military footprint could impact or be impacted by military operations. This section provides a brief summary of the recent and projected future population changes within the JLUS Study Area, as well as economic trends and an overview of community development that could be indicators of future growth.

Population Trends

The population data is based on information obtained from the US Census Bureau and shows the growth or decline within the JLUS Study Area.

Table 1 provides a comparison of the changes in population in the region between 2000 and 2010, noting the percentage change over the decade.

Table 1. Study Area Population, 2000 - 2010

Jurisdiction	2000	2010	Number Change	Percent Change
State of Oklahoma	3,450,654	3,751,351	300,697	8.7%
Comanche County	114,996	124,098	9,102	7.9%
Kiowa County	10,227	9,446	-781	-7.6%
City of Cache	2,371	2,796	425	17.9%
City of Elgin	1,210	2,156	946	78.2%
City of Lawton	92,757	96,867	4,110	4.4%
Town of Indianahoma	374	344	-30	-8.0%
Town of Medicine Park	373	382	9	2.4%
Town of Sterling	762	820	58	7.6%
City of Apache	1,616	1,444	-172	-10.6%
City of Frederick	4,637	3,910	-727	-15.7%

Source: US Census, Quick Facts 2000; American Community Survey 2010

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Population levels overall have increased throughout the JLUS Study Area between 2000 and 2010. Comanche County had relatively the same growth increase at 7.9 percent as Kiowa County had in growth rate decline at -7.6 percent during this period. The City of Elgin experienced the highest population growth rate in the JLUS Study Area with a rate of 78.2 percent. In addition to the City of Elgin, the City of Cache experienced the second highest rate of increase at 17.9 percent during the 10-year period, which indicates growth is occurring in the north-northeast and the south-southcentral area of Fort Sill. The City of Lawton experienced some growth at 4.4 percent, which is only about half the rate of the State's rate at 8.7 percent.

Population Projections

The Oklahoma Department of Commerce developed a recent report for projected population growth in the state counties through 2075, however for planning purposes this study uses the 2030 year for projections, which are shown in Table 2.

These projected populations are estimated to help cities and counties to develop land use priorities to reduce impacts of future growth challenges. Comanche County is projected to continue increasing into the foreseeable future at a steady rate; however, the State's growth is twice as much as Comanche County during this period. It should be noted that the other counties are included in this projection and discussion to show growth in the larger region over the next 15 years. While not part of this JLUS Study, Grady County located to the east of Comanche County and Fort Sill surpasses the growth rate of the State of Oklahoma. Stephens County also located east of Comanche County is expected to experience a steady growth rate but less than that of the state's growth rate.

Conversely, the majority of the counties experiencing a decline in growth in the next 15 years are in the western portion of the state indicating growth is moving north-central and northeast towards the Oklahoma City and Tulsa Metropolitan Statistical Areas.

Table 2. JLUS Study Area Population Projections from 2010 to 2030

Jurisdiction	2010	2020	2030	Percent Change 2010 to 2030
State of Oklahoma	3,751,351	4,302,501	551,150	12.8%
Caddo County	29,600	30,500	900	3.0%
♦Comanche County	124,098	132,094	7,996	6.1%
Cotton County	6,193	5,737	-456	-7.9%
Grady County	52,431	61,286	8,885	14.4%
Jackson County	26,446	24,865	-1,581	-6.4%
♦ Kiowa County	9,446	8,612	-834	-9.7%
Stephens County	45,048	48,234	3,186	6.6%
Tillman County	7,992	6,916	-1,076	-15.6%

♦ Denotes JLUS Partner involved in the development of the Fort Sill JLUS.

Source: Oklahoma Department of Commerce, 2012; Demographic State of the State Report, 2012

Economic Development

The primary economic activity throughout the Study Area is centered on the agriculture and government services (military) industries dating back to the late 19th Century and early 20th Century. Efforts to diversify the Lawton-Fort Sill region's economy with new sectors have brought new growth to the region in manufacturing and commercial businesses.

The economy in the Fort Sill JLUS Study Area has remained relatively consistent, largely due to Fort Sill's presence and the jobs and stability it provides for the surrounding area. In 2015, Fort Sill was one of only three Army installations across the United States to receive an increase in personnel. This has been the impetus for the continued collaboration, investment, and growth in the region. Lawton is the commercial hub in the region with the majority of the economic activity occurring in the Lawton-Fort Sill area. However, the City of Elgin's rapid population growth over the past decade has generated increased economic activity and commercial development within the city.

Current Development Overview

Land uses throughout the JLUS Study Area range from open space and natural resource areas in unincorporated Comanche County, to the residential and urban population center in the Cities of Cache, Elgin, and Lawton. This section discusses the setting in the immediate vicinity of Fort Sill.

Fort Sill

The following information discusses the general types of land uses surrounding Fort Sill and briefly describes any discussions regarding development or proposed development in this area.

North

The Wichita Mountains National Wildlife Refuge and the North Mountain Wilderness Area is adjacent to Fort Sill to the north. These natural and wildlife areas span the entire northwestern border of the installation ending at the Town of Medicine Park and Lake Lawtonka. This refuge provides a natural buffer for the installation and limits development in the northern area of the installation.

The weekend resort-community of the Town of Medicine Park is located adjacent to Fort Sill east of Lake Lawtonka. The Town of Medicine Park is mostly built out, and it makes its revenue between Thursdays through Sundays providing numerous activities and events on the weekend.

In addition, the only other development activity on-going to the north of the installation is in the City of Elgin. The city is located in the northeastern area outside the installation. The City of Elgin currently has single-family residential units and developments occurring near the installation fence line, which can result in encroachment for both the military and city. The residential unit development complements the demand that is occurring in the commercial and manufacturing land uses. Recently, the City was selected as the location for a defense-related manufacturing plant, which can result in increases in population and rooftops.

South

The Cities of Lawton and Cache and the Town of Indianola are located to the south of the installation. The City of Lawton has the majority of the development activity occurring to the south.

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There are several improvements being made in and around the city of Lawton. Currently, there are infrastructure improvements occurring around Cache Road that will allow for increased growth. There is industrial park potential south of Southeast Bishop Road. There is also growth potential in the southern portion of the city near the southern border of city limits. In addition, there is industrial development potential in the far western portion of the city near the city limits. Finally, there is rezoning occurring south of the installation along South Boundary Road. This rezoning is for low-density residential associated with a subdivision, Phase III of the Lake Subdivision.

East

The Town of Sterling is located about 24 miles to the northeast of Fort Sill, and there is no development activity occurring in the town. Other than the northeast area, there is no development occurring to the east of the installation.

West

There is no development occurring to the west of the installation.



MILITARY PROFILE

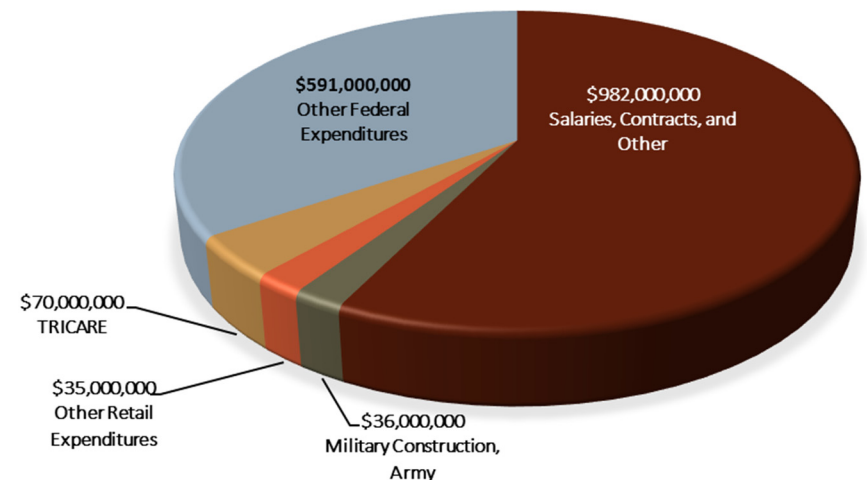


This chapter provides an overview of Fort Sill and describes the installation's history, its setting in the Joint Land Use Study (JLUS) Study Area, the economic and strategic importance of Fort Sill, and provides a general description of the military operations conducted at Fort Sill. Identifying and describing the various activities performed within the operating areas and in the surrounding airspace provides valuable insight into the importance of Fort Sill as a national strategic asset and as a part of the fabric of the surrounding communities. The purpose of providing this information is to inform the community about the installation and enable decision-makers to make informed decisions about future development and economic growth within communities and institutions near Fort Sill that could potentially impact the viability and future role of the installation.

Fort Sill Economic Benefit

Fort Sill is the third largest single-site employer in the State of Oklahoma with over 13,528 personnel (active duty military, national guard/reserve, and civilian personnel) that work at, or are stationed on the base. The Fort Sill economic region of influence includes the City of Lawton and extends into the greater Southwest Oklahoma region. Through the purchase of goods and services and payment of salaries, Fort Sill has an economic benefit on the local and regional economy of approximately \$1.7 billion per year. Figure 2 shows the local and regional economic benefit for Fort Sill.

Figure 2: 2015 Fort Sill Economic Benefit



Source: Fort Sill 2015 Economic Perspective Overview Briefing, January 2017

Military Strategic Importance

Fort Sill is not only important to the region and state for its economic benefit, but it also provides unique capabilities and training areas for a range of national and international military services. Through the Fires Center of Excellence (FCoE), Fort Sill educates and trains soldiers from all over the world in the employment of tactics, strategy, and ordnance use. The Field Artillery School is also responsible for developing U.S. Army doctrine,

systems, organizations, and planning the role of field artillery in future battlefield scenarios. This capability enables Fort Sill to create and develop soldiers and officers with superior skills sets in support of the national defense strategy.

In addition to developing U.S. Army soldiers into superior, tactical and strategic weapons specialists, Fort Sill is responsible for basic combat training of Army recruits, which results in thousands of newly trained soldiers every year. Basic combat training is a 10-week training course where recruits are taught the values of serving in the U.S. Army and learning basic skills and team dynamics and leadership. Fort Sill's training center plays a pivotal role in the transformation of recruits into soldiers.

The military planning, training and application of the latest tactics, techniques, and procedures that take place on Fort Sill have far reaching implications for national security at home and abroad. Fort Sill has been a platform for preparing and projecting America's forces since 1869. Fort Sill's 75th Field Artillery and 31st Air Defense Artillery Brigades deploy worldwide to protect our Nation's and our partners' interests (see Section 3.5 for more on current mission operations). For Fort Sill to produce as many ready combat soldiers as it does, Fort Sill relies on the protected airspace above the installation to conduct its training operations. Fort Sill conducts heavy artillery training including Multiple Launch Rocket System (MLRS) training, which requires the use of restricted airspace designated for Fort Sill. In addition to the MLRS rocket training, Fort Sill provides aerial bombing training, which also integrates training for both Altus Air Force Base (AFB) and Vance AFB in OK, and Sheppard AFB and Texas.

From developing new soldier with basic combat training to enhancing brigade command-level artillery training, Fort Sill makes a tremendous contribution to our Nation's military readiness.

Installation Setting

Fort Sill is situated in the southwest portion of the State of Oklahoma, centrally located in Comanche County. The installation is approximately 53 miles north of Sheppard AFB in Texas, 52 miles east of Altus AFB, OK and 95 miles southwest of the City of Oklahoma City and Tinker AFB as illustrated in the JLUS Study Area on Figure 1 in Chapter 1. The installation is adjacent to the City of Lawton and the Wichita Mountains National Wildlife Refuge. Outside of these areas is mostly agricultural land.

Current Mission Operations

Fort Sill is responsible for the basic combat training of over 18,000 Army recruits annually. The basic combat training includes learning the core values of the Army and becoming proficient in rifle marksmanship, physical fitness, and other basic soldier skills.

In addition to basic combat training, there are thousands of soldiers, marines and foreign students that train annually at Fort Sill's schools, mission simulation centers, and firing ranges. Fort Sill trains soldiers from the rank of Private to Colonel in critical artillery skills. The 428th Field Artillery and 30th Air Defense Artillery Brigades prepare branch weapons specialists to fulfill the Army's missions around the world. Fort Sill's Marine Detachment trains hundreds of artillery officers and artillery crewmen annually.

Fort Sill's special use airspace provides Sheppard AFB the ability to fly 80,000 training sorties annually. Fort Sill's Henry Post Army Airfield (HPAAF) enables Altus AFB to conduct Joint Precision Air Drop System (JPADS) operations, Assault Strip Landings, and Equipment Load training regularly using the C-17 Globemaster III and C-130 Hercules aircraft.

Fort Sill's HPAAF is used five days a week on average, primarily for daytime operations. Night operations (occurring between 10:00 pm and 7:00 am) are minimal. The majority of aviation operations that occur at HPAAF are from fixed-wing trainer aircraft including the T-38 Talon and the T-6 Texan. Other aircraft that operate at HPAAF are the C-130 Hercules, UC-35 Citation (Cessna), C-12 Huron, and Army helicopters. The majority of the helicopter training is conducted outside the Fort Sill boundary in the Slick Hills Helicopter Training Area (HTA). The Slick Hills HTA is located approximately six miles north-northwest of Fort Sill's northern boundary.

In addition to mission activities ongoing at the HPAAF, Fort Sill is also known for their Unmanned Aerial System (UAS) aircraft operations. The UAS mission, which includes launch and recovery of UASs, takes place at Frisco Ridge in the northern portion of the East Range. The UASs conduct laser targeting and other operations from this location. More information on the UAS mission is provided in the Chapter 3, Military Profile of the Background Report.

Military Operations Footprints

Mission and training activities at Fort Sill generate a number of impacts that can affect the health, safety, and quality of life of the general public in surrounding communities. Examples of mission impacts include noise and vibration from demolition activities or airborne operations.

Conversely, the military mission is susceptible to impacts created by nearby civilian activities, land use development, and environmental constraints. Understanding the overlapping spatial patterns of these impacts around the installation and ranges is essential for promoting compatible and fully coordinated land use decisions.

These overlapping spatial patterns create the mission footprint, which serves as a compatibility tool for surrounding communities in making informed land use decisions.

Noise Contours for Small Arms

The primary sources of small arms noise at Fort Sill include small caliber weapons firing, particularly 5.56-millimeter (mm) rifles, 7.62 mm machine guns, 9 mm pistols, .45 caliber pistols, .50 caliber machine guns, and 10 and 12-gauge shotguns. Small arms noise contours are illustrated on Figure 3.

Noise Contours for Medium to Large Arms and Explosives

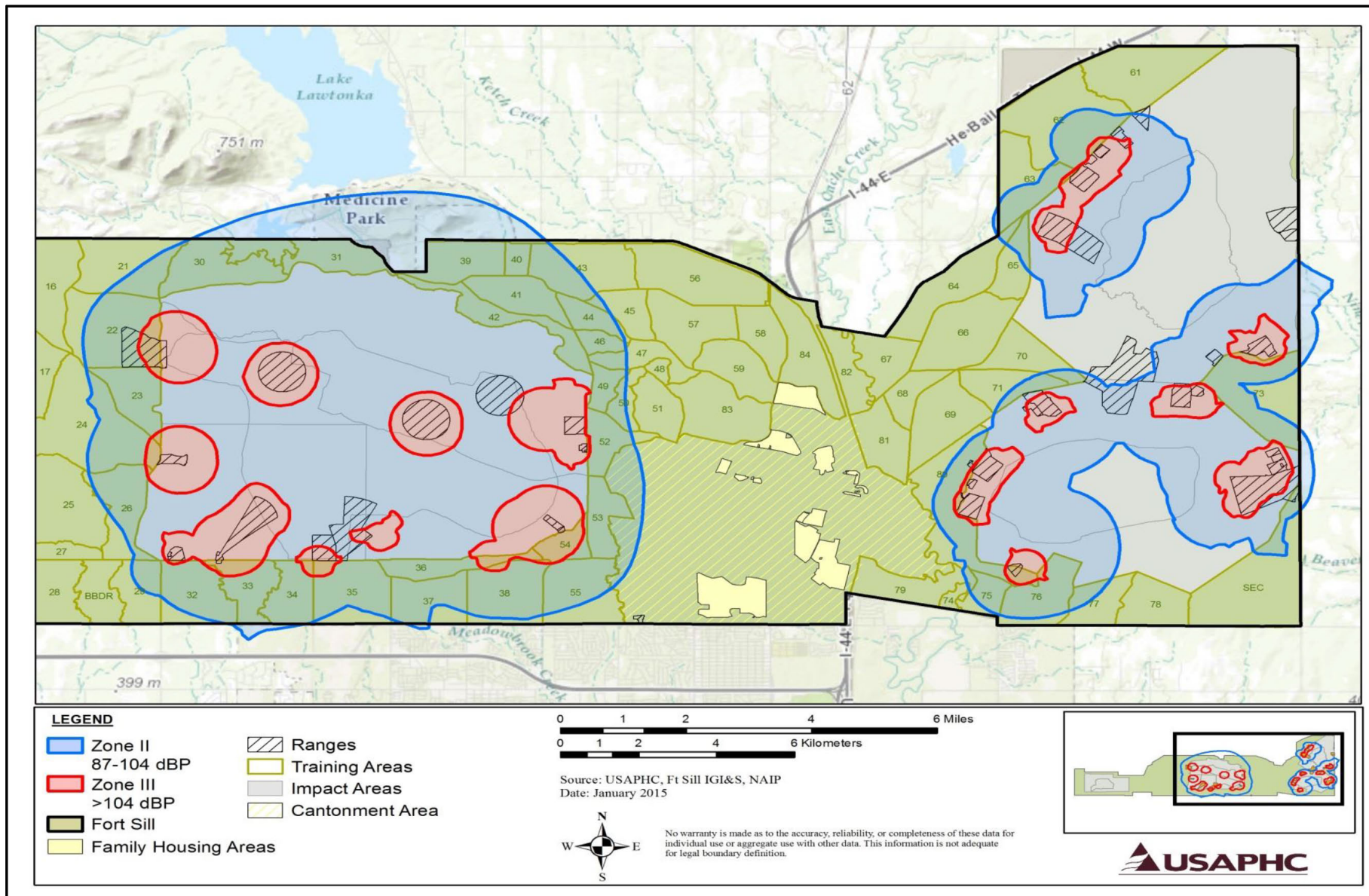
The primary sources of medium / large caliber weapons and demolition noise at Fort Sill include ammunition firing that is larger than 20mm, particularly artillery, rockets, mortars, mines, grenade launchers, aerial gunnery, and may also include weapons that cause explosions. Medium / large caliber weapons and demolition noise contours are illustrated on Figure 4.

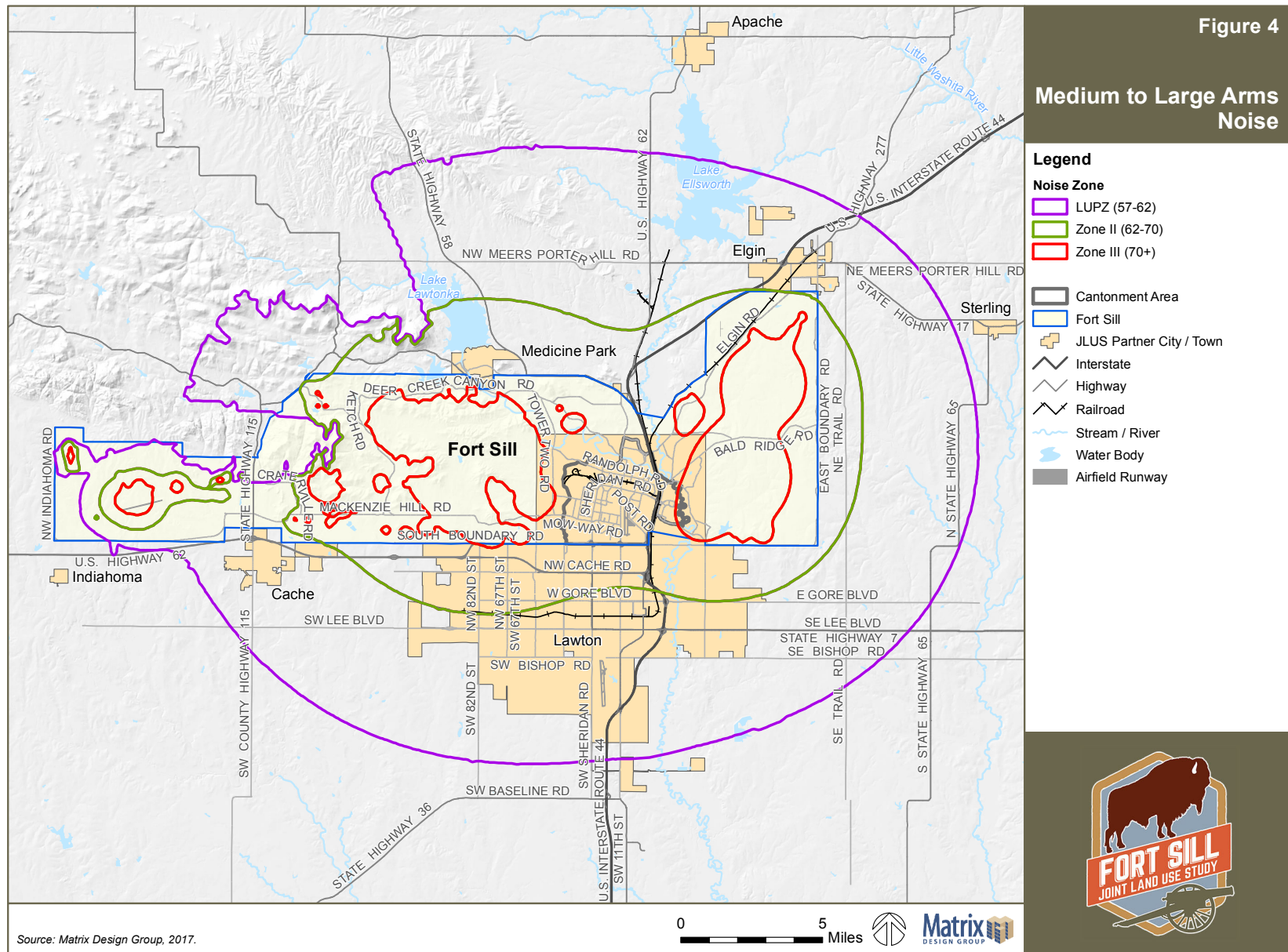
Noise Contours for Aircraft Range Operations

Noise associated with aircraft use of the Close Air Support ranges located in the West Range and Quanah Range are modeled using peak level measurement and a risk of noise complaints level of noise. A peak decibel is used to measure the highest sound at an instantaneous moment. While the moderate complaint risk area has an extensive footprint outside the installation, as shown on Figure 5, the impact of the noise generated by aircraft range operations is minimal due to the relative infrequency of operations, and relative to ambient conditions, the daily artillery training has a more sustained awareness in the area.

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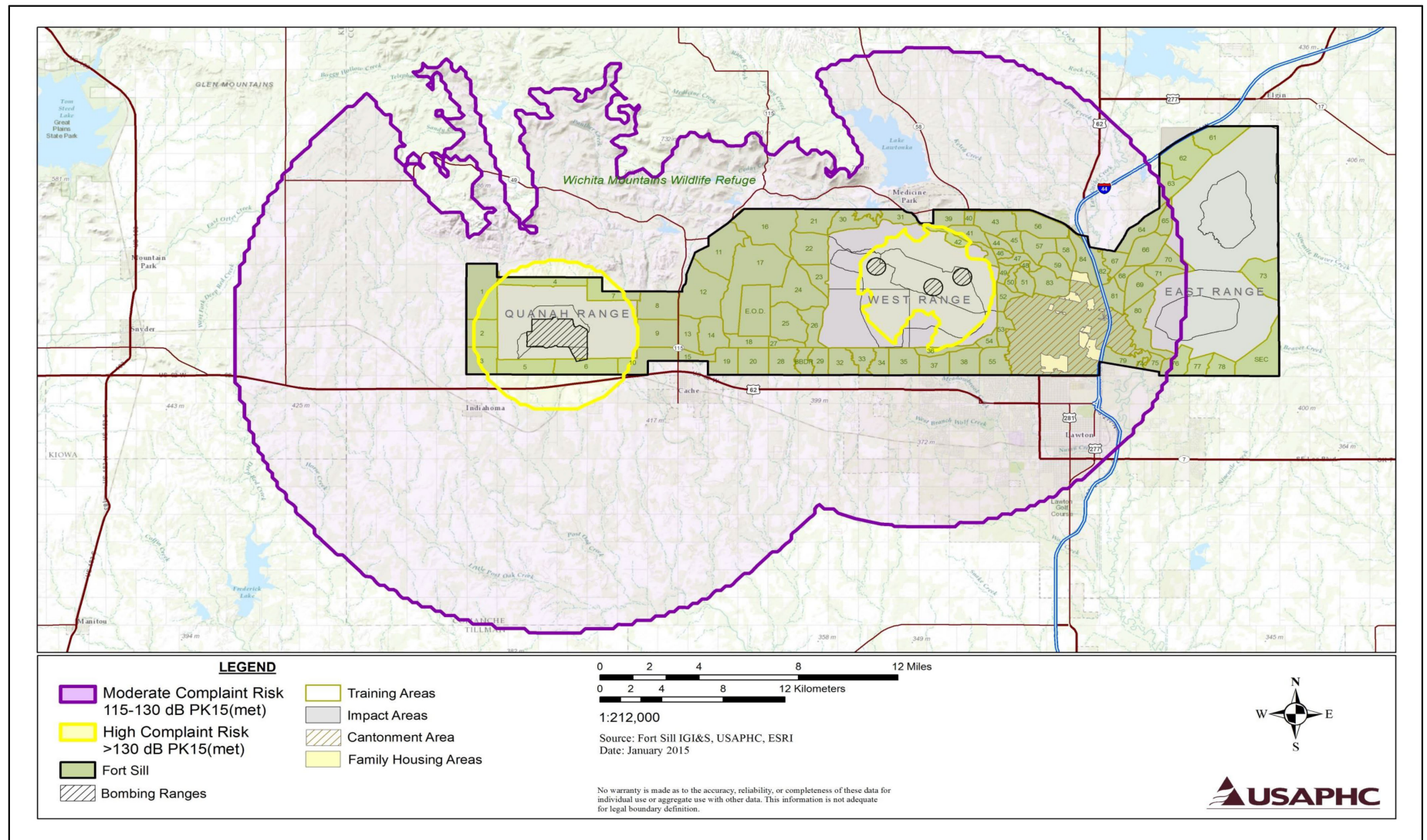
Figure 3. Small Arms Range Noise





FORT SILL JOINT LAND USE STUDY

Figure 5. Aerial Bombing Noise



Fort Sill Installation Compatible Use Zone Study 2015

Noise Contours for Aircraft Training

Noise contours are typically generated during the Installation Compatible Use Zone (ICUZ) Plan process. The primary sources of aircraft noise occur from flight operations (overflight, take-offs, landings, touch-and-go operations) and engine maintenance run-ups. Airfield noise contours are illustrated on Figure 6.

Explosive Safety Quantity Distance Arc

The Explosive Safety Quantity Distance (ESQD) Arc defines the area that would be affected by an accidental explosion at an ammunition storage area. According to Fort Sill, there are not ESQD arcs that extend outside the installations perimeter boundary.

Surface Danger Zones

A surface danger zone (SDZ) is an area around a weapons' firing range from which the access of all military personnel and civilians is restricted due to the inherent dangers associated with the firing of live munitions. An SDZ can include the surface (and subsurface) of land and water, as well as the overhead air space that accommodate launched projectiles. An SDZ includes the weapons firing position, target impact area, and a secondary buffer area, which is an additional distance where errant projectile/munitions fragments may land without risking harm to life or property. All of Fort Sill's SDZs are completely contained within the installation's boundaries.

Aircraft Accident Potential Zones

Accident Potential Zones (APZs) per DOD Instruction are developed to assist military and community planners in planning land uses that are compatible with airfield operations, thereby protecting health and safety. For a complete technical explanation of the APZs, see Chapter 3, Military Profile of the Background Report. The APZs are illustrated on Figure 7.

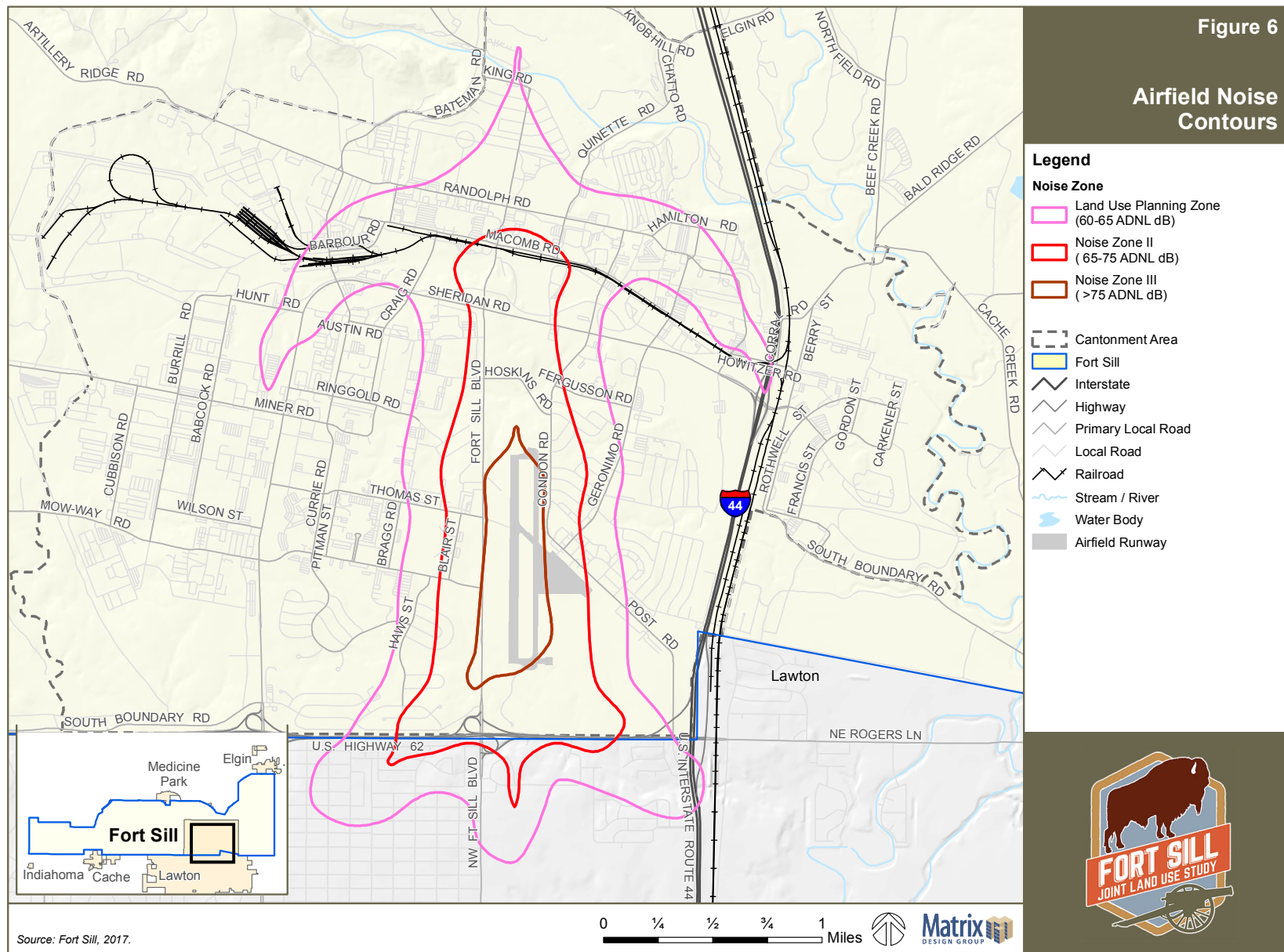
Airfield Primary Approach and Departure Flight Corridors

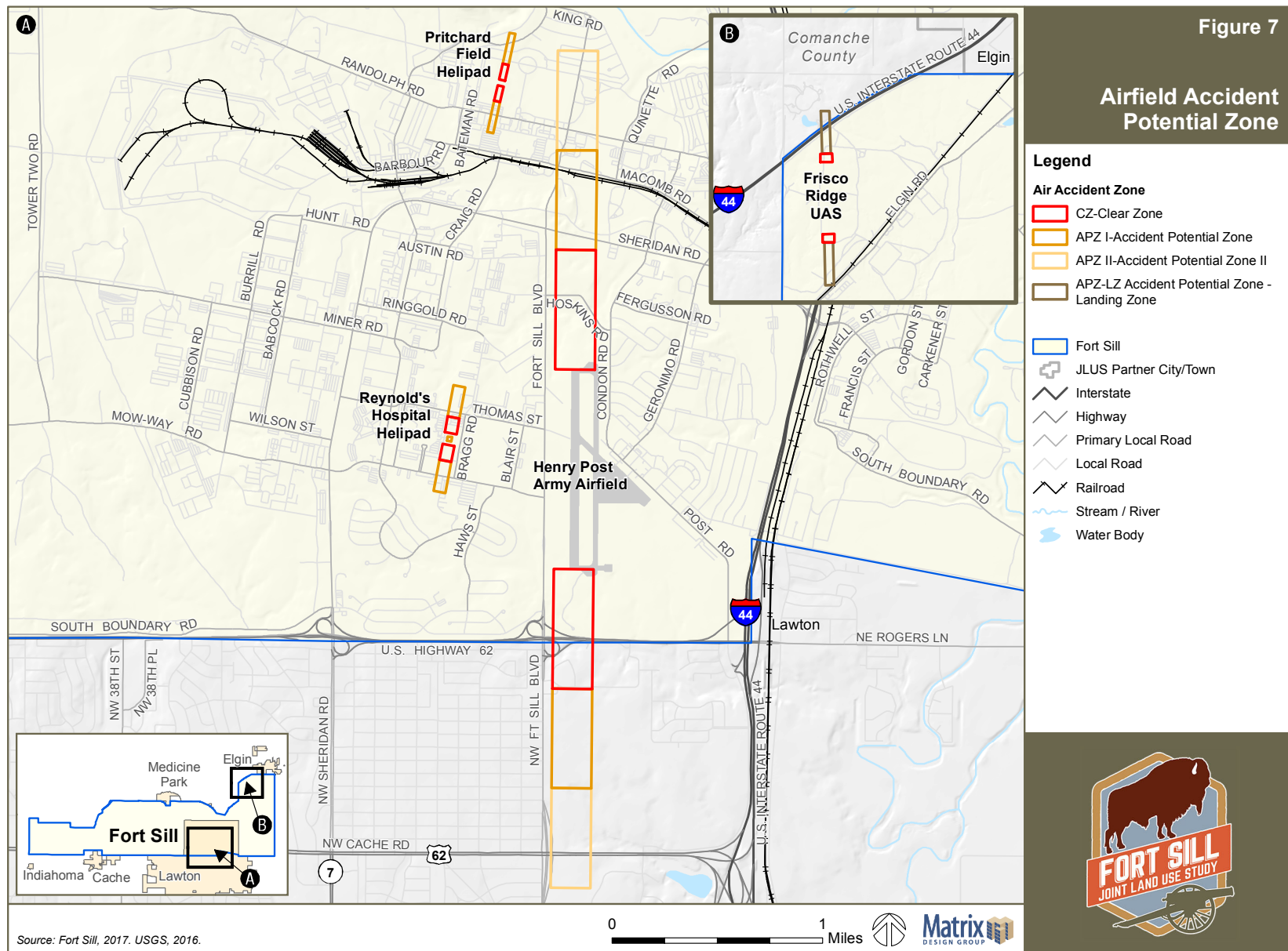
There are four primary flight corridors that aircraft use to perform their operations at HPAAF as illustrated on Figure 8. The corridors are designed to avoid major urban development areas to the most practicable extent. Starting from west going east around the airfield, the four primary flight corridors are as follows.

- **Goodyear Corridor** is a corridor that runs west-east extending outside the installation boundaries until it intersects with U.S. Highway 62, and then runs west along U.S. Highway 62.
- **Snow Ridge Corridor** is a route that runs north-south extending from the cantonment area on-installation towards the northern boundary.
- **Lake George Corridor** is a route that runs east-west extending east on-installation.
- **Flower Mound Corridor** is an arrival route only that runs northwest-southeast extending from the installation boundary where it meets Interstate 44.

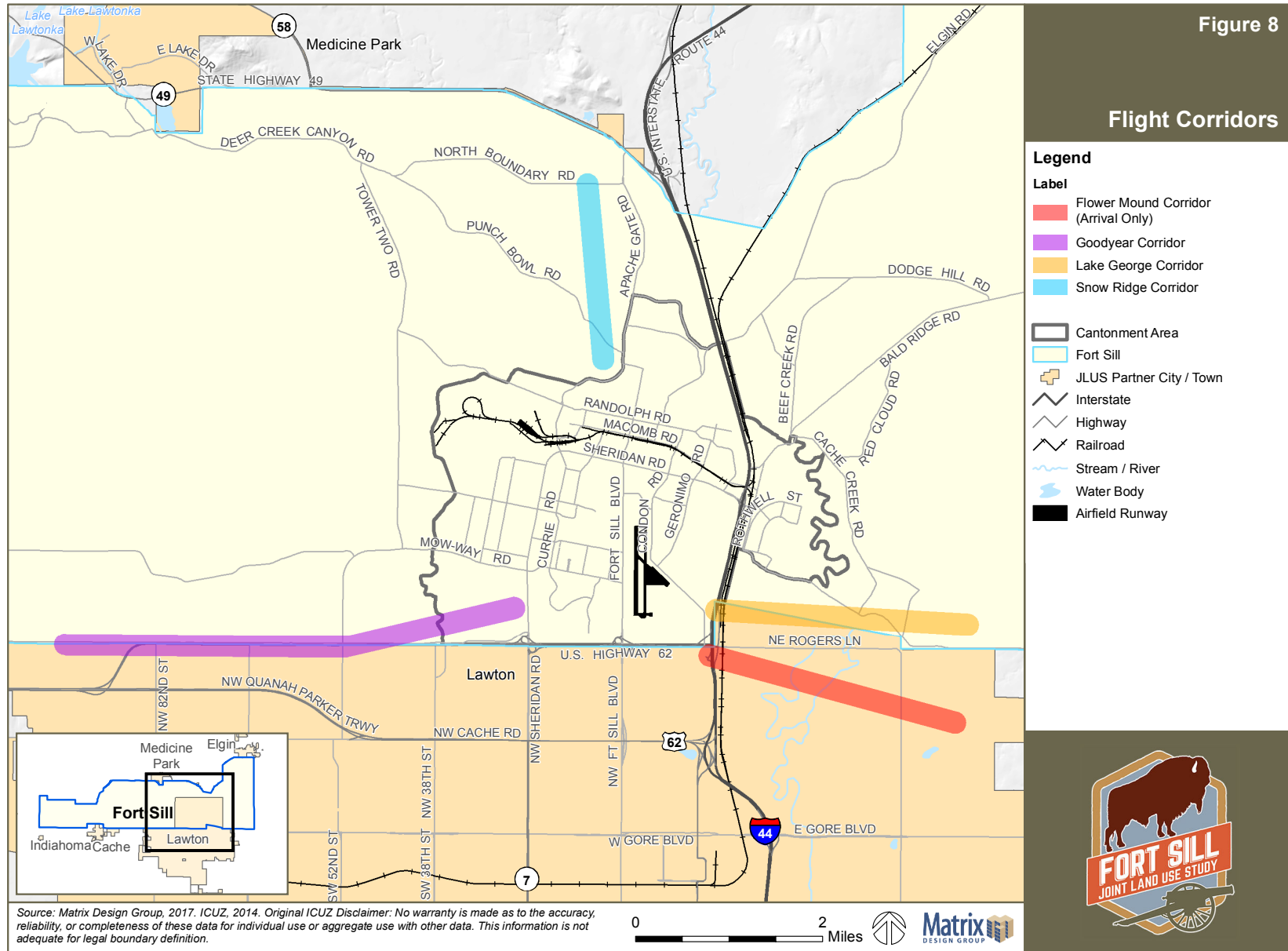
Airspace Control

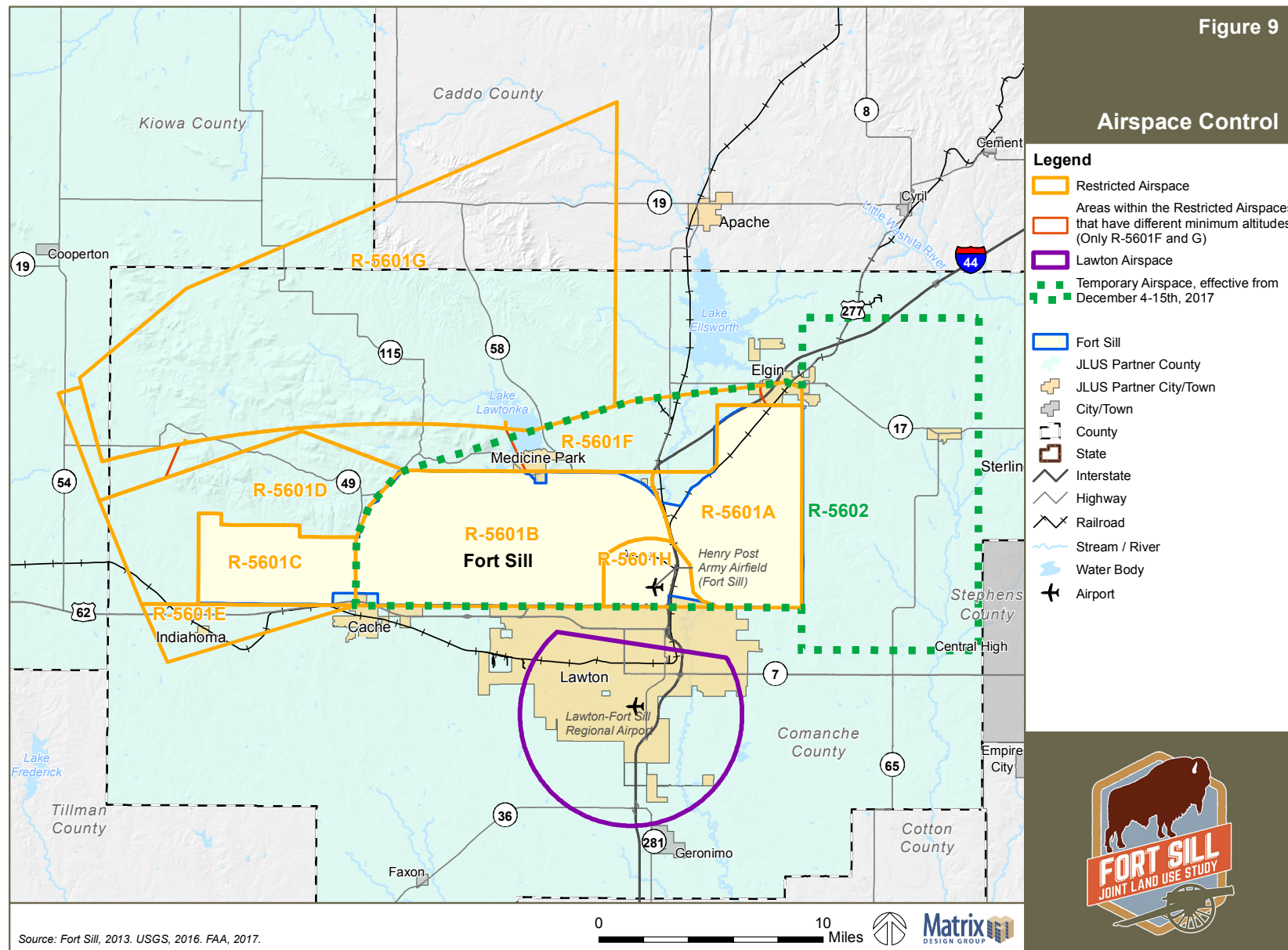
Fort Sill is located under restricted airspace. Restricted Airspace is a type of special use airspace designated by the Federal Aviation Administration (FAA). Restricted Airspace is an important asset to the Department of Defense because allowed use includes weapons systems training and testing purposes. These areas are necessary for ground weapons and artillery firing, aerial gunnery, and dropping inert and practice bombs. Restricted Airspace designation serves to separate training and testing from the public and general aviation users. There are eight restricted airspaces in the Fort Sill JLUS Study Area that are illustrated on Figure 9. All the restricted airspaces have a portion that is not contained within the installation boundary.





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These areas are important to consider when evaluating potential compatibility impacts associated with the mission on land uses outside the installation.

Part 77 Vertical Obstruction Compliance

An important outcome of the Federal Aviation Act is Federal Aviation Regulation Title 14 Part 77 commonly known as Part 77, which provides the basis for evaluation of vertical obstruction compatibility / recommended land use. This regulation provides information to evaluate the potential for a vertical obstruction based on the elevation of the airfield, the height and resulting elevation of the new structure or facility, and the location of the structure or facility relative to the airfield in question. This regulation promulgates obstruction standards relative to their distance from the ends of a runway as well as their relationship to airport imaginary surfaces.

A height that is 200 feet AGL or above the established airport elevation, whichever is higher, and within three nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length is considered a vertical obstruction. This height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 499 feet.

Figure 10 illustrates the Part 77 rings around HPAAF and the Lawton-Fort Sill Regional Airport (LAW). Obstruction height elevations are measured from the HPAAF and LAW runway elevation respectively. Note that this is in addition to, not a replacement of, imaginary surfaces.

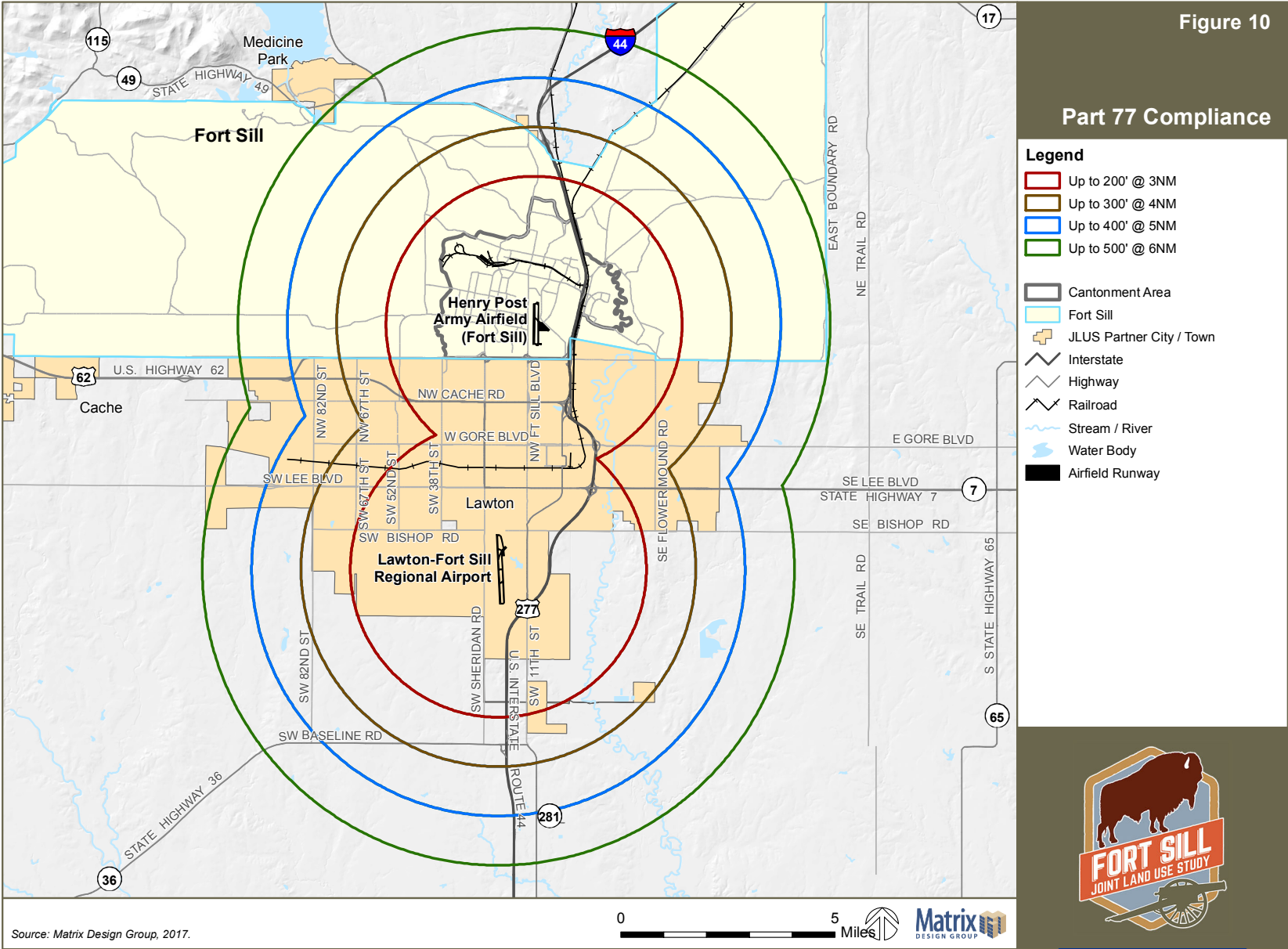
Henry Post Army Airfield and Other Runway Imaginary Surfaces

Federal Aviation Regulation, Part 77 Compliance specifies a series of Imaginary Surfaces surrounding military and civilian airports that define allowable vertical obstruction heights. The imaginary surfaces of an active runway are used to define the required airspace that must remain free of any vertical obstructions near aviation operations to ensure safe flight operations. Figure 11 shows the general geometry of imaginary surfaces for planning purposes for Fort Sill's HPAAF and the Frisco Ridge airstrip and sod runways. Structures on the ground should not exceed these heights to protect the navigable airspace associated with the airfield, the safety of pilots and people, and the land uses on the ground. This is especially important in the clear zone and the approach-departure surfaces.

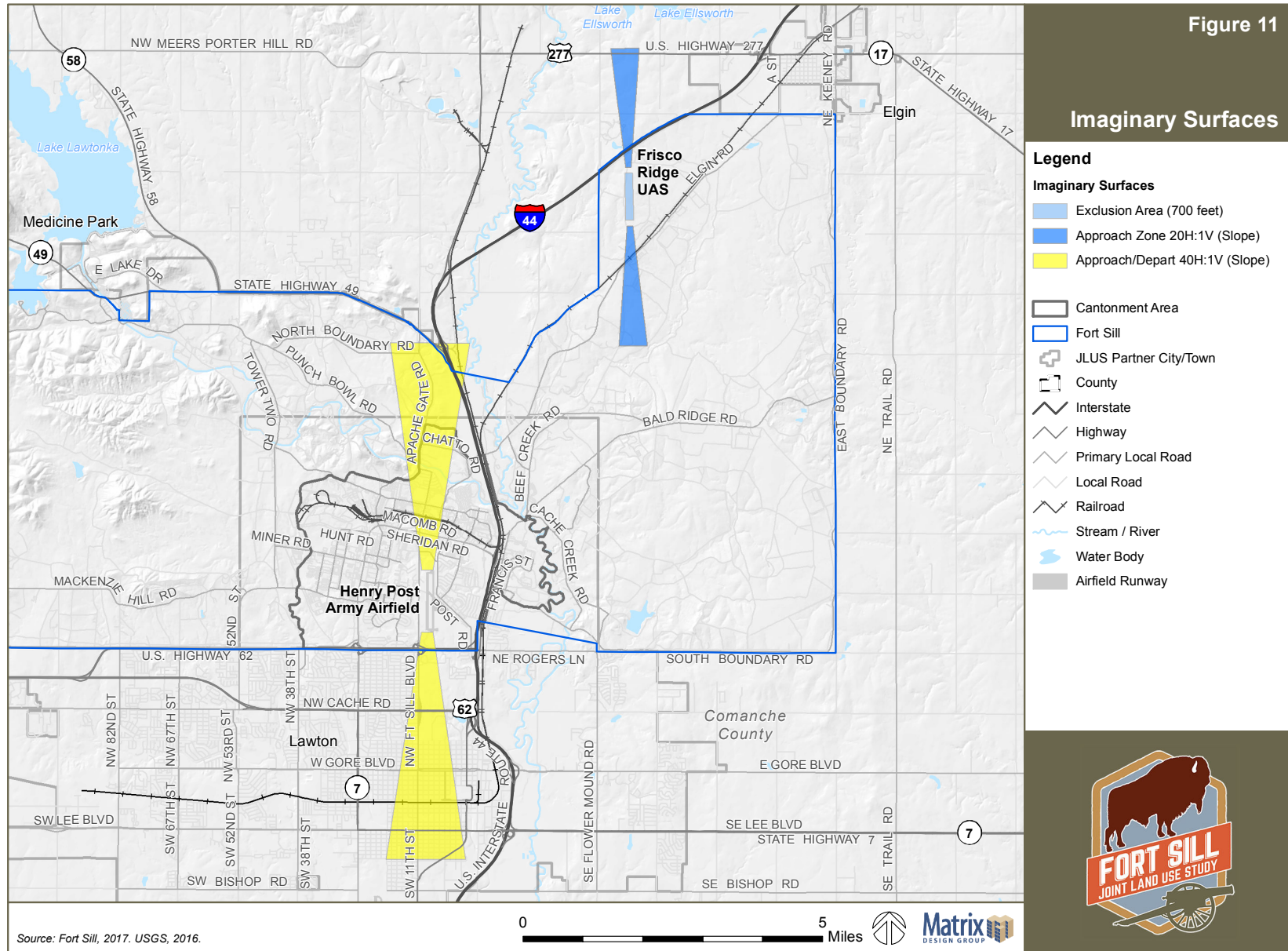
Wildlife Aircraft Strike Hazard (WASH) Relevancy Area

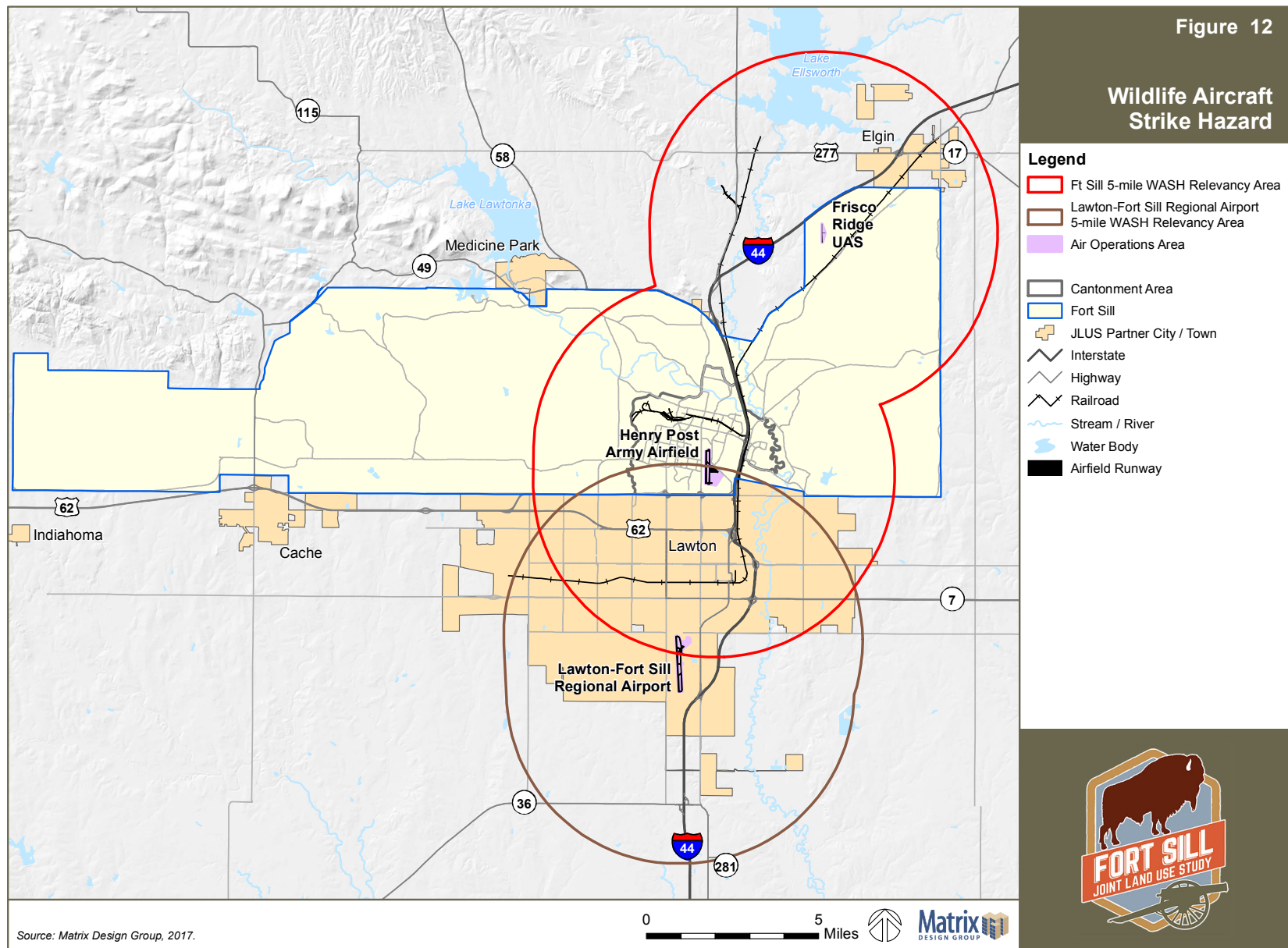
Bird or animal strikes since 1980 have approached approximately 20,000 events that have resulted in two deaths, 25 aircraft destroyed and over \$300 million in damage for the DOD. According to the United States Avian Hazard Advisory System, HPAAF reported 23 bird strikes since 2006.

Certain types of land features and uses attract birds and wildlife, such as farmland, golf courses, landfills, open water areas, standing water, and natural woodland areas. Fort Sill's location is within the Central Flyway for migratory birds, and is in a suburban area that has numerous bodies of water off-post including the Lawtonka Lake, nearby golf courses with water features, and farmland, all which increase the risk for WASH incidents. Figure 12 shows a five-mile radius around HPAAF, Frisco Ridge UAS, and LAW. Based on FAA statistical analysis, this is the primary area of concern for WASH incidents to occur, and the primary focus of compatibility planning for this issue.



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Please see the next page.



COMPATIBILITY TOOLS

4

This section provides an overview of governmental plans and programs (which will be referred to as “tools” in this JLUS) that are currently used or may be applied to either directly or indirectly to address compatibility planning and issues identified within the Fort Sill Joint Land Use Study (JLUS) Study Area.

Planning tools can be categorized into three types when evaluating how to apply them, those types are : permanent, semi-permanent, and conditional.

- *Permanent planning tools include acquisition programs, either fee simple purchase of property or the purchase of development rights.*
- *Semi-permanent tools include regulations such as zoning or adopted legislation.*
- *Conditional tools include comprehensive plans, memorandums of understanding, intergovernmental agreements, and other policy documents that can be modified.*

An overview of relevant federal, state, and local plans and programs and regional planning entities is included.

Federal Plans and Programs

Department of Defense Energy Siting Clearinghouse

Section 358 of the 2011 National Defense Authorization Act (NDAA) sanctioned the study of the effects of new construction and obstructions on military installations and operations. The Department of Defense (DoD) Energy Siting Clearinghouse serves to coordinate the DoD review of existing applications for energy projects. The DoD Siting Clearinghouse serves to facilitate the review with the affected component: the Departments of the Army, Navy, Air Force and Marine Corps. Several key elements of Section 358 include designation of a senior official and lead organization to conduct the review of energy project applications, a specific timeframe for completion of a hazard assessment associated with an application (30 days), specific criteria for DoD objections to projects and a requirement to provide an annual status report to Congress. This legislation facilitates procedural certainty and a predictable process that promotes compatibility between energy independence and military capability.

On December 12, 2017, the 2018 National Defense Authorization Act was signed into law, which among other things, included changes to the DOD Siting Clearinghouse, which will be transitioned to the Military Aviation and Installation Assurance Siting Clearinghouse. This new Clearinghouse must provide procedures for energy project developers to consult with affected military installations, facilitating better coordination and communication from the project initiation. Part of the enhanced coordination and communication requires the Clearinghouse to develop procedures for

energy project developers to submit the project area and preliminary layout at least one year before the developer plans to begin construction of the proposed energy project is within any DOD operated surveillance radar or military training route. These procedures will help set a more clearly defined trigger for coordination and outreach between affected military installations and energy project developers. Also, the review period upon receiving an energy project application from the Secretary of Transportation is extended from 30 to 60 days, allowing more time for the Clearinghouse and affected military installations to assess the proposed development of any potential adverse impacts.

Federal Aviation Act

The Federal Aviation Act was enacted in 1958 to provide methods for overseeing and regulating civilian and military use of airspace over the U.S. The Act requires the Secretary of Transportation to make long-range plans that formulate policy for the orderly development and use of navigable air space. The intent is to serve the needs of both civilian aeronautics and national defense, but does not specifically address the needs of military agencies. Military planning strives to work alongside local, state, and federal aviation law and policies but sometimes must supersede these and other levels of government due to national security interests. The Federal Aviation Administration (FAA) was created as a result of the Federal Aviation Act for a variety of purposes, including the management of airspace over the United States.

The 500-foot rule, promulgated by the FAA, states that every citizen of the United States has “a public right of freedom of transit in air commerce through the navigable air space of the United States.” The rule was formally announced in the 1963 Court of Claims ruling in *Aaron v. United States* and states that flights 500 feet or more above ground level (AGL) do not

represent a compensable taking because flights 500 feet AGL enjoy a right of free passage without liability to the owners below.

Another important outcome of the Federal Aviation Act is FAA Regulation Title 14 Part 77, commonly known as Part 77 Compliance, which provides the basis for evaluation of vertical obstruction compatibility. This regulation determines compatibility based on the height of proposed structures or natural features relative to their distance from the ends of a runway. Using a distance formula from this regulation, local jurisdictions can easily assess the height restrictions near airfields. Additional information on Part 77 Compliance is located on the FAA website at <http://www.faa.gov/>.

The FAA has identified and defined imaginary surfaces around runways to determine how structures and facilities are evaluated. Analysis of objects (either manmade or natural such as towers or trees respectively) that intersect with these defined imaginary surfaces assist in identifying if they pose a vertical obstruction relative to the airspace around a runway. Imaginary surfaces are defined as levels that build upon one another and are designed allow for the identification of vertical obstructions and relate violations of the correlated imaginary surface criteria in order to proactively eliminate obstructions to air navigation and operations. The defined dimensions, or size in length, width, and height, of an imaginary surface depends on the runway classification which is defined by the FAA.

Noise Control Act of 1972

The Noise Control Act of 1972 identified that noise not adequately controlled has potential to negatively impact health and welfare. It states that all Americans are entitled to an environment free from noise that can jeopardize their general health and quality of life. Along with state, local, and territorial governments, actions from the federal government were needed to ensure that the objectives of the Noise Control Act were met.

Concurrently with the adoption of the Noise Control Act, military installations were experiencing the impacts from encroaching urban development located adjacent to the installation and the resulting complaints regarding noise from military flight operations. The DoD responded by establishing the Air Installation Compatible Use Zone (AICUZ) program which was subsequently adopted by the Air Force as AFI 32-7063.

The Noise Control Act of 1972 and the AICUZ program are important planning tools because encroaching development and increased population near military installations often creates compatibility concerns. As communities grow, it is important that military installation, developers, and the communities work together to adequately define, plan accordingly and / or mitigate the issue of noise in developing ways to coexist compatibly and successfully.

Partners in Flight Program

The DoD has implemented a program entitled Partners in Flight that sustains and enhances the military testing and training mission through habitat-based management strategies. The program assists military installation natural resource managers in monitoring, inventorying, researching, and management of birds and their habitats. As part of the Partners in Flight program, a strategic plan is created that can be incorporated into a Bird/Wildlife Aircraft Strike Hazard (BASH/WASH) plan. This program determines the current status of bird populations to prevent the further endangerment of birds and reaches beyond the boundaries of the installation to facilitate community partnerships to manage those bird/wildlife populations in a proactive manner.

US Avian Hazard Advisory System

The US Avian Hazard Advisory System (USAHAS) is a geographic information system-based bird avoidance model developed by the Air Force used for

“analysis and correlation of bird habitat, migration, and breeding characteristics, combined with key environmental and manmade geospatial data.” The model provides up-to-date information – “near real-time” – about bird activity and movements to assist pilots and flight planners in the scheduling and use of flight routes in navigable airspace. The model can also be used as a forecasting tool to estimate risk of bird strike with aircraft. Information from the North American Breeding Bird Survey, Audubon Christmas Bird Count, bird refuge databases, and the Air Force Bird-Aircraft Strike database as well as public domain information regarding bird attractant locations is used to formulate the bird activity and movement data. The model is available for use by agencies and the general public, accessible from the USAHAS website at <http://www.usahas.com/>.

Fort Sill Plans and Programs

Fort Sill has developed several plans and programs that provide guidance for land uses and development activities on the installation. These tools govern land use decisions that occur inside the fenceline or within the boundary of the military mission footprint in relation to the military mission or proposed military missions.

These tools provide guidance and establish measures for standard operating procedures during certain events such as flight training or artillery training operations. There are various installation tools that are instrumental in assisting and guiding land use decisions as they intersect with military mission requirements (separation, adjacency) and impacts (noise, safety, etc.).

Installation Compatible Use Zone (ICUZ) Study

The Installation Compatible Use Zone (ICUZ) program's purpose is to minimize community noise impacts while stabilizing and sustaining the Army's mission. The ICUZ focuses on defining which land use types are compatible based on the impacts of defined military noise and specific military activities. The ICUZ study measures noise emanating from military training activities including airfield operations and range training to create appropriate recommendations for noise-impacted areas. Fort Sill's most recent ICUZ study was completed in 2015.

Wildlife Aircraft Strike Hazard Plan (WASH)

Fort Sill prepared a Wildlife Aircraft Strike Hazard (WASH) plan in 2016 under Fort Sill Regulation 385-15. The WASH plan applies to personnel assigned or attached to airfield operations at Henry Post Army Airfield (HPAAF). The purpose of a WASH plan is to minimize wildlife and bird strike damage to military aircraft. A WASH plan is designed to alert aircrew and operations personnel and provide increased levels of flight safety, especially during the critical phases of flight, take-off, and landing operations. This plan establishes procedures for reducing bird strikes through bird management and alerting pilots of bird activity.

Ammunition and Explosives Safety Standards 385-64

The Department of the Army Pamphlet (DA PAM 385-64) Ammunition and Explosives Safety Standards details the Army's safety criteria and standards for operations involving ammunition and explosives. The pamphlet includes mandatory procedures and guidance, as well as preferred methods of accomplishing those procedures. Pertinent information in the pamphlet includes, but is not limited to, explosives safety training standards, explosives safety management programs, safety inspection procedures, and guidance for the creation of installation ammunition and explosive location maps. Fort Sill personnel utilize these standards when preparing for training to ensure safety management is a top priority.

Integrated Cultural Resources Management Plan

The Fort Sill Integrated Cultural Resources Management Plan (ICRMP) was last updated in 2013. The objective of the ICRMP is to balance the management of historic and cultural resources with mission readiness at Fort Sill. The ICRMP supports early identification of cultural and historic resources and defines necessary actions for managing agencies to ensure the protection of resources during military operations and non-military activities.

The ICRMP establishes compliance procedures to properly manage cultural and historical resources, establishing existing conditions and identifying the potential impacts of Fort Sill's mission on them. The plan also identifies impacts to mission readiness caused by preservation, maintenance, and repair of buildings and the continued use of historic buildings. In addition, the ICRMP establishes a coordination process between the installation and many state or regional agencies.

State of Oklahoma Plans and Programs

Oklahoma House Bill 2298 (2017)

The Oklahoma House Bill 2298 titled Income tax credits; credits for electricity generated by zero-emission facilities; effective date; emergency. was passed in 2017. The bill essentially eliminates tax credits for wind energy development in the state for wind energy facilities that were not operational by July 1, 2017.

Oklahoma House Bill 2472 (2004)

The Oklahoma House Bill 2472 was passed in 2004, and permits any municipality that contains an active-duty US Air Force military installation to create an ordinance restricting or prohibiting certain future land uses within five miles of the installation. Although Fort Sill is an Army installation, this legislation is applicable to Henry Post Army Air Field, and requires such ordinances to be consistent with Fort Sill studies and recommendations.

Aircraft Pilot and Passenger Protection Act

The Aircraft Pilot and Passenger Protection Act was passed in 2010, establishing Runway Protection Zones for all public-use airports, including the Lawton-Fort Sill Regional Airport. Any developer proposing any structure within a Runway Protection Zone must acquire a permit from the Oklahoma Aeronautics Commission prior to initiating construction or installation. The commission has the authority to deny a permit if the structure is considered “incompatible” with normal airport operations.

Regional Organizations and Programs

Association of South Central Oklahoma Governments

The Association of South Central Oklahoma Governments (ASCOG) is the regional planning organization for an eight county planning area including Caddo, Comanche, Cotton, Grady, Jefferson, McClain, Stephens, and Tillman counties and numerous town and city governments within those counties.

The ASCOG assists its government partners in regional planning including topics such as economic development, workforce development, GIS-related services, transportation, and aging services. The ASCOG is the local sponsor for the Fort Sill JLUS and providing the financial, local match for this project.

Southwestern Oklahoma Development Authority

The Southwestern Oklahoma Development Authority (SWODA) is the regional planning organization for an eight county region including Beckham, Custer, Greer, Harmon, Jackson, Kiowa, Roger Mills, and Washita counties. The SWODA assists its member governments in providing services and technical assistance in topics involving regional planning including economic development, workforce development, GIS-related data and mapping services, fire training and assistance, transportation, and aging services.

County and Municipal Plans and Programs

The planning tools used by the study area jurisdictions were analyzed and categorized as permanent, semi-permanent, or conditional. In Oklahoma, authority to regulate land use is delegated by the state to counties and municipalities. The nature of a jurisdiction’s authority to regulate local land use depends on that jurisdiction’s local government. For the Fort Sill JLUS study area, the following are local jurisdiction tools that were taken into consideration during the JLUS study process:

Comanche County

Comanche County is authorized by state law to plan and regulate land uses, but it has not implemented any planning tools.

City of Cache

Land Use Plan

The City’s Land Use Plan was not available at the time of the development of this report.

Zoning Ordinance

The most recent Zoning Ordinance establishes 10 zoning districts. Each zoning district has specific land use regulations regarding permitted land uses, maximum building heights, and minimum lot areas. The Agriculture

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Residential (A-1) District does not set a maximum height, which could result in vertical obstructions that would encroach upon the Fort Sill aviation mission. In addition, there are no standards for lighting established which could lead to unregulated development causing light pollution/encroachment.

A review of the City of Cache Zoning Ordinance has identified the following concerns related to military compatibility:

- There are no maximum heights established for the Agriculture Residential Zoning District (A-1).
- There are no lighting standards established for any type of development except parking.
- Mobile homes are allowed in the city; however, there are no landscaping design standards for mobile homes to help mitigate noise from external sources.

Subdivision Regulations

The City's subdivision regulations do not address compatibility with Fort Sill.

Building Code

The International Building Code does not contain military compatibility measures for sound transmission from exterior noise to interior.

City of Elgin

The City of Elgin does not contain any planning tools that address compatible development with the military.

City of Lawton

2030 Land Use Plan

The City of Lawton's 2030 Land Use Plan was adopted in 2008 as the basic policy document for future growth of the city. Fort Sill personnel were included as representatives on the Steering Committee during the 2030 Land Use Plan planning process.

The City of Lawton recognizes Fort Sill as an integral community asset throughout the 2030 Land Use Plan, identifying the city as the "Lawton-Fort Sill" community and identifying the contributions the installation has had on development.

The 2030 Land Use Plan includes a Fort Sill Buffer Zone in Chapter 6: Areas of Special Treatment. The Plan states:

First, the cooperative development of a land use policy for all areas adjacent to the installation. The entire northern perimeter of Lawton abuts Fort Sill and its training grounds and firing ranges. Artillery firing and military training obviously produce impact noises, which may be incompatible with residential activities. It is not likely that the

size of the firing ranges or training areas will grow in size due to the economics of land acquisition. Development of the 2030 Land Use Plan and other planning documents should be developed in concert with Fort Sill.

A review of the City of Lawton 2030 Land Use Plan has identified the following concerns related to military compatibility:

- There are no guidelines or standards for communication and coordination outlined in the 2030 Land Use Plan that inform property owners and / or potential developers on recommended compatible or incompatible developments or land uses near the installation.
- Appendix D of the 2030 Land Use Plan contains a map identifying the Fort Sill Buffer Zones. The buffer zones resemble Fort Sill's ACUB priority areas, and show buffer areas outside of Lawton's jurisdictional boundary. Each buffer area is labeled Buffer #1 through Buffer #6; however, there are no descriptions or standards associated with these buffer zones.

Zoning Ordinance

The recent Zoning Ordinance establishes 22 zoning districts. Each zoning district has specific land use regulations regarding permitted land uses, maximum building heights, and minimum lot areas. A majority of the zoning regulations and standards do not address compatibility with Fort Sill, the City did establish a Residential Estate District (RE). The REDistrict is a residential district designed to be located on the fringe of the urban area of the city. The RE District allows for single-family residential dwellings on a larger lot size, in the RD District the lot size may not be smaller than one acre. Schools and churches are also permitted in this district.

A review of the City of Lawton Zoning Ordinance has identified the following concerns related to military compatibility:

- While the RE District is a good initial step relative to compatibility, one acre lot sizes could still pose an encroachment issue if there are 500 or 700 units proposed in one subdivision. This is unlikely, but there is nothing in the ordinance that specifies coordination with Fort Sill regarding these types of subdivisions.
- The Ordinance establishes lighting regulations for multi-family residential, but there is no reference to single-family residential development.
- There are no regulations for fully-cutoff, fully-shielded, or Backlight, Uplight, and Glare (BUG)-rated lighting fixtures that reduce light pollution and horizon brightening.

Article 7-3-2-343 - Unmanned Aircraft Systems

The City of Lawton has established a no drone zone that restricts drone operations within a five mile radius around the Lawton-Fort Sill Regional Airport (LAW). This regulation captures a majority of the area between Fort Sill and LAW. However, this ordinance does not apply to the area around the Henry Post Army Airfield (HPAAF). There is a small area gap in coverage between the five mile radius from the LAW to and the boundary of Fort Sill that is not included in the city's regulation or covered by federal regulations.

Subdivision Regulations

The City's subdivision regulations do not address compatibility with Fort Sill.

Building Code

The City of Lawton adopted the 2009 edition of the International Building Code. However, the International Building Code does not contain military compatibility measures.

Town of Indianoma

The Town of Indianoma has not developed any planning tools that support compatible development with Fort Sill.

Town of Medicine Park

Land Use Plan

The Town of Medicine Park does not currently have an adopted land use or master plan for the community. However, the Town is in the initial phase of the process to develop a plan, and is expected to be completed by the end of 2018.

Zoning Ordinance

Chapter 15 of Medicine Park's Code of Ordinances includes the Town's zoning laws and regulations that establishes six zoning districts. Each zoning district includes a general description, permitted principal and accessory uses and structures, as well as special requirements.

A review of the Town of Medicine Park's Zoning Ordinance has identified the following concerns related to military compatibility:

- None of the regulations and standards address compatibility with Fort Sill.

Town of Sterling

Zoning Ordinance

The most recent Zoning Ordinance establishes six zoning districts. Each zoning district has specific land use regulations regarding permitted land uses, maximum building heights, and minimum lot areas.

A review of the Town of Sterling Zoning Ordinance has identified the following concerns related to military compatibility:

- None of the regulations and standards address compatibility with Fort Sill.

Kiowa County

Kiowa County is authorized by state law to plan and regulate land uses, but it has not implemented any planning tools.

City of Apache

The City of Apache does not contain any planning tools that address compatible development with nearby the military installation.

City of Frederick

Land Use Plan

The City of Frederick has not adopted a Land Use Plan.

Zoning Ordinance

As authorized by 1971 Oklahoma Statutes 101-115, Title 3 and HB 359 (1945), the City of Frederick adopted airport zoning in October 1980. Known as the Frederick Regional Airport Hazard Zoning Ordinance, it limits the height of structures and objects of natural growth within the airport environs (approach surfaces/zones, horizontal and conical surfaces/zones, and transitional surfaces/zones). Also, codified in Section 12-295 to 299 of the city's code of ordinances, the airport is zoned as a Heavy Industry District, though "airport" is not a specified use.

A review of the City of Frederick Zoning Ordinance has identified the following concerns related to military compatibility:

- None of the regulations and standards address compatibility with Fort Sill.

Subdivision Regulations

The City's subdivision regulations do not address compatibility with Fort Sill.

Building Code

In 2007, the City of Frederick adopted the 2006 edition of the International Building Code. However, the International Building Code does not contain military compatibility standards.

Please see the next page.



COMPATIBILITY ASSESSMENT



Identification of Compatibility Issues

Compatibility, in relation to military readiness, can be defined as the balance or compromise between community needs and interests and military needs and interests. The goal of compatibility planning is to promote an environment where both community and military entities communicate, coordinate, and implement mutually supportive actions that allow both to achieve their respective goals and objectives. A number of factors can be evaluated to determine whether community and military plans, programs, and activities are compatible or in conflict. For this Fort Sill Joint Land Use Study (JLUS), 25 compatibility factors were analyzed to identify, determine, and establish a set of key JLUS compatibility issues for evaluation.

Methodology and Evaluation

The methodology for the Fort Sill JLUS consisted of a comprehensive and inclusive discovery process to identify key stakeholder issues associated with the compatibility factors. At the initial Policy Committee (PC) and Technical Working Group (TWG) meetings and public workshops, stakeholders were asked to identify the location and type of issue in conjunction with compatibility factors they thought existed today or could occur in the future. As a part of the evaluation phase, the PC, TWG, and the public examined and prioritized the compatibility issues identified. Other factors and associated issues were analyzed based on available information and similarity with other community JLUS experiences around the country.

Of the 25 compatibility factors considered, no issues were identified for the following five factors:

- Frequency Spectrum Capacity
- Housing Availability
- Marine Environments
- Public Trespassing
- Scarce Natural Resources

COMPATIBILITY FACTORS

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

Air Quality (AQ)

Air quality is defined as the degree to which the ambient air is pollution-free, assessed by measuring a number of indicators of pollution. Numerous components of air quality are regulated at the federal and state level. For compatibility, the primary concerns are pollutants that limit visibility, such as particulates, ozone, etc. and potential non-attainment of air quality standards that may limit future operations at an installation or in the area. The following Air Quality issue was identified:

- **General Concern Regarding Possible Future Designation as Nonattainment for Ozone in the City of Lawton.** The communities surrounding Fort Sill are currently in Attainment for Ozone (O3); however, there is a concern that the City of Lawton is close to being designated as Nonattainment Area as the area receives a large amount of Interstate Air Pollution Transport from the Dallas-Fort Worth, TX area. This could have impacts on both the community and the military where construction or operations / training activities could be required to incorporate measures to reduce pollutant emissions.

Anti-Terrorism / Force Protection (AT)

Anti-Terrorism / Force Protection (AT) relates to the safety of personnel, facilities, and information on an installation from outside threats. Security concerns and trespassing can present immediate compatibility concerns to installations. Due to current world conditions and recent events, military installations are required to meet more restrictive standards to address AT issues. These standards include increased security checks at installation gates and physical changes (such as new gate / entry designs). Additional emphasis on personnel credentialing and vehicle checks and inspections during heightened security levels can create capacity and queuing issues. These protocols coupled with entrance gates that are inadequate to support

the high volume of vehicles requiring access to the installation on a daily basis can compound access issues.

The reduced processing throughput time at the gates can create circulation issues and general safety concerns external to the installation and within local communities. The following Anti-Terrorism / Force Protection issues were identified:

- **General Concern About Breaches of Installation Perimeter.** The primary concern focuses on trespassing issues and vandalism of the Fort Sill fence line. This can cause impacts for Fort Sill; such as potentially delaying operations and training and impacting military readiness.
- **Concern About Traffic Configuration at Installation Access Points and Vehicle Collisions into Fort Sill's South Boundary Fence.** There is a concern about vehicle collisions into the South Fence at the Rogers Lane / Sheridan Road access where the Bentley, Scott, and 52nd Street Gates are located. The collisions are unintentional; however, damage to federal property can cause additional security risks.
- **Recreational Drones Fly Over Post into Restricted Airspace.** There is a concern about recreational drones flying over the Post into the restricted airspace used by the military for training. There has been one incident in which a recreational drone crashed on to the airfield. Operating drones on or around the installation can be a safety risk to both military personnel and aircraft, adversely impacting Fort Sill's operations and training mission.

Biological Resources (BIO)

Biological resources include federal and state listed species (threatened and endangered) and their habitats. In addition to wildlife, these natural resources may also include land areas such as wetlands and airspace areas such as migratory corridors that are critical to the overall health and productivity of an ecosystem. The presence of sensitive biological resources may require special development considerations and should be addressed and included early in the planning process. The following Biological Resources issues were identified:

- **Invasive Wild Hog Species Impact Military Training Capabilities.** Wild hogs in the JLUS Study Area migrate onto the installation and cause damage to the land and perimeter security fencing because of animal rooting behaviors. The damage hogs cause to federal property add undo maintenance costs and can delay military operations or training resulting in adverse impacts to military readiness at Fort Sill.
- **Invasive Plant Species Increase Wildfire Risk in the JLUS Study Area.** Johnson Grass, an invasive plant species, can be found throughout the JLUS Study Area. This plant provides fuel for wildfires which increases the risk of wildfires.

Coordination / Communication (COM)

This discussion refers to the programs and plans that promote interagency coordination. Interagency communication serves the general welfare by promoting a more comprehensive planning process inclusive of all affected stakeholders. Interagency coordination also seeks to develop and include mutually beneficial policies for both communities and the military in local planning documents such as comprehensive plans. The following Coordination / Communication issues were identified:

- **Lack of Formalized Community Point of Contact Information Regarding New Development in the JLUS Study Area.** Fort Sill does not have an official community contact to provide the military with information about development occurring outside the installation that could impact the operational training mission.
- **Lack of Public Awareness of Fort Sill Contact Information to Report Concerns.** Public may not know who to notify on Fort Sill regarding concerns or other issues, e.g. noise complaints. This could lead to a delay in responding to and addressing complaints or concerns and also negatively impact community / installation relationships.
- **Coordination and Communication Between Fort Sill and Wichita Mountains Wildlife Refuge is not Formalized.** There is currently an informal relationship between Fort Sill and the Wildlife Refuge to address concerns related to impacts to both the military and the refuge. Situations where no documented agreement or procedure exists may cause delays or confusion on how to address issues, especially if there is a change in personnel.
- **Lack of Notification to the Public on Training that Occurs Outside the Normal Daytime Hours.** There is a lack of notification to the public, local government agencies, and media outlets regarding artillery training that occurs outside the normal daytime hours, such as in the early morning or after midnight.
- **No Formal Communication Process Between the Federal Aviation Administration and Fort Sill Regarding Impacts from Wind Turbine Developments to the Radar Field of View.** While the Federal Aviation Administration (FAA) communicates with the installation when there could be vertical obstruction into mission critical airspace, the FAA does not evaluate the wind turbine development impacts on the radar field of view.

- **Fort Sill Could Enhance Communicate on a Regular Basis with Surrounding Jurisdictions and the Public.** There is an opportunity to enhance relationships with and responses from surrounding jurisdictions when addressing issues that may arise.
- **Joint Law Enforcement Meetings are Voluntary and Informal.** There is an informal weekly meeting between local law enforcement organizations, including Fort Sill Military Police and the Federal Bureau of Investigation.

Cultural Resources (CR)

Cultural resources are an aspect of past or present human activity that are valued by, or significantly representative of, a culture or that contain significant information about a culture. A cultural resource may be a tangible entity or a cultural practice. Tangible cultural resources are categorized as artifacts, records, districts, historic archaeological sites, buildings, structures, and objects. A cultural practice may center on access to a sacred site for specific ritual(s). Historic properties are cultural resources that are eligible or listed on the National Register of Historic Places. Cultural resources may prevent development, require development constraints, or require special access by Native American tribal governments or other authorities. The following Cultural Resources issue was identified:

- **Awareness of Cultural and Sacred Sites Access on Fort Sill.** While there are no access issues with cultural resource sites or sacred sites on Fort Sill, there is a community concern regarding limiting community access to sacred sites and resources in the future. This could constrain interaction between Fort Sill and Native American Tribes in the JLUS Study Area.

Dust, Smoke, and Steam (DSS)

Dust results from the suspension of particulate matter in the air. Dust as well as smoke can be created by fire (e.g., controlled or prescribed burns, lightning strikes), ground disturbance (e.g., military operations, grading). Industrial activities can cause dust, smoke, and steam. If present in sufficient quantity, dust, smoke, and / or steam can be a compatibility issue impacting flight operations (by reducing visibility or causing equipment damage) or otherwise interfering with military operations. The following Dust, Smoke, and Steam issues were identified:

- **Smoke / Dust Complaints in the Community.** There have been some complaints from the community regarding smoke and dust generated from fires originating at Fort Sill. This issue may become more of a concern in the future depending on the tempo of training.
- **Prescribed Burns Conducted by the Wichita Mountains Wildlife Refuge can produce Fugitive Smoke Particles.** There are prescribed burns that occur outside Fort Sill, specifically in the Wichita Mountains that have resulted in adverse impacts to Fort Sill, and have caused delays in training.

Energy Development (ED)

Development of energy sources, including alternative energy sources (such as solar, wind, geothermal or biofuels) could pose compatibility issues related to glare (solar energy), or vertical obstruction (wind generation), or water quality / quantity if siting is not coordinated. The following Energy Development issues were identified:

- **Existing and Proposed Energy Developments Impact Military Training.** There is existing wind development and several proposed sites that have impacted and have the potential to impact Fort Sill

military training missions. This can result in degradation of military readiness not only for Fort Sill, but also for Sheppard Air Force Base (AFB), Altus AFB, Tinker AFB, and Vance AFB all of which use the Fort Sill airspace and range.

- **Energy Developments Can Impact Radar.** Energy development can impact the airport surveillance radar (ASR) system which is the system that detects and displays aircraft in the terminal area. It provides information that enables ground control to communicate with pilots and aircraft in the area. This can increase air navigation safety risks to pilots and the public.
- **Energy Development Impacting the Frederick Weather Radar.** Fort Sill does not have a weather radar on-installation, so the installation depends on the Frederick weather radar for weather information. Increasing wind energy development in the area of the Frederick Weather Radar could impact weather data collected for the area, which is used by Fort Sill as well as for local and national weather predictions.
- **Abundant Renewable Energy Resources Provide Opportunities for Energy Development.** The JLUS Study Area and surrounding region has an abundance of renewable energy resources, which makes the area a premier location for energy development. However, the siting of energy development can adversely impact military training and aviation operations that occur in the region.

Frequency Spectrum Interference / Impedance (FSI)

The frequency spectrum is the entire range of electromagnetic frequencies used for communications and other transmissions including communication channels used for radio, cellular phones, and television. In the performance of typical operations, the military relies on a range of frequencies for communications and support systems. Similarly, public and private users

rely on a range of frequencies in the use of cellular telephones and other wireless devices used on a daily basis. The following Frequency Spectrum Interference / Impedance issue was identified:

- **Uncoordinated Development Can Impact Radar Communications.** Certain uncoordinated development such as tall structures (e.g. cellular towers and existing wind farms) can interfere with radar communications producing false signals. This can impede and interfere with aviation and aircraft operations, which can result in degradation of military training effectiveness.

Infrastructure Extensions (IE)

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

- **Uncoordinated Infrastructure Extensions in Unincorporated Areas May Lead to Incompatible Development.** Not all jurisdictions within the JLUS Study Area utilize zoning to help manage development. Concerns about uncoordinated infrastructure extensions into unincorporated areas of the county could result in incompatible development.

Land, Air, and Sea Spaces (LAS)

The military manages or uses land and air space to accomplish testing, training, and operational missions. These resources must be available and of a sufficient size, cohesiveness, and quality to accommodate effective training and testing. Military and civilian air and sea operations can compete for limited air and sea space, especially when the usage areas are in close proximity to each other. Use of this shared resource can impact future growth in operations for all users.

The land, air, and sea spaces used by the military can be owned by the DoD, designated for DoD use by a federal or state agency, provided through easements or other agreements with public or private entities, or maintained as a historic usage right. Public and private requests to share or assume some of these resources may have a negative impact on military training and test objectives. While Fort Sill does not have any Sea Space related issues, the following Land and Air Spaces issue was identified:

- **State Route 115 Requires Closure to Perform Certain Military Training Activities.** The 75th Field Artillery Brigade (FA BDE) is required to close State Route 115 when firing rockets from Quanah Range to West Range. The 75th FA BDE is only permitted to keep the road closed for a maximum of 15 minutes at any one time.
- **City of Lawton Water Line Traverses Fort Sill.** Four waterlines from Lake Lawtonka to City of Lawton run through Fort Sill. When these waterlines need maintenance or if the pipes break, then training operations can be postponed, delayed, or canceled to enable the Lawton Water Department to safely repair the waterlines.
- **Need for Additional Land and Airspace to Train on Advanced, Larger Weapons Systems.** There is a need for additional land and airspace to train on advanced, larger weapons systems, however land

resources both on- and off-installation are scarce or are already used for other purposes that serve in a dual capacity to protect the military training and provide some economic activity.

- **General Concern About Heavy Aircraft Landing at Lawton-Fort Sill Regional Airport.** There is a concern about Fort Sill using the Lawton-Fort Sill Regional Airport to transport troops for mobilization exercises and activities. The concern is focused on Fort Sill using heavy aircraft, which tend to damage runways that are not equipped to handle the weight of the cargo of larger transport aircraft.
- **Concern About General Aviation Airspace Intrusions.** There have been general aviation intrusions into Fort Sill's controlled airspace, which can postpone, delay, or cancel military training and operations.
- **Potential for Airspace Competition.** There is a need to protect the airspace over Fort Sill from encroachment as several military missions depend on this airspace and the facilities at Fort Sill to execute their missions. Congested airspace would impact the ability of all the military installations in the region to perform their missions.
- **Henry Post Army Airfield's Runway Cannot Extended to Support Efficient Troop Deployment.**

Due to Henry Post Army Airfield's position at the southern edge of Fort Sill, adjacent to residential areas of the City of Lawton, the runway cannot be extended to support larger aircraft suitable for rapid deployment of troops.

Land Use (LU)

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

- **Concern About Uncoordinated Growth and Development in Surrounding Communities.** There is a concern about growth and incompatible development outside the installation in surrounding communities that is not coordinated with Fort Sill. Development can unintentionally impact military training and operations if it is not coordinated with the military.
- **Existing Incompatible Land Uses Within One Mile Around Fort Sill.** There are existing incompatible land uses within one-mile of Fort Sill's boundary. This can lead to additional incompatible development due to lack of adequate land use controls in surrounding communities.
- **Incompatible Development in the City of Elgin.** There is incompatible development in the City of Elgin near the Fort Sill perimeter security fence, which results in noise complaints and a safety hazard.
- **Lawton-Fort Sill Regional Airport Lacks Adequate Land Use Controls Around the Facility to Support Long-term Military Activities.** Currently, the Lawton-Fort Sill Regional Airport supports Fort Sill and has planned for increased support in the future if demand is required. However, there are several land uses outside the airport that could be

incompatible development due to a lack of sufficient land use controls.

Legislative Initiatives (LEG)

Legislative initiatives are federal, state, or local laws and regulations that may have a direct or indirect effect on a military installation to conduct its current or future mission. They can also constrain development potential in areas surrounding the installation. The following Legislative Initiatives issue was identified:

- **There is a Need for Enhanced Military Compatibility Legislation.** While there is existing legislation that provides some level of protection for the military regarding encroachment, there is a need to enhance the legislation to provide clarity to define more protections of the federal investment in the state and encourage compatible economic growth around military installations that can positively impact the local communities.

Light and Glare (LG)

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

- **Continued Reduction of Nighttime Training Capability.** In the past, the 75th Field Artillery Brigade performed night vision training throughout the entire installation. However currently, there is too much light pollution from development causing horizon brightening at night. This can reduce the effectiveness of the training and the potential future capability of receiving more missions for this purpose.
- **There are Minimal to No Lighting Controls in the Jurisdictions Around Fort Sill.** Fort Sill's mission requires nighttime training to effectively prepare for a variety of military conflicts worldwide. A dark skies environment is required to effectively execute nighttime training with and without night vision devices. The local regulatory environment does not provide adequate protection of the dark skies for military training.

Noise (NOI)

Sound that reaches undesirable levels is referred to as noise. The central issue with noise is the impact, or perceived impact, on people, animals (wild and domestic), and general land use compatibility. Exposure to high noise levels can have a significant impact on human activity, health, and safety. The decibel (dB) scale is used to quantify sound intensity. To understand the relevance of decibels, a normal conversation often occurs at 60 dB, while an ambulance siren from 100 feet away is about 100 dB. Noise associated with military operations (arrival/departure of military aircraft, firing of weapons, etc.) may create noises in higher dB ranges. The following Noise issues were identified:

- **Aircraft Training Operations Generates Noise at Henry Post Army Airfield that can Impact Land Uses Off-Installation South of the Airfield.** Aircraft training occurs at Fort Sill's Henry Post Army Airfield that is located in southeastern portion of the cantonment area. The noise modeling developed for the aircraft training shows that noise

contours extend off the installation and can impact land uses in the northern part of the City of Lawton.

- **Range Operations Generate Noise that Extends Off-Installation.** Small arms, field artillery, and aerial bombing training generate an abundance of noise for Fort Sill. These activities occur in all parts of the installation resulting in noise impacting noise sensitive land uses in every direction.
- **Noise from MLRS Rocket Firing Extends Off Fort Sill Impacts the City of Egin.** The firing of MLRS rockets are loud and generate noise levels that impact the City of Elgin primarily during daytime, however there are occasions when firings occur at night. While there are only about 56 rockets fired annually it does result in off base noise impacts.
- **There is No Formal Process for Reporting Noise Complaints to Fort Sill.** Fort Sill does not have a clearly identified process by which the community can report noise complaints.

Public Services (PS)

Public services include police, fire, emergency services, parks and recreation, and water / wastewater / storm water infrastructure are of good quality and available for use by the installation and surrounding communities as the area develops. The supply and demand of these public services in the event of emergency situations is also considered. The following Public Services issue was identified:

- **Flooding Due to the Release of Water Overages from Nearby Dams Impacts Fort Sill's Training Areas.** The Lake George, Lake Lawtonka, and Lake Elmer Thomas dams occasionally release water to reduce water overages in the lakes. This release of water can flood Fort Sill Training Areas in the northern and southeastern portion of the installation as well as many off-post areas in northern Lawton.

Roadway Capacity (RC)

Roadway capacity relates to the ability of existing freeways, highways, arterials, and other local roads to provide adequate mobility and access between military installations and their surrounding communities. As urban development expands into rural areas, roads once used primarily to provide access for agricultural uses and limited local traffic begin to function as urban major arterial roadways. These once rural roads often become the main transportation corridors for all types of traffic—from residential to commercial trucking—and can assist or impede access to military installations. As transportation systems grow and provide more capacity, these facilities induce and encourage growth as rural areas become more accessible. The following Roadway Capacity issue was identified:

- **Key Gate East Does Not Have a Queuing Area.** The Fort Sill Key Gate East provides access to the Warrior Training Campus area on Fort Sill. Key Gate East does not have a vehicle queuing area during times of heavy use. This lack of queuing area can cause traffic congestion and other related traffic impacts that can affect traffic flow and mobility on local roadways.

Safety Zones (SA)

Safety zones are areas in which development should be more restrictive, in terms of use and concentrations of people, due to the higher risks to public safety. Issues to consider include aircraft accident potential zones, weapons firing range safety zones, and explosive safety zones.

Military installations often engage in activities or contain facilities that, due to public safety concerns, require special consideration by local jurisdictions when evaluating compatibility. It is important to regulate land use near military airfields in order to provide stand-off for both safety and security relate concerns as well as reduce air navigation hazards and minimize

damage from potential aircraft accidents. For air operations, to help mitigate potential issues, the DoD has delineated Clear Zones (CZs) and Accident Potential Zones (APZs) in the vicinity of airfield runways. APZs are usually divided into APZ I and APZ II. Each zone was developed based on the statistical review of aircraft accidents. Studies show that most mishaps occur on or near the runway, predominately along its extended centerline. The following Safety issues were identified:

- **There is Moderate to High Potential for Wildland Fires in the JLUS Study Area.** Topography, types of vegetation, and climate conditions within the region are conducive to wildland fires. The high risk for such fires during the year, particularly during fire season within the JLUS Study Area presents a threat to human safety and could cause damage to personal property, personal injury, or death.
- **Stray Ordnance Associated with Falcon Range.** There is risk for stray ordnance landing off-post on land subject to local jurisdiction land use controls. While there have been few incidents of this occurring, the risk is still a concern for the military and communities surrounding Fort Sill, especially if development continues in the JLUS Study Area.
- **Future Concern Regarding Fire Hazards and Incompatible Development Adjacent to Falcon Range.** There is existing infrastructure west of Indianoma Road, just past Falcon Range in an area that is not currently developed. If this area attracts future incompatible development in the future, there may be greater risk of potential damage to the both on and off-post development if there is a large wildfire.
- **Incompatible Land Uses in Aircraft Safety Zones.** There are existing incompatible land uses in the aircraft safety zones of Henry Post Army Airfield that impact military aviation operations.

Vertical Obstructions (VO)

Vertical obstructions are created by buildings, trees, structures, or other features that may encroach into the navigable airspace or line of sight radar signal transmission pathways used by the military. These obstructions can be a safety hazard to both the public and military personnel and potentially impact military readiness. To help mitigate potential issues, the DoD has delineated Clear Zones (CZs) and Accident Potential Zones (APZs) in the vicinity of airfield runways. APZs are usually divided into APZ I and APZ II. Each zone was developed based on the statistical review of aircraft accidents. Studies show that most mishaps occur on or near the runway, predominately along its extended centerline. In addition, navigable airspace needs to be regulated to ensure safety of flight. The following Vertical Obstructions issue was identified:

- **Uncoordinated Siting of Tall Structures May Impact Low-Level Military Aviation Operations.** The military has a concern about tall structures including microwave towers and energy development facilities impacting low-level military aviation operations. An uncoordinated microwave tower has already been installed that impacted low-altitude flying north of the installation. This is an area where low-level flights are performed to execute aerial bombing and other military aviation training.

Vibration (V)

Vibration is the oscillation or motion that alternates in opposite directions and may occur as a result of an impact, explosion, noise, mechanical operation, or other change in the environment and is expressed as a pressure wave when impacting a solid surface. Vibrations from low frequency pressure waves can also have an adverse impact on people. Vibration may be caused by military (artillery operations) and/ or civilian (construction) activities. The following Vibration issue was identified:

- **Vibration from Military Training Exercises is Experienced Throughout the Study Area, and Has the Potential to Cause Physical Property Damage.** Many of the communities along the north-northeastern boundary of Fort Sill experience vibration during heavy artillery training. This vibration has potential to cause damage to private property, as well as critical infrastructure. There is concern that the vibration is causing damage to Lawton's Water Treatment Plant, Lake Lawtonka Dam, and Lake Elmer Thomas Dam.

Water Quality / Quantity (WQQ)

Water quality / quantity concerns include the assurance that adequate water supplies of good quality are available for use by the installation and surrounding communities as the area develops. Water supply for agriculture and industrial use is also considered. The following Water Quality / Quantity issues were identified:

- **Long Term Water Availability / Security for Fort Sill.** Fort Sill currently does not own any water rights. Fort Sill and the City of Lawton have an existing agreement where the City sells water to Fort Sill. Because the pipeline that carries the water goes through Fort Sill, the agreement provides for lower water rates. However, there have been efforts to increase the water rates charged to Fort Sill. To date there has been little interest to establish a regional plan for water to jointly support water needs.
- **Water Supply Interruptions at Fort Sill.** Fort Sill lost water supply for approximately 38 hours following a 2010 ice storm that impacted the City of Lawton Medicine Park Water Treatment Plant. Fort Sill obtains water from this facility and is concerned that service interruptions may occur again in the future. As a result, Fort Sill and the City of Lawton are conducting ground water studies to investigate potential backup sources of water.

- **Cumulative Effect of Jurisdictional and Private Wells Pulling from Same Groundwater Source.** A general concern was expressed about the number of wells in the JLUS Study Area and its unregulated impact on the overall water resources in this area. The concern also stems from the lack of regional water resources planning and coordination. This can impact all jurisdictions, Fort Sill, and the public.

Please see the next page.



IMPLEMENTATION PLAN



6

Implementation Plan

This section identifies and organizes the recommended actions (strategies) developed through a collaborative effort between representatives of local jurisdictions, Fort Sill, state and federal agencies, local organizations, the general public, and other stakeholders that own or manage land or resources in the region. Because the Fort Sill JLUS is the result of a collaborative planning process, the recommendations in this section represent a true consensus plan; a realistic and coordinated approach to compatibility planning developed with the support of stakeholders involved throughout the process.

It is important to note that the JLUS is not an adopted plan, but rather a recommended set of strategies which should be implemented by the JLUS participants to address current and potential compatibility issues.

JLUS strategies incorporate a variety of actions that can be implemented to promote compatible land use and resource planning. Upon implementation, existing and potential compatibility issues arising from the civilian / military interface can be removed or significantly mitigated. The recommended strategies function as the heart of the JLUS document and are the culmination of the planning process.

The key to the implementation of the strategies is the establishment of a JLUS Coordination Committee to oversee the JLUS execution. Through this Committee local jurisdictions, Fort Sill, and other interested parties can continue their initial work to establish procedures, recommend or refine specific actions for member agencies, and adjust strategies over time to ensure the JLUS continues to resolve key compatibility issues through realistic strategies and implementation.

Implementation Plan Guidelines

The key to a successful plan is balancing the different needs of all involved stakeholders. Several guidelines formed the basis upon which the strategies were developed:

- Recommended strategies must not result in a taking of property value.
- In some cases, the recommended strategies can only be implemented with new enabling legislation.
- To minimize regulation, many of the strategies are only recommended within the certain geographic area where the issue occurs (e.g. within the noise contours), instead of recommended for the whole JLUS Study Area.
- In lieu of eliminating strategies that do not have 100 percent support from all stakeholders, one solution / strategy may have resulted in the creation of multiple strategies that address the same issue, but the other strategies are tailored to individual jurisdiction circumstances.
- Since this JLUS is meant to be a “living document”, and state and federal regulations are subject to change, before implementing one of the suggested strategies included in the Implementation Plan, the implementing jurisdiction or party should ensure there is no conflict between the strategy and any existing state or federal law.

Military Compatibility Areas

In compatibility planning, the term “Military Compatibility Area” (MCA) is used to formally designate a geographic area where military operations may impact local communities and, conversely, where local activities may affect the military’s ability to conduct its mission. An MCA is designated to accomplish the following:

1. Promote coordination and communication about the shared land uses between the military and communities.
2. Promote an awareness of the size and scope of military training areas to protect areas separate from the actual military installation (e.g., critical air space) used for training purposes.
3. Promote the protection of public health, safety, and welfare by using the awareness areas as a constant informational and discussion piece regarding proposed developments, proposed land use actions that could impact the military, and when applying for a permit.
4. Encourage the maintenance of operational capabilities of military installations and areas.

In lieu of the implementation of formal regulations, an MCA delineates a geographic area where strategies are recommended to support compatible planning and are applied with a focus in communication and coordination. The MCAs are where most of the recommended strategies apply within the JLUS Study Area. There are five MCAs that comprise a Military Compatibility Area Overlay District (MCAOD) for Fort Sill, which are:

- Noise MCA
- Safety MCA
- Drone-Free MCA
- Vertical Obstruction MCA
- Radar MCA

The Fort Sill MCAs are a planning technique that ensures the JLUS strategies are applied to the appropriate areas, and that locations deemed not subject to a specific compatibility issue are not adversely impacted by regulations or policies inappropriate for their location or circumstance. The MCAs should be used by local jurisdictions to address ways to prevent or mitigate compatibility issues.

The five Fort Sill MCAs are described in the following paragraphs and are recommended under Strategy LU-1C in Table 4 later in this chapter.

Fort Sill Noise MCA (Figure 13)

The Noise MCA includes all land located off-installation within Fort Sill's noise contours for medium to large arms and aircraft activity, as identified in the most recent Fort Sill Installation Compatible Use Zone (ICUZ) Report. The Noise MCA is illustrated on Figure 13. Due to the loud nature of artillery training at Fort Sill, the Noise MCA overlays a large portion of the JLUS Study Area, including the entire cities of Cache, Elgin, and Lawton, as well as the Town of Medicine Park. Residential developments and other noise-sensitive land uses within this MCA may be recommended to consider sound attenuation measures to reduce interior noise impacts and achieve a maximum interior noise level of 45 dB DNL.

Fort Sill Safety MCA (Figure 14)

The Safety MCA would endorse compatible land use types and densities / intensities within the Clear Zones (CZs) and Accident Potential Zones (APZs) I and II of the Henry Post Army Airfield (HPAA), Frisco Ridge UAS, and Lawton-Fort Sill Regional Airport (LAW) runways. Each area is a subzone of the Safety MCA. The current location of each safety subzone is based on the airfield layout and air operations identified in Fort Sill's ICUZ Report. The Safety MCA is identified on Figure 14. It overlays portions of the City of Lawton and unincorporated Comanche County to the north of the Frisco Ridge UAS runway. Although the DoD does not set standards CZs and APZ for civilian airports, LAW is included in the Fort Sill Safety MCA since Fort Sill uses the runway for military training.

The Safety MCA is needed to prevent the development of incompatible land uses in areas with the greatest potential for an aircraft mishap. These safety zones were identified as a result of the military's guidance that defines APZs

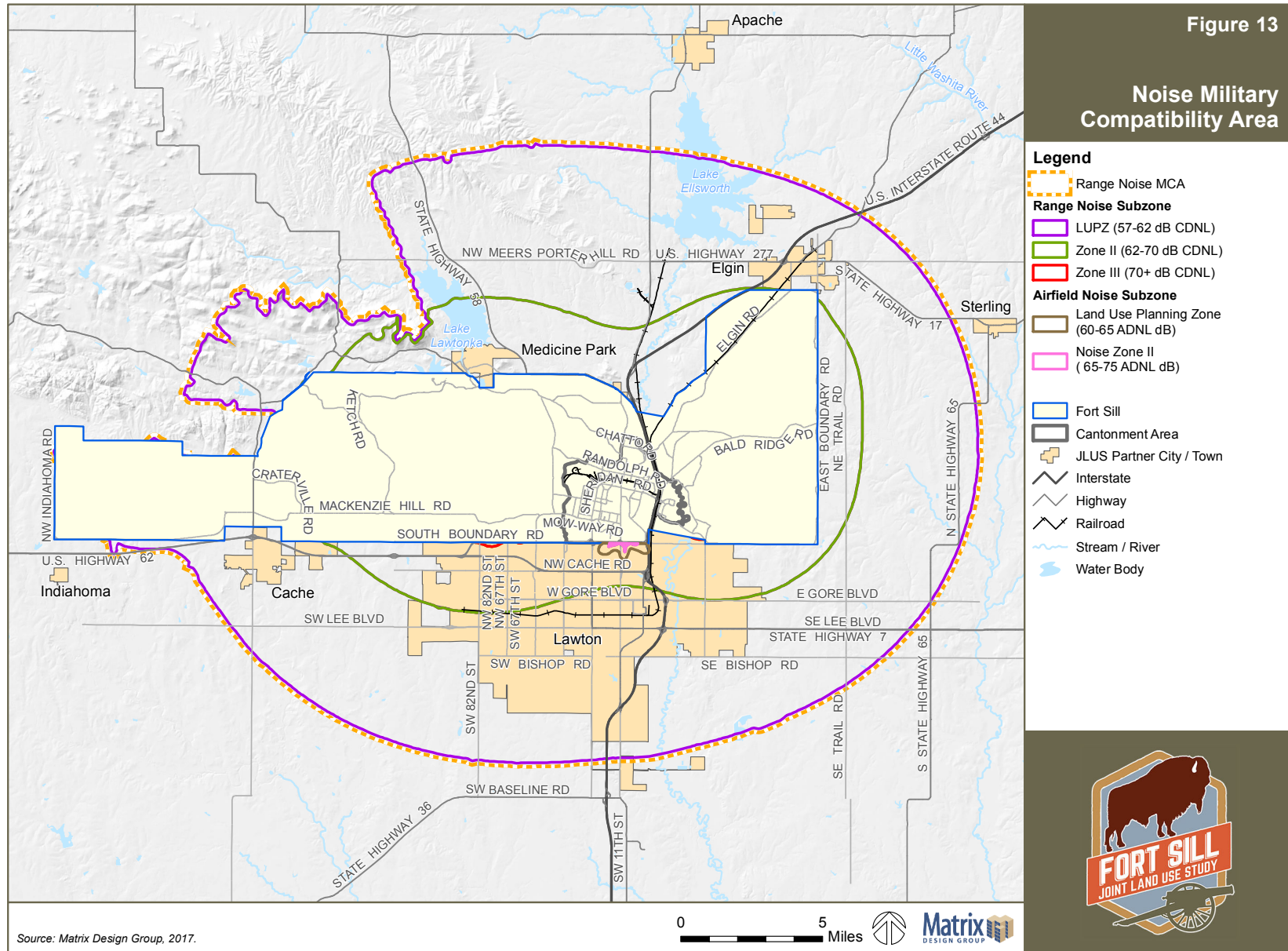
as areas where an aircraft mishap is most likely to occur (in the unlikely event that one was to occur). The APZs follow departure, arrival, and flight patterns and are based upon analysis of historical data.

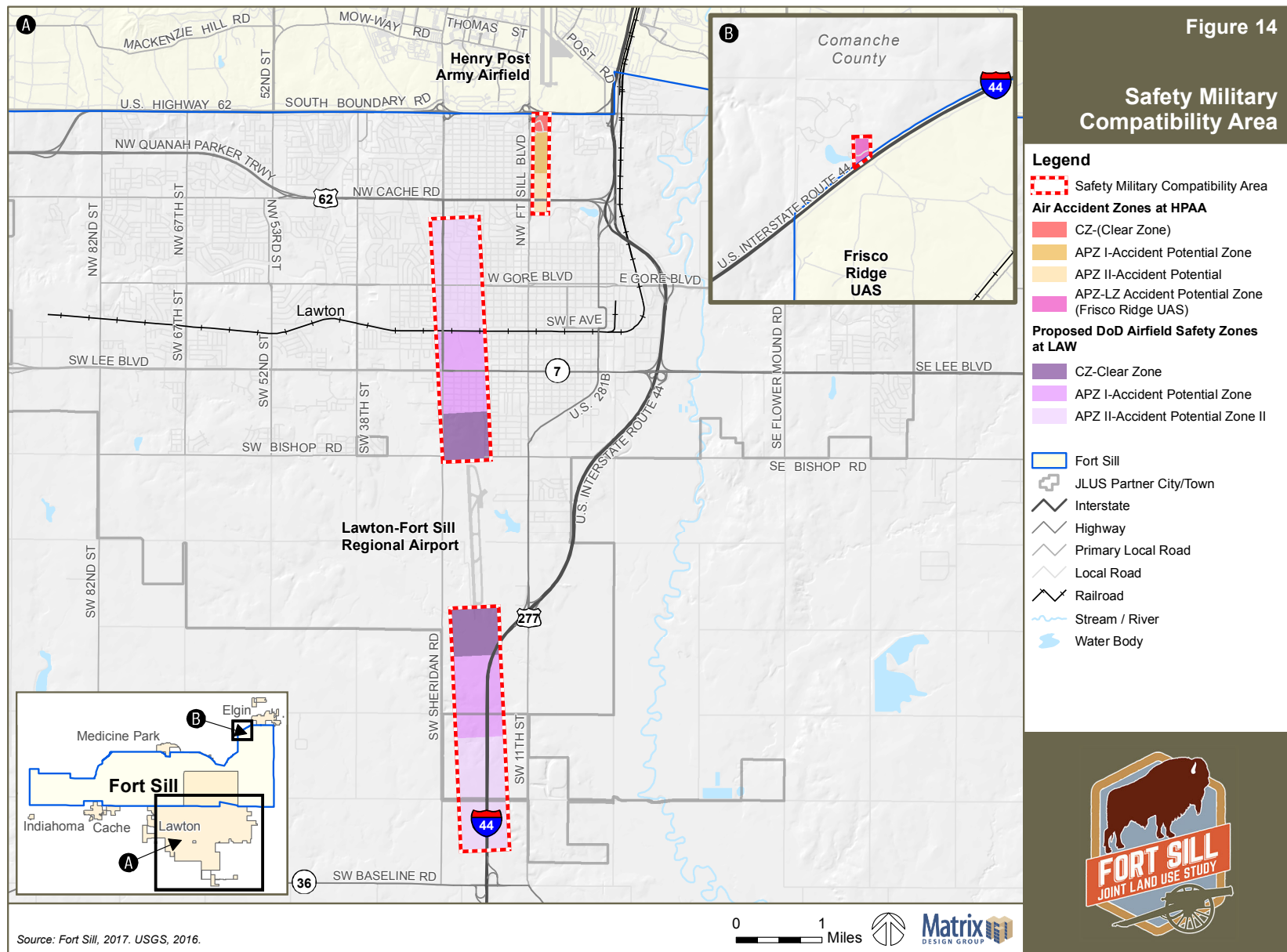
Within the CZ, most types of land uses are incompatible with aircraft operations. It is recommended that no development be located within CZs. Compatibility guidelines preclude land uses that concentrate large numbers of people (such as residences, apartments, hospitals, churches, and schools) from being constructed within the APZs. While the likelihood of a mishap is low, the military recommends low density land uses within the APZs to ensure the maximum protection of public health and property.

Low density single family residential uses (1 to 2 units per acre) can be compatible when located within APZ II. Other generally compatible uses include agriculture, limited intensity office / retail, and light industrial.

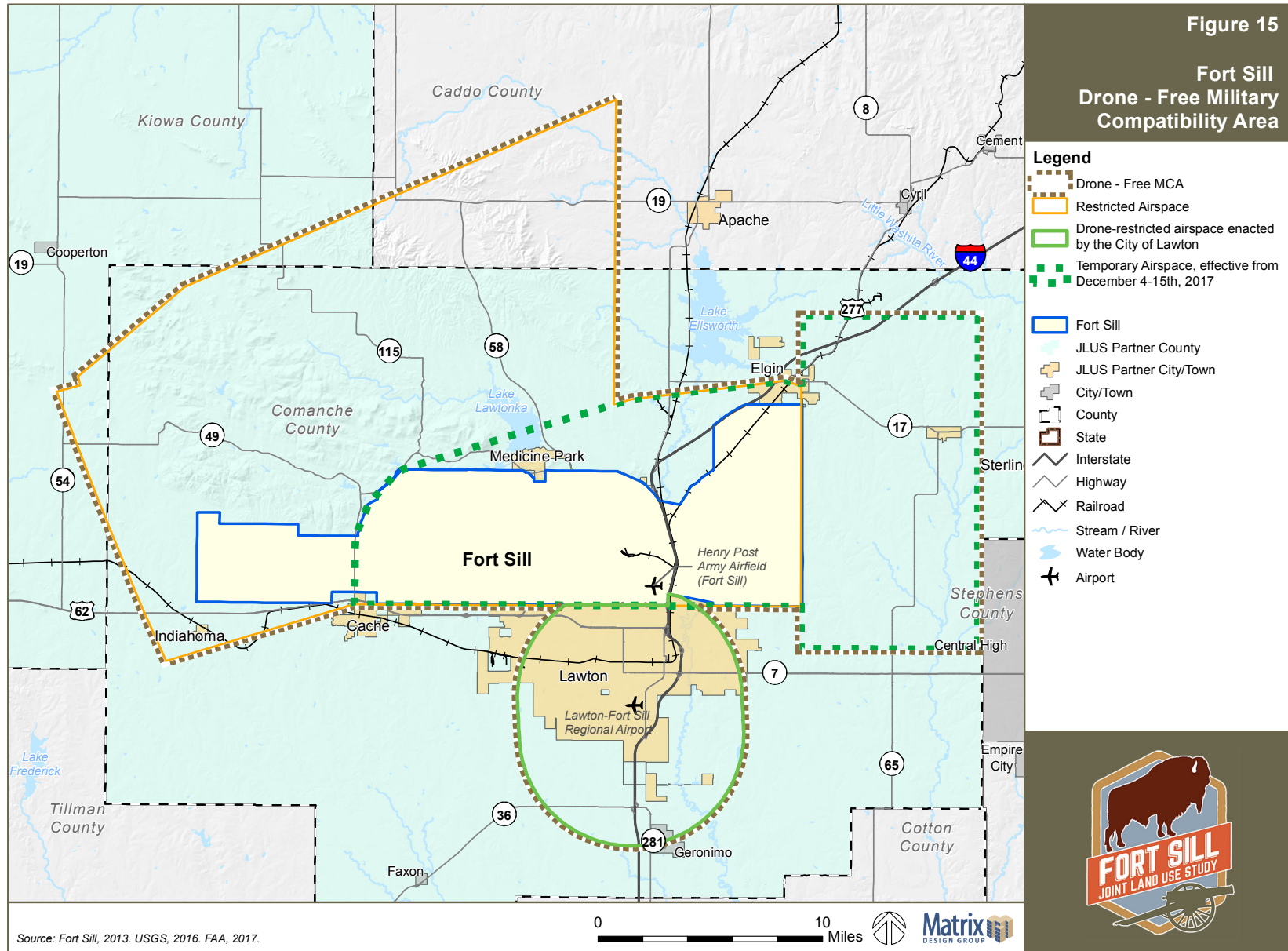
Fort Sill Drone-Free MCA (Figure 15)

The Drone-Free MCA includes the Fort Sill restricted airspace and drone-restricted airspace surrounding the LAW. Fort Sill's restricted airspace are designated areas where regular and on-going aircraft training activities occur. Aircraft, including drones, not participating in the training activities could create hazards to the military aircraft. It is important to keep these areas clear of drones to ensure a safe operating environment for military pilots. Additionally, the area surrounding a runway will feature low-flying aircraft as part of the departure and arrival. Drones could create safety hazards to both commercial and military aircraft using the LAW runway. The Fort Sill Drone-Free MCA is illustrated on Figure 15.





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Fort Sill Vertical Obstruction MCA (Figure 16)

The Vertical Obstruction MCA includes the Federal Aviation Administration (FAA) Part 77 Compliance for evaluation of vertical obstruction compatibility for both HPAA and LAW, as well as HPAA's imaginary surfaces that extends into the City of Lawton and unincorporated Comanche County. The FAA Part 77 Compliance consists of four subzones surrounding both HPAA and LAW. The first subzone includes land within three nautical miles (NM) distance from the HPAA and LAW runways, and has a height limit for development of 200 feet. Each subzone following increases the distance from the runways by one NM, and height limit for development by 100 feet. Due to HPAA's and LAW's location in relation to the City of Lawton, the Vertical Obstruction MCA primarily overlays the majority of the City. The MCA also overlays a small portion of the Town of Medicine Park and unincorporated Comanche County north of Fort Sill. The Fort Sill Vertical Obstruction MCA is shown on Figure 16.

Fort Sill Radar MCA (Figure 17)

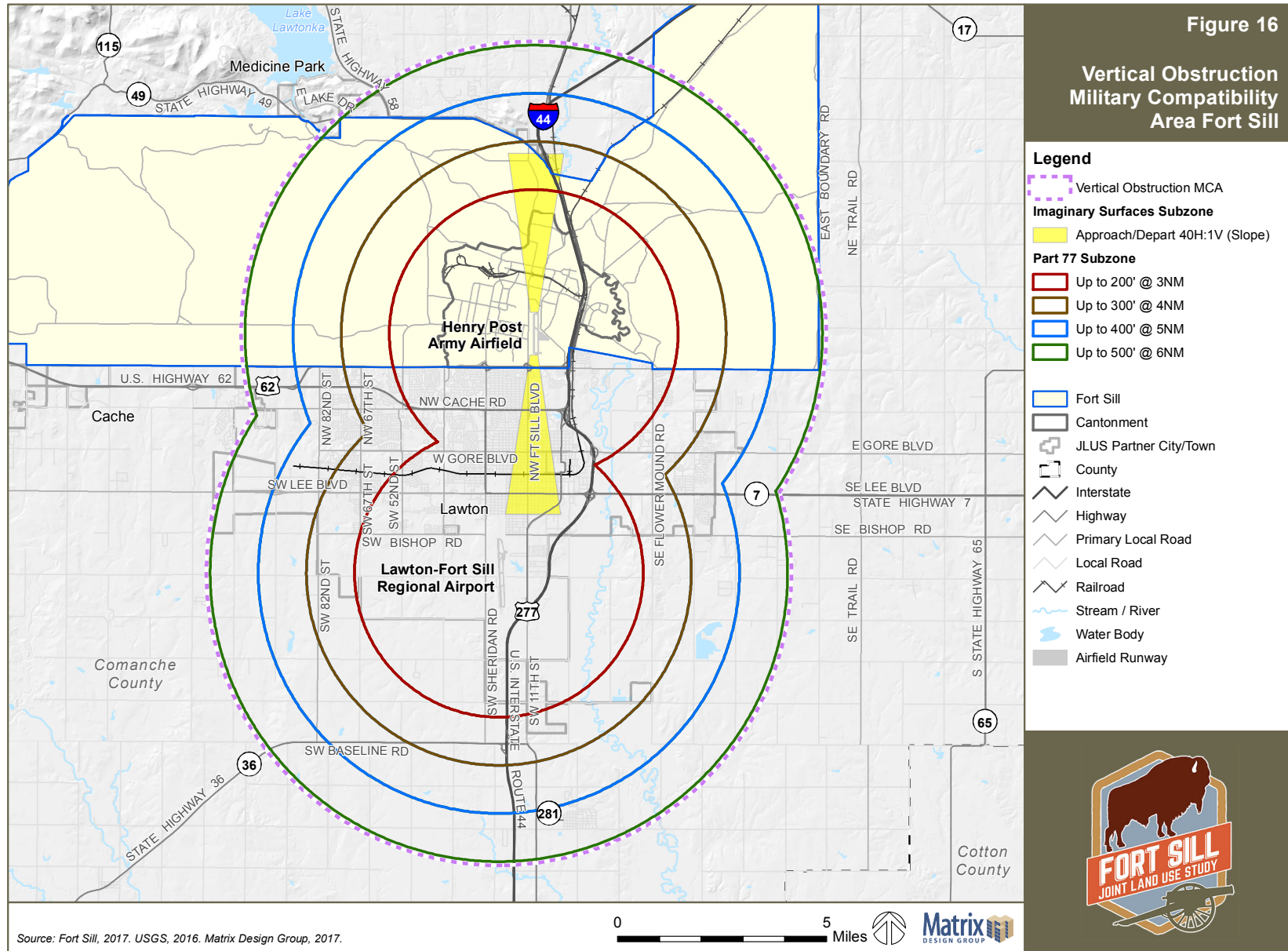
The Radar MCA includes four subzones surrounding both the Frederick Weather Radar and Fort Sill's Air Surveillance Radar 8 (ASR-8) Radar located at HPAA. These subzones align with the weather radar impact zones created by the National Oceanic Atmospheric Administration (NOAA) National Weather Service Radar Operations Center (ROC) for wind energy development as described in Chapter 5 of the Background Report. Although Fort Sill's ASR-8 Radar is not a NEXRAD weather radar, the radar operating system is similar, and the impact zones applied to the ASR-8 radar as a baseline for compatible wind energy development in this MCA. Both radars provide important operational capabilities for the missions at Fort Sill, and can be impacted by wind turbines, depending on their height and location relative to the radar site.

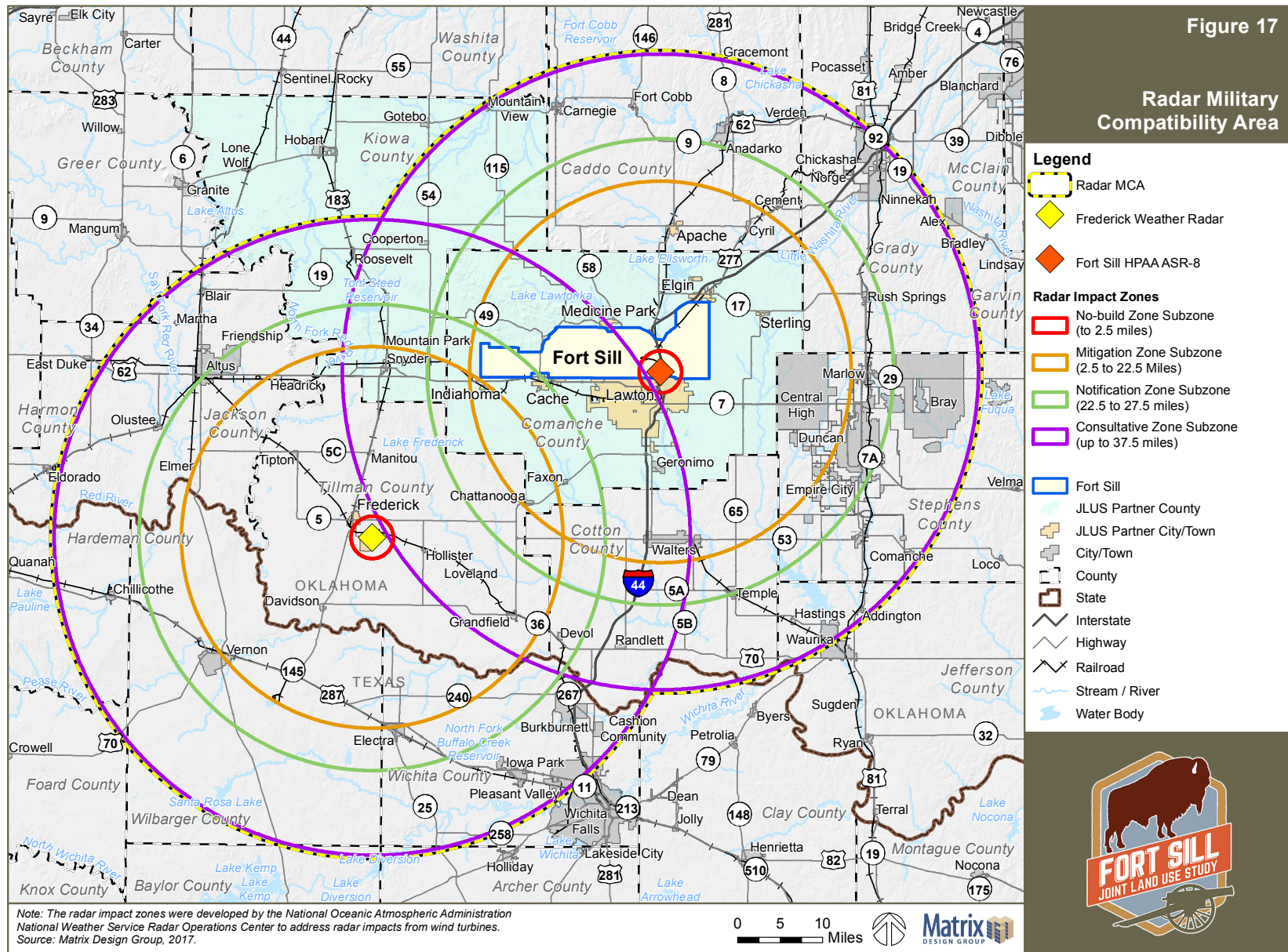
This MCA, illustrated on Figure 17, serves to provide awareness of areas where wind energy development may impair a radar's field of view and where such wind turbines should be monitored and coordinated with Fort Sill and / or the National Weather Service to minimize impacts. Due to the scale of the Radar MCA, all communities within the Fort Sill JLUS Study Area are included.

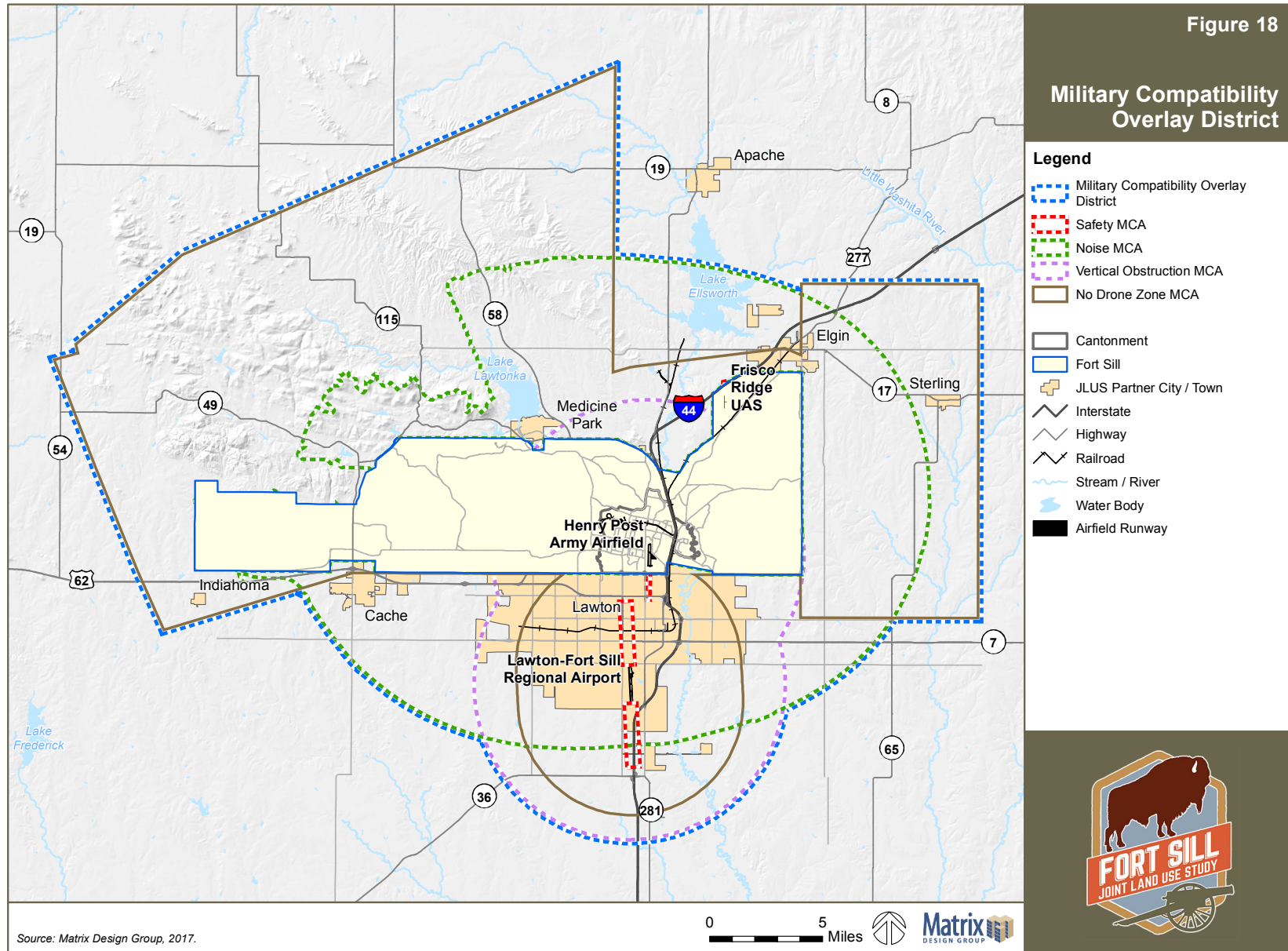
Fort Sill MCAOD (Figure 18)

The Fort Sill MCAOD is a comprehensive overlay district combining all five MCAs. The MCAOD is defined by the outermost MCA boundary when all Fort Sill MCAs are overlaid together. Figure 18 provides a geographic view of the influence Fort Sill has on the region, and the various compatibility areas that should be considered when planning future growth and development in the region. Note: The Radar MCA is not included on the MCAOD map due to the scope and scale of the MCA, but is included when referenced in the strategies, and for coordination purposes.

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How to Read the Implementation Plan

The strategies developed were designed to address the issues identified during preparation of the JLUS. The purpose of each strategy is to:

1. Avoid future actions, operations, or approvals that would cause a compatibility issue,
2. Eliminate an existing compatibility issue,
3. Reduce the adversity of an existing issue, or
4. Provide for on-going communications and collaboration.

To make the strategies easier to use, they are presented in a table format (Table 4) that provides the strategy as well as information on when and how that strategy will be implemented. Figure 19 highlights the format and content of the strategy table, and the following paragraphs provide an overview of how to read the information presented within each strategy.

Issue #. The issue # is an alpha-numeric number that provides a unique reference for each specific issue and strategy. An issue's reference number is composed of the Compatibility Factor ID (COM) and the Issue number (1, 2, or 3).

Completed Stamp. This stamp indicates this issue / recommendation was identified during the JLUS process and completed before the end of the process concluded.

In Progress Stamp. This stamp indicates this recommendation has been initiated by the responsible parties indicated in the table.

On-going Stamp. This stamp indicates this option is currently on-going by the responsible parties indicated in the table. In addition, this provides awareness that the responsible parties are already implementing the option.

Military Compatibility Area (MCA). This column indicates the applicable MCA that the strategy applies to outside Fort Sill. Additional details on MCAs are provided under the previous "Compatibility Areas" section.

Strategy. A title that describes the strategy show in bold type. This is followed by the complete strategy statement that describes the action needed. Each set of strategies is preceded by the issue which they are meant to address.

Timeframe. This column indicates the projected timeframe of each strategy. The year listed reflects the starting timeframe for initiating work on this strategy or if it is an on-going action.

2020	Strategy proposed for initiation in 2019-2020 (within a year of JLUS completion)
2023	Strategy proposed to be initiated in 2021-2023 (within 2-3 years of JLUS completion)
2026	Strategy proposed to be initiated in 2024-2026 (within 4-6 years from JLUS completion)
On-going	An on-going strategy that should be consistently monitored

Figure 19. How to Read the Implementation Plan

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianola	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton-Fort Sill Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
COM-1E	MCAOD	Invite a Fort Sill Representative to Serve as a Non-Voting Member of the Jurisdiction Planning Commission and Other Planning Bodies In an effort to continue a collaborative partnership, include in an MOA between stakeholders and Fort Sill that Fort Sill agrees to provide a representative, as necessary, to attend and comment on mission compatibility issues on proposed developments at City Council, Planning Commission, Board of Commissioners, and other select agency board meetings. <i>Note: The Fort Sill representative will provide technical information on items being considered, but shall not directly vote to approve, conditionally approve, or deny a project or development application.</i> Other Partner: Wichita Mountains Wildlife Refuge	2018	■	■	■	■	■	■	■	■	■	□	■	■	■	■	□	■

Entities included as "Other" are identified at the bottom of the strategy box.

Issue or Strategy ID Number:
Alpha-numeric identifier used for reference.

Fort Sill MCA MCA:
The geographic area in which each strategy applies.

Strategy:
Description of the strategy.

Timeframe:
Year in which each strategy should be initiated.

- Short-term (2018)
- Mid-term (2019 / 2022)
- Long-term (2023 and beyond)
- On-going

Responsible Party:
The primary and partner responsible agencies. For example, the ■ denotes a primary agency who will take the lead in implementation. The □ denotes a partner agency who will assist the primary agency in implementation.

Responsible Party. At the right end of the strategy table are a series of columns, one for each jurisdiction, military entity, agency, and organization with responsibility for implementing the JLUS strategies. If an entity has responsibility relative to implementing a strategy, a mark is shown under their name. This mark is one of two symbols that represent their role. A solid square (■) designates that the entity identified is responsible for implementing the strategy. A hollow square (□) designates that the entity plays a key supporting role but is not directly responsible for

implementation. The responsible parties are identified by their assigned acronym in the heading at the top of each page.

ASCOG	Association of South Central Oklahoma Governments
ODOT	Oklahoma Department of Transportation
SWODA	Southwest Oklahoma Development Authority

Table 3. Issues / Strategies by Compatibility Factor (Alphabetized by Factor)

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianola	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
Air Quality (AQ)																			
AQ-1	General Concern Regarding Possible Future Designation as Nonattainment for Ozone in the City of Lawton The communities surrounding Fort Sill are currently in Attainment for Ozone (O3); however, there is a concern that the City of Lawton is close to being designated as Nonattainment Area as the area receives a large amount of Interstate Air Pollution Transport from the Dallas-Fort Worth, TX area. This could have impacts on both the community and the military where construction or operations / training activities could be required to incorporate measures to reduce pollutant emissions.																		
AQ-1A	N/A	Update the Clean Air Program Website The Lawton Metropolitan Planning Organization Air Quality Stakeholders Advisory Committee (LMPO AQ SHAC) should update its website to include specific impacts to business and economic development	2020	□	□	□	□	□	□	□	□	□	□	□					■ □

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianola	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
AQ-1A (cont'd)		opportunities and the military if the area is designated as Non-attainment for Ozone. <i>Primary Partner: Lawton Metropolitan Planning Organization Air Quality Stakeholders Advisory Committee</i> <i>Other Partner: Oklahoma Department of Environmental Quality</i>																	
AQ-1B	N/A	Consider Leveraging Federal Resources to augment the City of Lawton Awareness program to Educate the Public about the Causes and Impacts of Ozone The Lawton Metropolitan Planning Organization Air Quality Stakeholders Advisory Committee should consider working with the Office of Economic Adjustment to get grant funds to augment their education outreach program, materials developed could be used for AQ1C. This will help educate and inform the influencers in the JLUS Study Area. <i>Primary Partner: Lawton Metropolitan Planning Organization Air Quality Stakeholders Advisory Committee</i> <i>Other Partner: OEA</i>	2020	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒					☒

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianola	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
AQ-1C	N/A	Consider Visiting Lawton Public School District to Educate about the Causes and Impacts of Ozone The Lawton Metropolitan Planning Organization Air Quality Stakeholders Advisory Committee should consider working with the Lawton Public School Districts to visit the schools and educate school-aged children about the causes and impacts of ozone. <i>Primary Partner: Lawton Metropolitan Planning Organization Air Quality Stakeholders Advisory Committee</i> <i>Other Partners: Oklahoma Department of Environmental Quality; Lawton Public School District</i>	On-going																☒ ☐
Anti-Terrorism / Force Protection (AT)																			
AT-1	General Concern About Breaches of Installation Perimeter The primary concern focuses on trespassing issues and vandalism of the Fort Sill fence line. This can cause impacts for Fort Sill; such as potentially delaying operations and training and impacting military readiness.																		
AT-1A	N/A	Update the Controlled Hunting Program Instruction Materials The Oklahoma Department of Wildlife Conservation (ODWC) and the United States Fish and Wildlife Service (USFWS) should update its instruction materials to the selected lottery hunters asked to	2020										☐						☒

FORT SILL JOINT LAND USE STUDY

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianahoma	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
AT-1A (cont'd)		participate in the controlled hunting program. The update should include, at a minimum: - Information about the Fort Sill installation boundary, - Procedures for collecting hunted kills that may have landed or trespassed [prior to death] onto Fort Sill, and - Contact information for Fort Sill point of contact (POC) and ODWC and USFWS POCs. <i>Primary Partners: Oklahoma Department of Wildlife Conservation; United States Fish and Wildlife Service</i>																	
AT-2	Concern About Traffic Configuration at Installation Access Points and Vehicle Collisions into Fort Sill's South Boundary Fence There is a concern about vehicle collisions into the South Fence at the Rogers Lane / Sheridan Road access where the Bentley, Scott, and 52nd Street Gates are located. The collisions are unintentional; however, damage to federal property can cause additional security risks.																		
AT-2A	N/A	Conduct Traffic Study The Lawton Metropolitan Planning Organization should work with the City of Lawton and Fort Sill to conduct a traffic study for the area around Fort Sill within the city of Lawton and the Lawton Metropolitan Planning Organization's Planning Area. The study should focus on reducing accidents around Fort Sill gates and planning for military compatibility,	2020	■									□						

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianahoma	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
AT-2A (cont'd)		such as including anti-terrorism and force protection measures.																	
AT-2B	N/A	Plan and Budget for Road Improvements Upon completion of Strategy AT-2A, the Lawton Metropolitan Planning Organization should work with the City of Lawton and Fort Sill to plan and budget for road improvements that have been identified from the Traffic Study performed for the area near the south fence at Rogers Lane Gate. Road improvements can include the following: ■ Consider installing cameras at this intersection to assist in determining issue, ■ Reducing speed at this intersection and posting the appropriate speed limit signs in the area, and / or ■ Installing traffic calming methods, e.g. speed humps or bumps, at distance that will reduce accidents at this intersection.	2023 / On-going	■									□						□

FORT SILL JOINT LAND USE STUDY

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianoma	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
AT-2C	N/A	Plan and Budget for Installation of Anti-Terrorist Road Barriers at Access Entry Points Fort Sill should plan and budget for the installation of anti-terrorist road barriers at the most utilized access entry points to provide for more anti-terrorism / force protections of the Post.	2020										■						
AT-3	Recreational Drones Fly Over Post into Restricted Airspace There is a concern about recreational drones flying over the Post into the restricted airspace used by the military for training. There has been one incident in which a recreational drone crashed on to the airfield. Operating drones on or around the installation can be a safety risk to both military personnel and aircraft, adversely impacting Fort Sill's operations and training mission.																		
AT-3A	Drone-Free	Incorporate the Drone-Free Military Compatibility Area in Plans and Regulations Fort Sill JLUS Partner Communities and organizations should incorporate the Drone-Free Military Compatibility Area in its plans and regulations to facilitate a more secure Post and provide for the protection of the Fort Sill mission, military personnel, and the public. <i>Other Partners: Wichita Mountains Wildlife Refuge</i>	2020 / On-going	■		■	■		■	■	■	■	□						■

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianola	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
AT-3B	Drone-Free	Develop a Public Awareness Campaign The City of Lawton, Comanche County, and Fort Sill should work together to develop a public awareness campaign about drones, the drone-restricted airspace, and the potential consequences that could occur if a drone is operated in the restricted areas.	2020 / On-going	■								■	□						
AT-3C	Drone-Free	Advocate for State-Wide Drone Regulation Legislation The Oklahoma Legislature should develop and adopt legislation that requires jurisdictions to adopt ordinances related to recreational drone use, develop procedures to coordinate and notify the military about drone activity in the vicinity of an active military installation as well as procedures to investigate unauthorized drone sightings in the vicinity of Fort Sill and associated restricted airspace.	2020 / On-going	□	□	□	□	□	□	□	□	□	□	□		□	■	□	

FORT SILL JOINT LAND USE STUDY

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianola	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
AT-3D	Drone-Free	Install the “No Drone Zone” Graphic in Strategic Locations Fort Sill JLUS Partner Jurisdictions and organizations, such as the Wichita Mountains Wildlife Refuge, should install signs featuring the FAA “No Drone Zone” graphic in strategic locations within the Drone-Free MCA, such as within public parks, at trailheads, and at public buildings.	2020																
Biological Resources (BIO)																			
BIO-1	Invasive Wild Hog Species Impact Military Training Capabilities Wild hogs in the JLUS Study Area migrate onto the installation and cause damage to the land and perimeter security fencing because of animal rooting behaviors. The damage hogs cause to federal property add undo maintenance costs and can delay military operations or training resulting in adverse impacts to military readiness at Fort Sill.																		
BIO-1A	N/A	Continue to Implement the Measures to Control Feral Hogs on Post Fort Sill should continue to implement the control measures, including aerial shooting, in place to reduce the numbers of feral hogs on the installation.	2020 / On-going										■						

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianoma	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
BIO-1B	N/A	Consider Encouraging Private Property Owners Outside the Installation to Shoot Feral Hogs on Private Property Fort Sill should work with Comanche County and the jurisdictions near the installation to inform property owners about considering assisting Fort Sill in shooting feral hogs so they do not trespass onto the installation.	2020 / On-going	☐		☐	☐		☐	☐		☒	☐						
BIO-2	Invasive Plant Species Increase Wildfire Risk in the JLUS Study Area Johnson Grass, an invasive plant species, can be found throughout the JLUS Study Area. This plant provides fuel for wildfires which increases the risk of wildfires.																		
BIO-2A	N/A	Continue to Implement the Measures to Control Invasive Plant Species Fort Sill should continue to implement the control measures, including the Johnson Grass Control Program, to reduce the risk of wildfire risk on the installation.	2020 / On-going										☒						

FORT SILL JOINT LAND USE STUDY

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianoma	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
BIO-2B	N/A	Consider Encouraging Private Property Owners and Land Use Managers to Plant Vegetation that Does Not Increase the Risk for Wildfires Comanche County should consider working with Fort Sill about encouraging private property owners and other land use managers, Wichita Mountains Wildlife Refuge, outside the installation to plant vegetation that will not increase the risk of wildfires. Comanche County and the surrounding jurisdictions should consider working with Fort Sill to identify the best type of vegetation that does not increase the risk of wildfires. <i>Other Partners: Wichita Mountains Wildlife Refuge</i>	2020 / On-going	☐		☐	☐		☐	☐		☒	☐						☐
BIO-2C	N/A	Develop Firewise Landscaping and Vegetation Guidelines The surrounding jurisdictions that do not have zoning ordinances should consider developing firewise landscaping and vegetation guidelines to protect the residents and properties within their jurisdictions. At a minimum, the guidelines should include directions and guidance on the following:	2020					☒	☒	☒	☒	☒							☒

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianola	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
BIO-2C (cont'd)		■ Creating defensible space (an area that is 30 feet in all directions from the structure to protect) around residential uses, ■ Removing highly flammable vegetation, ■ Thinning of trees and other shrubbery near residential uses, and ■ Reducing natural vegetation on areas further from residential uses but on the same property lots. <i>Other Primary Partner: Wichita Mountains Wildlife Refuge</i>																	
Communication / Coordination (COM)																			
COM-1	Lack of Formalized Community Point of Contact Information Regarding New Development in the JLUS Study Area Fort Sill does not have an official community contact to provide the military with information about development occurring outside the installation that could impact the operational training mission.																		
COM-1A	N/A	Adopt Military Notification Legislation The Oklahoma Legislature should develop and adopt legislation that requires jurisdictions to notify the military about proposed development in the vicinity of an active military installation. At minimum, the	2020	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐

FORT SILL JOINT LAND USE STUDY

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianoma	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
COM-1A (cont'd)		military notification law should include measures for the following: - Points of contact for the military and jurisdictions, - Required timeframes to notify the military, timeframes to allow the military to evaluate the proposed development, and timeframe to expect response back from the military about the impact on military training and operations that the proposed development has, and - Triggers for communication and coordination including proposed development, transportation improvements, and / or public events, e.g. festivals, races, and ceremonial events. <i>Other Partners: Wichita Mountains Wildlife Refuge, US Fish and Wildlife Service, Other State Agencies including Oklahoma Department of Wildlife Conservation</i>																	
COM-1B	N/A	Designate Point of Contact The surrounding jurisdictions should designate an official point of contact for Fort Sill to contact in matters of communication and coordination including proposed developments, public and ceremonial events, transportation improvements, and other land use actions including, zoning, rezoning, and variances.	2020	■	■	■	■	■	■	■	■	■	□	■	■	■		□	■

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COM-1B (cont'd)		The jurisdictions should consider formalizing these points of contacts in a memorandum of agreement (MOA). Also, see Strategy COM-1C for more details about the MOA. <i>Other Primary Partner: Wichita Mountains Wildlife Refuge</i>																	
COM-1C	N/A	Develop and Approve Memorandum of Agreement Comanche County and the surrounding jurisdictions should work with Fort Sill to facilitate the development of a formal MOA that delineates points of contact and the roles and responsibilities for each agency to collaborate on proposed development and land use planning matters. At minimum, the MOA should include: ■ Point of contact and information for each agency including phone numbers and email addresses, ■ Role in communicating with the Post on compatibility concerns, ■ Responsibility in coordinating on the resolution of compatibility concerns, ■ Community and military response times, ■ Triggers for coordination and communication, (e.g., infrastructure planning, water resources	2020	■	■	■	■	■	■	■	■	■	□	■	■	■		■	■

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianoma	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
COM-1C (cont'd)		planning, economic development), and subdivision plats, and Procedures for early development review. <i>Other Primary Partner: Wichita Mountains Wildlife Refuge</i>																	
COM-1D	N/A	Review and Evaluate Military Notification Laws Across the United States The Oklahoma Legislature or its designee should review and evaluate the military notification laws that other states have enacted to determine the best course of action for the State of Oklahoma. At minimum, the Legislature or Designee should evaluate the following to determine suitability for the state: - Distance from installation or area that is impacted by both military and community activities, i.e. three or five miles, military compatibility area, or JLUS Study Areas, - Triggers for communication and coordination, e.g. land use actions, proposed development, transportation improvements, and / or water resources planning and improvements, and - Timeframes for notification for both the community and military.	2020														■		

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COM-1E	MCAOD	Invite a Fort Sill Representative to Serve as a Non-Voting Member of the Jurisdiction Planning Commission and Other Planning Bodies In an effort to continue a collaborative partnership, include in an MOA between stakeholders and Fort Sill that Fort Sill agrees to provide a representative, as necessary, to attend and comment on mission compatibility issues on proposed developments at City Council, Planning Commission, Board of Commissioners, and other select agency board meetings. <i>Note: The Fort Sill representative will provide technical information on items being considered, but shall not directly vote to approve, conditionally approve, or deny a project or development application.</i> <i>Other Partner: Wichita Mountains Wildlife Refuge</i>	2020	■	■	■	■	■	■	■	■	■	□	■	■	■		□	■
COM-1F	N/A	Establish a JLUS Implementation Committee Establish a JLUS Implementation Committee to maintain efficient and effective coordination among the JLUS partners, oversee the implementation of JLUS strategies, and increase coordination on military compatibility issues.	2020	□	□	□	□	□	□	□	□	□	□	□	□	■		□	□

FORT SILL JOINT LAND USE STUDY

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianoma	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
COM-1F (cont'd)		■ The JLUS Implementation Committee should comprise Fort Sill and the same jurisdictions and agencies included in the development of the JLUS. ■ Additional entities identified as “Other Partners” as part of the JLUS strategies should be included. ■ The JLUS Implementation Committee should meet on a regular basis as agreed upon by the Committee members. ■ The JLUS Implementation Committee can be either a standalone organization or an existing advisory committee which can be repurposed as appropriate to the area and issues addressed. <i>Other Partners: Any additional entities deemed appropriate (e.g. entities from the JLUS Technical or Policy Committees)</i> <i>Other Partner: Wichita Mountains Wildlife Refuge</i>																	

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COM-1G	MCAOD	Provide Copies to Fort Sill as One of the Agencies that Reviews Pre-Development Applications / Proposals / Permit Applications Consider establishing an MOA (may be the same MOA used to accomplish other strategies) between Fort Sill and the jurisdictions, formalizing a process that provides copies of conditional use, master plan, subdivision, annexation, etc. applications located within the MCAOD to be reviewed by Fort Sill. Such review periods shall conform to existing community review periods for comment. This supports a proactive approach to identifying potential conflicts early in the proposed development application phase / building permit application. <i>Other Partners: Wichita Mountains Wildlife Refuge; Lawton-Fort Sill Chamber of Commerce</i>	2020 / On-going	■	■	■	■	■	■	■	■	■	□	■	■	■		□	■
COM-2	Lack of Public Awareness of Fort Sill Contact Information to Report Concerns Public may not know who to notify on Fort Sill regarding concerns or other issues, e.g. noise complaints. This could lead to a delay in responding to and addressing complaints or concerns and also negatively impact community / installation relationships.																		
COM-2A	N/A	Update the Fort Sill Website Fort Sill should update its website to include information for the public to reach a point of contact at the Public Affairs Office on the Home Page. The	2020										■						

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COM-2A (cont'd)		website should include information for the public to report concerns regarding noise, vibration, and / or vandalism.																	
COM-2B	N/A	Update the Fort Sill Directory Fort Sill should update its directory to include topics, not just positions and / or departments, which would be useful to the public, such as Report Noise Complaints or Report Vandalism or Fence Cutting.	2020										■						
COM-2C	N/A	Staff a Central Admin Personnel to Transfer Calls Through Fort Sill's Directory Fort Sill does not want to make their full directory available to the public. Providing a centralized Point-of-Contact will provide a link between the public and the desired Fort Sill personnel.	2020										■						

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COM-3		Coordination and Communication Between Fort Sill and Wichita Mountains Wildlife Refuge is not Formalized There is currently an informal relationship between Fort Sill and the Wildlife Refuge to address concerns related to impacts to both the military and the refuge. Situations where no documented agreement or procedure exists may cause delays or confusion on how to address issues, especially if there is a change in personnel.																	
COM-3A	N/A	Develop a Memorandum of Agreement Fort Sill and the Wichita Mountains Wildlife Refuge should develop and formalize communication and coordination on matters that affect the military and Refuge such as wildfire management, hunting program coordination, and wildlife trespassing. The MOA mentioned in Strategy COM-1C could be used for this purpose, however, it may be useful to include a reference to a separate MOA between Fort Sill and the Refuge in the MOA referenced in Strategy COM-1C. <i>Other Partner: Wichita Mountains Wildlife Refuge</i>	2020										■						■
		Also, see Strategy COM-1C to address this issue.																	

FORT SILL JOINT LAND USE STUDY

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COM-4	Lack of Notification to the Public on Training that Occurs Outside the Normal Daytime Hours. There is a lack of notification to the public, local government agencies, and media outlets regarding artillery training that occurs outside the normal daytime hours, such as in the early morning or after midnight.																		
COM-4A	N/A	Notify Public Through News Outlets When Exercises will be Performed Outside of Usual Time Periods Provide surrounding residents notification of pending operational changes through the release of information to area newspapers, television stations, and radio stations in the Lawton-Fort Sill area. This serves not only to notify area residents of activities but provides ongoing exposure for Fort Sill within the surrounding community. Create a Public-Friendly Range Bulletin and update notification techniques should include but not be limited to: - Fort Sill Fires Center of Excellence Facebook / Twitter, - Public Service Announcements, - Fort Sill Tribune and local newspapers, - Jurisdiction Public Relations or Communications Offices, - Fort Sill Public Affairs webpage, - Group Email Blast to jurisdiction elected and appointed officials and public safety offices, and	2020 / On-going	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒			☐			☐

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COM-4A (cont'd)		■ Create specific links to town, city, and county websites. <i>Other Partners: External media outlets including but not limited to the KSWO-TV; news radio stations with broad circulation; Lawton-Fort Sill Chamber of Commerce Calendar; ASCOG / SWODA Calendar</i>																	
COM-4B	N/A	Range Bulletin Fort Sill should create a public-friendly version of their weekly Range Bulletin, and have it posted on various media outlets, including both local and social media.											■						
COM-5	No Formal Communication Process Between the Federal Aviation Administration and Fort Sill Regarding Impacts from Wind Turbine Developments to the Radar Field of View While the Federal Aviation Administration (FAA) communicates with the installation when there could be vertical obstruction into mission critical airspace, the FAA does not evaluate the wind turbine development impacts on the radar field of view.																		
COM-5A	Vertical Obstruction	Update FAA Obstruction Evaluation Process Fort Sill should work with the FAA to inform the agency of the opportunities the FAA's Obstruction Evaluation process is missing including the evaluation of radar view sheds and mission critical airspaces such as military training routes. <i>Other Partner: Federal Aviation Administration</i>	2020										■						■

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COM-5B	Vertical Obstruction & Radar	Require Oklahoma Aeronautics Commission Review of Alternative Energy Developments If COM-5A does not occur, then the Oklahoma Legislature should amend Oklahoma Statute 25:30-11-1 to require the OAC Review of all alternative energy development projects in the JLUS Study Area. This review should not preclude any local jurisdictions permitting processes.	2020										☐				☒		
COM-6	Fort Sill Could Enhance Communicate on a Regular Basis with Surrounding Jurisdictions and the Public There is an opportunity to enhance relationships with and responses from surrounding jurisdictions when addressing issues that may arise.																		
COM-6A	MCAOD	Develop a Communications Protocol Between Fort Sill and the Surrounding Jurisdictions The Fort Sill Public Affairs Office and the Jurisdictions' Communications Officers and / or Public Affairs Offices should develop a communications protocol by memorandum of agreement. The protocol should at minimum include the following: - Points of contact for Fort Sill and Participating Jurisdictions including email addresses and phone numbers, - Roles and responsibilities for communicating and coordinating with each jurisdiction, and	2020	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒				☒		☒

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COM-6A (cont'd)		Triggers for communication and coordination, e.g. training that occurs outside the normal routine schedule and / or public or ceremonial events. <i>Other Partners: Wichita Mountains Wildlife Refuge</i>																	
COM-6B	MCAOD	Expand Communication Efforts with All Jurisdictions within the Study Area Update jurisdictions' and regional planning organizations' websites to recognize Fort Sill, its mission, location, links to the Fort Sill webpage, contact information for key organizations, and relevant installation activities potentially affecting the communities. <i>Other Partners: Wichita Mountains Wildlife Refuge; Kiowa County</i> Also see strategies for COM-1 to address this issue.		■	■	■	■	■	■	■	■	■	■			■			■

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COM-7	Joint Law Enforcement Meetings are Voluntary and Informal There is an informal weekly meeting between local law enforcement organizations, including Fort Sill Military Police and the Federal Bureau of Investigation.																		
COM-7A	N/A	Consider Formalizing Local Law Enforcement Meetings The Local Law Enforcement Meeting Organizers should consider formalizing the group through either the development of a memorandum of understanding, by-laws, or charter. By formalizing the group, summaries can be created and information shared about physical security measures with relevant organizations. <i>Other Partners: Local Law Enforcement Meeting Organizers</i>	2020										■						■
Cultural Resources (CR)																			
CR-1	Awareness of Cultural and Sacred Sites Access on Fort Sill While there are no access issues with cultural resource sites or sacred sites on Fort Sill, there is a community concern regarding limiting community access to sacred sites and resources in the future. This could constrain interaction between Fort Sill and Native American Tribes in the JLUS Study Area.																		
	The existing tools address this issue, which requires no further assessment.																		

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Dust, Smoke, Steam (DSS)																			
DSS-1	Smoke / Dust Complaints in the Community There have been some complaints from the community regarding smoke and dust generated from fires originating at Fort Sill. This issue may become more of a concern in the future depending on the tempo of training.																		
DSS-1A	N/A	Alternate Firing Points to Rehabilitate Land To the extent practical, Fort Sill should alternate firing points to enable land (soil) rejuvenation and rehabilitation. This will assist in the reduction of fugitive dust generated by artillery training.	2020 / On-going										■						
DSS-1B	N/A	Continue to Perform Soil Testing and Land Rehabilitation Around Firing Points Fort Sill should continue to perform soil testing and land rehabilitation of firing point sites to prevent soil erosion and fugitive dust.	On-going										■						

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DSS-1C	N/A	Consider Implementing Other Dust Control Measures Fort Sill should consider evaluating and implementing other feasible dust control measures including the use of sprays and water and planting vegetation that is firewise and good for the soil or a combination of measures. The use of sprays and water should be performed after training.	2020 / On-going										■						
DSS-2	Prescribed Burns Conducted by the Wichita Mountains Wildlife Refuge can produce Fugitive Smoke Particles There are prescribed burns that occur outside Fort Sill, specifically in the Wichita Mountains that have resulted in adverse impacts to Fort Sill, and have caused delays in training.																		
DSS-2A	N/A	Formalize Coordination Between Fort Sill and Wichita Mountains Wildlife Refuge about Prescribed Fires Fort Sill should work with the Wichita Mountains Wildlife Refuge to formalize coordination procedures through a memorandum of agreement when the Refuge performs prescribed burns. The memorandum of agreement can either be an existing or new agreement. At a minimum, the formalization of procedures should include the following: ■ Points of contact for Fort Sill and the Refuge including email addresses and phone numbers, ■ Season of prescribed burns,	2020										■						■

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DSS-2A (cont'd)		- Schedule of prescribed burns, and - Incident manager name and contact information, in case of an emergency. <i>Other Primary Partner: Wichita Mountains Wildlife Refuge</i>																	
Energy Development (ED)																			
ED-1	Existing and Proposed Energy Developments Impact Military Training There is existing wind development and several proposed sites that have impacted and have the potential to impact Fort Sill military training missions. This can result in degradation of military readiness not only for Fort Sill, but also for Sheppard Air Force Base (AFB), Altus AFB, Tinker AFB, and Vance AFB all of which use the Fort Sill airspace and range.																		
ED-1A	Vertical Obstruction & Radar	Identify and Map Locations Suitable for Wind Energy Development Identify and publish locations for alternative energy development that are ideal for wind developers as well as compatibility with military operations. Develop a "Red, Yellow, Green" map that communicates and illustrates specific locations where structures that exceed a mutually agreed upon height or location should be prohibited to avoid incompatibility with the radar view shed. <i>Other partners: Wind Energy Developers; Kiowa County; Oklahoma Military Strategic Planning</i>	2020										■	■			■		■

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ED-1A (cont'd)		<i>Commission; the Office of Energy Efficiency & Renewable Energy; Oklahoma Aeronautics Commission; NOAA</i>																	
ED-1B	Vertical Obstruction & Radar	Develop Wind Turbine Siting Guidelines Develop guidelines for proper siting and use of appropriate wind turbines near airfields, flight corridors, in the path of existing obstructions or blind spots to radar view sheds, and beneath military airspace that include: ■ updating zoning ordinances to specify the siting to be located in existing obstructions or blind spots to the extent practical, and ■ requiring review and coordination by Army prior to permit approval.	2020														■		

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ED-1C	Vertical Obstruction & Radar	Coordinate with DoD Siting Clearinghouse The DoD Siting Clearinghouse requirements and standards published in Title 32, Code of Federal Regulations, Part 211 shall advise and guide the process to facilitate the early submission of renewable energy project proposals to the Clearinghouse for military mission compatible review. Amend applicable local planning documents (comprehensive plans, regional plans, and energy system ordinances) to incorporate procedures for coordinating alternative energy development applications with the DoD Siting Clearinghouse. <i>Other Partners: DoD Clearinghouse; Kiowa County</i>	2020	■	■	■	■	■	■	■	■	■							■
ED-1D	Vertical Obstruction & Radar	Establish MOU for Proposed Alternative Energy Developments Fort Sill and JLUS Partner Communities should establish a Memorandum of Understanding for proposed alternative energy developments within the JLUS Study Area. Any JLUS Partner Community that is informed about a proposed alternative energy development should inform an established Fort Sill Point of Contact. <i>Other Partner: Kiowa County</i>	2020	■	■	■	■	■	■	■	■	■							■

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ED-1E	Radar	Amend Oklahoma Statute 25:30-11-1 to Require the Oklahoma Aeronautics Commission to Review All Energy Development Projects in the State of Oklahoma The Oklahoma Legislature should amend the Aircraft Pilot and Passenger Protection Act (Oklahoma Statute 25:30-11-1) to require the Oklahoma Aeronautics Commission (OAC) to review energy development projects in the state of Oklahoma. The OAC should require review of all energy development projects prior to issuing a permit and construction. <i>Other Partners: Oklahoma Military Strategic Planning Commission; Oklahoma Aeronautics Commission</i>	2020										■						■
ED-2	Energy Developments Can Impact Radar Energy development can impact the airport surveillance radar (ASR) system which is the system that detects and displays aircraft in the terminal area. It provides information that enables ground control to communicate with pilots and aircraft in the area. This can increase air navigation safety risks to pilots and the public.																		
ED-2A	Radar	Map Existing Radar Blind Spots Fort Sill should work with the Oklahoma Military Strategic Planning Commission and the Office of Energy Efficiency & Renewable Energy to identify and map existing radar blind spots. This map should then be used to evaluate future potential wind farm	2020										■						■

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ED-2A (cont'd)		turbine siting so wind turbines can be located in existing radar blind spots so as not to create new radar blind spots and further reduce the view shed of the radar. <i>Other Partners: Oklahoma Military Strategic Planning Commission, the Office of Energy Efficiency & Renewable Energy</i>																	
ED-2B	Radar	Expand on the Federal Aviation Administration Obstruction Evaluation Process Fort Sill and other military installations in the regional area should consider working with the Oklahoma Military Strategic Planning Commission to educate the Federal Aviation Administration about expanding the area of evaluation in the obstruction evaluation process to radar view sheds and military training routes. <i>Other Partners: Oklahoma Military Strategic Planning Commission; the Office of Energy Efficiency & Renewable Energy; the Federal Aviation Administration</i>	2020										■					■	■

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ED-2C	Radar	Incorporate the Radar MCA in Plans and Regulations Fort Sill JLUS Partner jurisdictions should incorporate the Radar MCA and associated subzones in their plans and regulations to minimize impairing the Frederick Weather Radar's and LAW Air Surveillance Radar's field of view. New proposed wind energy developments within the Radar MCA should be required to coordinate with <i>Other Primary Partner: Kiowa County</i> <i>Other Supporting Partner: NOAA</i>	2020	■	■	■	■	■	■	■	■	■	□	□					■ □
ED-3	Energy Development Impacting the Frederick Weather Radar Fort Sill does not have a weather radar on-installation, so the installation depends on the Frederick weather radar for weather information. Increasing wind energy development in the area of the Frederick Weather Radar could impact weather data collected for the area, which is used by Fort Sill as well as for local and national weather predictions.																		
ED-3A	Radar	Require the NOAA to Review Wind Energy Developments The JLUS Partner Communities should require wind energy developers to coordinate with the NOAA National Weather Service Radar Operations Center prior to granting a construction permit. <i>Other Partners: Kiowa County; Tillman County, OK; NOAA</i>	2020	■	■	■	■	■	■	■	■	■							■

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		Also see strategies provided for the COM-5 Issue and see Strategies ED-1A and ED-2B to address this issue.																	
ED-4	Abundant Renewable Energy Resources Provide Opportunities for Energy Development The JLUS Study Area and surrounding region has an abundance of renewable energy resources, which makes the area a premier location for energy development. However, the siting of energy development can adversely impact military training and aviation operations that occur in the region.																		
ED-4A	Vertical Obstruction & Radar	Establish an Alternative Energy Ordinance The jurisdictions should establish an alternative energy development ordinance that also requires review by the all the jurisdictions that could be impacted by the energy development. At a minimum, this ordinance should establish: ■ Procedures for notifying adjacent and impacted property owners including military installations, ■ Proof that the FAA, DoD Clearinghouse, NOAA, OAC, and the Oklahoma Military Strategic Planning Commission has been coordinated with and has evaluated the project, and ■ Decommissioning procedures to ensure the land is returned to the same condition as it was prior to the wind farm or other energy development project.	2020	■	■	■	■	■	■	■	■	■	■	□					□

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ED-4A (cont'd)		<i>Other Partners: FAA, DoD Clearinghouse, NOAA, OAC, Oklahoma Military Strategic Planning Commission; Kiowa County</i>																	
ED-4B	Vertical Obstruction & Radar	Identify and Map Locations of Potential Conflict Between for Industrial Wind Energy Development and Fort Sill Operations Identify and publish locations where alternative energy development does not pose potential conflicts with Fort Sill's operations and mission profiles, and locations where potential impacts exist and further study is needed. Fort Sill should work with NOAA to develop a "Red, Yellow, Green" map that communicates and illustrates locations where specific types of wind energy development (including the potential impact of individual versus utility-scale developments) are compatible with Fort Sill's operations, where types of industrial wind energy development may be compatible depending on the project, and where types of industrial wind energy development should be discouraged to avoid incompatibility with Fort Sill's operations. This map would be non-regulatory in nature and would serve to provide a guide to potential industrial wind energy developers of locations where conflicts may arise, but	2020										■			□		■	■

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ED-4B (cont'd)		potential impacts would need to be determined on a case-by-case basis. <i>Other Partner: Wind Energy Industry Developers, NOAA</i>																	
		Also see all strategies provided for all other Energy Development (ED) Issues to address this issue.																	
Frequency Spectrum Capacity (FSC)																			
	No issues identified for Frequency Spectrum Capacity.																		
Frequency Spectrum Interference (FSI)																			
FSI-1	Uncoordinated Development Can Impact Radar Communications Certain uncoordinated development such as tall structures (e.g. cellular towers and existing wind farms) can interfere with radar communications producing false signals. This can impede and interfere with aviation and aircraft operations, which can result in degradation of military training effectiveness.																		
		Also see all strategies provided for all the Energy Development (ED) Issues to address this issue.																	
Housing Availability (HA)																			
	No issues identified for Housing Availability.																		

FORT SILL JOINT LAND USE STUDY

Issue or Strategy #	MCA	Strategy	Timeframe for Initiation	City of Lawton	City of Apache	City of Cache	City of Elgin	City of Frederick	Town of Indianola	Town of Medicine Park	Town of Sterling	Comanche County	Fort Sill	Lawton Metropolitan Area Airport Authority	ODOT	ASCOG / SWODA	Oklahoma Legislature	Other Regional Military Installations	Other
Infrastructure Extensions (IE)																			
IE-1	Uncoordinated Infrastructure Extensions in Unincorporated Areas May Lead to Incompatible Development Not all jurisdictions within the JLUS Study Area utilize zoning to help manage development. Concerns about uncoordinated infrastructure extensions into unincorporated areas of the county could result in incompatible development.																		
IE-1A	MCAOD	Formalize Infrastructure Planning Coordination in the Vicinity of Fort Sill The local and regional transportation agencies should develop a formal agreement with Fort Sill to include a technical support member on any infrastructure planning committee, organization or group that occurs in the Study Area. <i>Other Partner: Lawton Metropolitan Planning Organization</i>	2020	■	□	■	■	■	■	■	□	■	□		■	□			□
IE-1B	MCAOD	Infrastructure Planning Coordination Notify and coordinate infrastructure expansion plans with Fort Sill. When communities or other service providers move forward with any plans of extending / enhancing infrastructure in the vicinity of Fort Sill, such as a utility infrastructure—water, wastewater infrastructure and roadway infrastructure, acquisition of right-of-way, utility-scale infrastructure, etc., Fort Sill should be notified, especially if proposed	2020 / On-going	■	□	■	■	■	■	■	□	■	□		■				□

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(cont'd)		infrastructure extension is within a mile of the installation boundary. The provider should be prepared to discuss alternatives that would help reduce potential future incompatible development along the infrastructure line (incompatible growth--inducement). The coordination should be done early in the planning process to optimize compatibility and reduce costs associated with plan changes. Fort Sill should prepare and provide feedback within a reasonable timeframe so as not to delay development. <i>Other Partners: Oklahoma Corporation Commission</i>																	
Competition for Land, Air, and Sea Space																			
LAS-1	State Route 115 Requires Closure to Perform Certain Military Training Activities The 75th Field Artillery Brigade (FA BDE) is required to close State Route 115 when firing rockets from Quanah Range to West Range. The 75th FA BDE is only permitted to keep the road closed for a maximum of 15 minutes at any one time.																		
	The existing tools address this issue, which requires no further assessment at this time.																		

FORT SILL JOINT LAND USE STUDY

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LAS-2	City of Lawton Water Line Traverses Fort Sill Four waterlines from Lake Lawtonka to City of Lawton run through Fort Sill. When these waterlines need maintenance or if the pipes break, then training operations can be postponed, delayed, or canceled to enable the Lawton Water Department to safely repair the waterlines.																		
LAS-2A	N/A	Feasibility Study for New Waterline Rerouted Away from Impact Area The City of Lawton should conduct a Feasibility Study to assess and analyze a new route for their waterlines that traverses Fort Sill. The study should include an alternative waterline routes with associated costs, timelines, and potential additions to Lawton's CIP to complete a new waterline route away from Fort Sill's impact area.	2020	☒									☐						
LAS-2B	N/A	Reroute Lawton Waterline Following the results from the Feasibility Study in Strategy LAS-2A, the City of Lawton should implement the most feasible approach to rerouting the waterline away from Fort Sill's impact area. To help fund the project, the City should apply for the Defense Community Infrastructure Pilot Program Grant from the Department of Defense, which offers up to 60% of the infrastructure cost. <i>Other Partner: OEA, DoD</i>	2023	☒									☐						☐

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LAS-3	Need for Additional Land and Airspace to Train on Advanced, Larger Weapons Systems There is a need for additional land and airspace to train on advanced, larger weapons systems, however land resources both on- and off-installation are scarce or are already used for other purposes that serve in a dual capacity to protect the military training and provide some economic activity.																		
LAS-3A	N/A	Explore Partnering Opportunities Fort Sill should explore opportunities to partner with the Oklahoma State Land Office for use of nearby state-owned property, parks, and forests to conduct non-intensive training activities, freeing space on-post for more intensive training operations. <i>Other Partner: Oklahoma State Land Office</i>	2020 / On-going										■						□
LAS-3B	N/A	Identify Potential Suitable Land for Acquisition Fort Sill should identify potential contiguous and non-contiguous areas within the region where property or property rights that may be available for purchase to conduct training activities.	2020										■			□		□	
LAS-3C	N/A	Negotiate with Agricultural Easement Owners Fort Sill should negotiate with the owners of agricultural easements that are on installation to use land for training purposes. <i>Other Partner: Agricultural Easement Owners</i>	2020										■						□

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LAS-3D	N/A	Leverage Local and State Legislators Fort Sill should leverage local and state legislators to advocate Fort Sill's needs for additional training space.	On-going										■			□	□		
LAS-3E	N/A	Update JLUS ASCOG should update the JLUS when Fort Sill receives new missions. Since the December 2018 JLUS was based on the current units assigned and the current mission set of the US Army Fire Center of Excellence (USAFCE) and United States Army Forces Command (FORSCOM) units. Those missions have started to change with the new force structure changes the Army has developed and approved for Fiscal Year (FY) 2021 – 2025 period. A re-emphasis on the employment and viability of field artillery units and air defense units has become high priorities for the Army senior leadership and national defense strategy. Given both the Army structural changes and the emphasis on field artillery and air defense capabilities, the training at Fort Sill will change to support the demands of the Army. Those changes will result in new technologies, weapon systems, training requirements, and the number of Soldiers trained at Fort Sill. These changes cannot be fully articulated	2019 / On-going	□	□	□	□	□	□	□	□	□	■			■			■

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		nor defined at this time, yet they will affect how Fort Sill accomplishes its assigned missions. Thus, ASCOG needs to update the JLUS study completed in December 2018 to ensure the compatibility between the installation and the surrounding communities is re-addressed and new recommendations developed if appropriate. <i>Other Partner: Fort Sill JLUS Implementation Committee</i>																	
LAS-4	General Concern About Heavy Aircraft Landing at Lawton-Fort Sill Regional Airport There is a concern about Fort Sill using the Lawton-Fort Sill Regional Airport to transport troops for mobilization exercises and activities. The concern is focused on Fort Sill using heavy aircraft, which tend to damage runways that are not equipped to handle the weight of the cargo of larger transport aircraft.																		
	The existing tools address this issue, which requires no further assessment at this time.																		

FORT SILL JOINT LAND USE STUDY

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LAS-5	Concern About General Aviation Airspace Intrusions There have been general aviation intrusions into Fort Sill's controlled airspace, which can postpone, delay, or cancel military training and operations.																		
LAS-5A	N/A	Consider Sharing Unclassified Training Schedule Information with General Aviation and Personal Aircraft Operators Fort Sill should consider sharing training schedule information regarding the ranges with general aviation and personal aircraft operators in the vicinity of the installation. The training schedules should include information such as: ■ Times of year, ■ Times of day, ■ Points of contact information if questions or concerns arise. Including this information or a notification on an official website would also benefit aviators in the area and the general public. <i>Other Partners: Federal Aviation Administration (FAA)</i>	2020										■	□				■	■
LAS-5B	N/A	Education to Coordinate with Fort Sill Work with the Lawton-Fort Sill Airport and other local airports to educate members about the need for	On-going										■	■					□

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LAS-5B (cont'd)		general aviation to coordinate with Fort Sill's air operations. <i>Other Partners: Local airports</i>																	
LAS-6	Potential for Aerospace Competition There is a need to protect the airspace over Fort Sill from encroachment as several military missions depend on this airspace and the facilities at Fort Sill to execute their missions. Congested airspace would impact the ability of all the military installations in the region to perform their missions.																		
LAS-6A	Drone-Free	Enforcement and Fines Work with the FAA to look into developing an enforcement and fine program for unauthorized drone usage. <i>Other Partner: FAA</i>	2020										■						□
LAS-6B	Drone-Free	Develop Information on Usage Fort Sill should work with the FAA to develop information on proper usage of drones near Fort Sill. <i>Other Partner: FAA</i>	2020										■						□
LAS-6C	Drone-Free	Enact Drone Ordinances JLUS Partner Communities should work with local and state legislations to consider enacting drone ordinances that dictate where and how drones can be used, based on the outcome of Strategy LU-1B.	2020	■	■	■	■		■	■	■	■	□	□			■		

FORT SILL JOINT LAND USE STUDY

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LAS-7	Henry Post Army Airfield's Runway Cannot Extended to Support Efficient Troop Deployment Due to Henry Post Army Airfield's position at the southern edge of Fort Sill, adjacent to residential areas of the City of Lawton, the runway cannot be extended to support larger aircraft suitable for rapid deployment of troops.																		
LAS-7A	N/A	Develop an Arrival/Departure Airfield Control Group Area at Lawton-Fort Sill Regional Airport Lawton Metropolitan Area Airport Authority should partner with Fort Sill and the DoD to receive funding from the Oklahoma Legislature to construct and maintain an Arrival/Departure Airfield Control Group area at the Lawton-Fort Sill Regional Airport to support rapid deployments.	2019										■	■		□	□		
LAS-7B	N/A	Enhance Transportation Between Henry Post Army Airfield and Lawton-Fort Sill Regional Airport The City of Lawton should partner with Fort Sill and the Lawton Metropolitan Area Airport Authority to extend a rail line from Fort Sill to the Lawton-Fort Sill Regional Airport along SW 11 th Street to facilitate troop transportation.	2026	■									■	■	□	□			

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Land Use (LU)																			
LU-1	Concern About Uncoordinated Growth and Development in Surrounding Communities There is a concern about growth and incompatible development outside the installation in surrounding communities that is not coordinated with Fort Sill. Development can unintentionally impact military training and operations if it is not coordinated with the military.																		
LU-1A	MCAOD	Establish and Update Land Use Policies and Regulations JLUS Partner Communities should adopt and update land use policies and regulations in the form of Land Use Plans / Comprehensive Plans and Zoning Ordinances respectively. When developing such policies and regulations, the JLUS Partner Communities should coordinate with Fort Sill and incorporate military compatibility measures to protect future development from impacts from military training and encroachment on Fort Sill. <i>Other Partner: Kiowa County</i>	2020 / On-going	■	■	■	■	■	■	■	■	■	■	□			□		■

FORT SILL JOINT LAND USE STUDY

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LU-1B	MCAOD	Define and Establish Shared Portal for GIS Mapping Information for All Jurisdictions Under Defined Fort Sill Mission Footprint. ASCOG should consider partnering with local jurisdictions to establish a shared GIS portal and repository for mapping related to Fort Sill’s mission footprint, including the MCAs as described in Strategy LU-1C. Partner Communities could benefit from this shared resource and contribute to its development and operations and maintenance as well as leverage it for planning and siting permits. A grant supporting web based tool development to assist with alternative energy siting can be applied for through the DoD Office of Economic Adjustment. ASCOG could sponsor the effort on a regional level and / or be the lead advocacy agency for the associated jurisdictions identified in this JLUS if the effort is sponsored at a state level.	2020	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐			☒			
LU-1C	MCAOD	Define and Establish Fort Sill Military Compatibility Areas (MCAs) Create a Fort Sill Military Compatibility Overlay District (MCAOD) containing all Fort Sill MCAs that reflect the types and intensity of compatibility issues, and is tied into the GIS Web Portal identified in	2020																	

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LU-1C (cont'd)		Strategy LU-1B. The Fort Sill MCAOD is the collective geographic area of all of the Fort Sill MCAs combined. The Fort Sill MCAs should be used by local jurisdictions to identify areas where specific compatibility issues are more likely to occur. These MCAs will not establish regulatory requirements but are meant to provide education for future land planning decisions based on the likely location of Fort Sill operational impacts, and are used to identify where certain recommendations from this JLUS will apply. Implementation of the Fort Sill MCAOD and associated strategies for these zones will: ■ Create a broader framework for making sound planning decisions around military installations ■ More accurately identify areas that can affect or be affected by military missions ■ Protect the public's health, safety, and welfare ■ Protect military missions ■ Identify a compatible / recommended mix of land uses for consideration ■ Promote an orderly transition and rational organization of land uses around military installations The Fort Sill MCAs are defined as follows:																	

FORT SILL JOINT LAND USE STUDY

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LU-1C (cont'd)		- Fort Sill Noise MCA – Includes areas or districts impacted by range and aircraft training noise as informed by the Fort Sill ICUZ Study - Fort Sill Safety MCA – Includes the Clear Zone (CZ) and Accident Potential Zones (APZs) I and II, as well as the Runway Protection Zone as identified in state legislation - Fort Sill Drone-Free MCA – Includes areas where drone usage can impact Fort Sill training and should not be permitted - Fort Sill Vertical Obstruction MCA – Includes FAA Part 77 Compliance and HPAA imaginary surfaces where tall structures could impact aircraft approach and departure - Fort Sill Radar MCA – Includes the weather radar impact zones to protect the Frederick Weather Radar and LAW Air Surveillance Radar's field of view.																	

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LU-1D	Noise & Safety	Provide Public Version of the Fort Sill Installation Compatible Use Zone Document Fort Sill should provide a public version of its Installation Compatible Use Zone (ICUZ) document on its website so that community planners and the public have a list of which land uses are compatible in the various Fort Sill noise zones and safety zones.	2020										☐			☒			
LU-1E	MCAOD	Add a Fort Sill Element to Comprehensive Plans JLUS Partner Communities should incorporate a Fort Sill element into their comprehensive plans that looks into compatibility and encroachment issues with the installation. This element should include information about the Fort Sill MCAs, and guidance for development within the MCAs.	2023	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐			☐			
LU-1F	MCAOD	Create a Map Identifying Potential Encroachment Issues Fort Sill and community planners should work together to map current or potential encroachment issues to help inform and guide decision making. This would be tied into the GIS Web Portal identified in Strategy LU-1B.	2020	☒	☒	☒	☒		☒	☒	☒	☒	☐			☐			

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LU-1G	Noise & Safety	Add ICUZ Safety Zones and Noise Zones to Community, County, and ASCOG / SWODA Maps The JLUS communities and other entities should include ICUZ safety zones and noise zones on existing land use maps, future land use maps, services area maps, and / or websites for the purpose of providing information. The inclusion on maps would not necessarily mean land under the zones are regulated per the ICUZ, but would be meant as informational to viewers of the maps. This would be tied into the GIS Web Portal identified in Strategy LU-1B.	2020	■	■	■	■		■	■	■	■	□			□			
LU-1H	MCAOD	Prepare and Execute a Formal MOU for Development Proposal Review The JLUS Partner Communities should establish MOUs with Fort Sill to formalize a process that provides Fort Sill with copies of certain types of development proposals, rezoning, and other land use or regulation changes for land located within the Fort Sill MCAs (see Strategy LU-1C) for review and comment. Such review periods shall conform to existing community review periods and / or statutory requirements. This supports a proactive approach for identifying potential conflicts early in the proposed development review process.	2020	■	■	■	■		■	■	■	■	□			□			

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LU-1H (cont'd)		The process of formalizing Fort Sill review and comment should include: ■ Definition of project types that require review ■ Definition of project types that require military participation at pre-application meetings ■ Identification of the points of contact for all coordination ■ Establishing a formal procedure for requesting and receiving comments ■ Establishing a standard timeline for responses, keeping in mind mandated review time periods as specified by state law and local procedures ■ Providing notice to Fort Sill on all public hearings regarding projects that require review Procedures should be reviewed annually and updated as appropriate.																	

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LU-11	Noise & Safety	Utilize ACUB Program to Acquire Additional Buffer Land Fort Sill and its ACUB partners should continue to acquire easements and development rights through the ACUB program to expand Fort Sill's buffer area around the installation, and protect against incompatible development. <i>Other Partner: Land Owners</i>	2020										■			■			■
LU-2	Existing Incompatible Land Uses Within One Mile Around Fort Sill There are existing incompatible land uses within one-mile of Fort Sill's boundary. This can lead to additional incompatible development due to lack of adequate land use controls in surrounding communities.																		
		Also see strategies for Issue LU-1 to address this issue.																	
LU-3	Incompatible Development in the City of Elgin There is incompatible development in the City of Elgin near the Fort Sill perimeter security fence, which results in noise complaints and a safety hazard.																		
		Also see strategies for Issue LU-1 to address this issue.																	

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LU-4	Lawton-Fort Sill Regional Airport Lacks Adequate Land Use Controls Around the Facility to Support Long-term Military Activities Currently, the Lawton-Fort Sill Regional Airport supports Fort Sill and has planned for increased support in the future if demand is required. However, there are several land uses outside the airport that could be incompatible development due to a lack of sufficient land use controls.																		
LU-4A	Safety	LAW Should Adopt DoD Safety Criteria Related to Airfield Operations and Protect Those Areas from Encroachment. Military aircraft use LAW for military training. In order to ensure the long-term viability military aircraft training, the regional airport should consider defining and adopting the DoD compatibility and spatial criteria for Clear Zones and Accident Potential Zones (APZ) I and II. By defining these areas and working with the City of Lawton, the long-term use of LAW to support Fort Sill missions can be sustained.	2020	■									□	■					

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Legislative Initiatives (LEG)																			
LEG-1	There is a Need for Enhanced Military Compatibility Legislation While there is existing legislation that provides some level of protection for the military regarding encroachment, there is a need to enhance the legislation to provide clarity to define more protections of the federal investment in the state and encourage compatible economic growth around military installations that can positively impact the local communities.																		
LEG-1A	MCAOD	ASCOG Should Consider Partnering Work with Other Jurisdictions and Military Installations in the State to Establish Recommended Legislation that Protects Fort Sill’s Mission Footprint A comprehensive review of best practices developed by defense communities around the country should be performed and where applicable recommendations that are identified that enhance or fill identified gaps should be developed and recommended to the State legislature for formal adoption. Other Partner: Communities / Councils of Governments with jurisdictions around Vance AFB, Kegelman AF Auxilliary Field, Altus AFB, Tinker AFB, and McAlester Army Ammunition Plant; OK Army and Air National Guard	2020										☐			☒	☐	☐	☐

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Light and Glare (LG)																			
LG-1	Continued Reduction of Nighttime Training Capability In the past, the 75th Field Artillery Brigade performed night vision training throughout the entire installation. However currently, there is too much light pollution from development causing horizon brightening at night. This can reduce the effectiveness of the training and the potential future capability of receiving more missions for this purpose.																		
LG-1A	N/A	Education on "Dark-Sky" Standards JLUS partner communities should consider educating their constituents and in turn exploring implementation of "Dark-Sky" lighting standards for all fixtures, and adopt such lighting regulations in their zoning laws.	2020	■	■	■	■		■	■	■	■	□						
LG-1B	N/A	Coordinate Lighting Improvement Projects with Nearby Industrial and Commercial Uses Fort Sill should reach out to nearby industrial and commercial entities that may have the potential to impact night training activities as a result of their need to maintain a well-lit environment at night. Fort Sill should work with each of these entities to develop a plan for decreasing light impacts associated with nighttime activities and events through the use of lighting retrofits, timed devices, etc.	2020	□	□	□	□	□	□	□	□	□	■						■

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LG-1B (cont'd)		<i>Other Partner: Industrial and commercial property owners</i>																	
LG-2	There are Minimal to No Lighting Controls in the Jurisdictions Around Fort Sill. Fort Sill's mission requires nighttime training to effectively prepare for a variety of military conflicts worldwide. A dark skies environment is required to effectively execute nighttime training with and without night vision devices. The local regulatory environment does not provide adequate protection of the dark skies for military training.																		
		Also see strategies for Issue LG-1 to address this issue.																	
Noise (NOI)																			
NOI-1	Aircraft Training Operations Generates Noise at Henry Post Army Airfield that can Impact Land Uses Off-Installation South of the Airfield Aircraft training occurs at Fort Sill's Henry Post Army Airfield that is located in southeastern portion of the cantonment area. The noise modeling developed for the aircraft training shows that noise contours extend off the installation and can impact land uses in the northern part of the City of Lawton.																		
NOI-1A	Noise	Incorporate the Noise Military Compatibility Area in Plans and Regulations Fort Sill JLUS Partner Communities should incorporate the Noise MCA in their plans and regulations to minimize noise impacts to future residents and reduce noise complaints regarding training operations at Fort Sill.	2020	■		■	■		■	■	■	■							

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NOI-1B	Noise	Update Comprehensive Plans and Amend Zoning Regulations for Noise Attenuation Standards JLUS partner communities should update their comprehensive plans and amend their zoning regulations to comply with the recommended guidelines from the Fort Sill ICUZ study.	2023	■		■	■		■	■	■	■							
NOI-1C	Noise	Amend Building Codes Amend the building codes to require sound attenuation to achieve an interior noise level of 45 dB for any new buildings or significant changes or additions to current buildings located within the 65 dB or louder noise contours	2023	■		■	■		■	■	■	■							
NOI-1D	Noise	Involve JLUS Partner Communities' Staff in ICUZ Revisions Staff from the JLUS partner communities within noise contours should be consulted in any ICUZ updates to determine actual incompatibility of existing structures in noise zones based on densities and construction methods used	On-going	■	■	■	■		■	■	■	■	■						

FORT SILL JOINT LAND USE STUDY

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NOI-1E	Noise	Real Estate Disclosures JLUS partner communities should coordinate with Lawton Board of Realtors to consider updating their requirements for providing real estate disclosure notifications when transacting property within Fort Sill's accident potential zones associated with HPAA or within the noise zones associated with aircraft flight or weapons noise. Other Partner: Lawton Board of Realtors	2020	☐		☐	☐		☐	☐	☐	☐	☐						☒
NOI-1F	Noise	Apply for HUD Funding for Sound Attenuation JLUS partner communities that are affected by noise zones extending off Fort Sill should encourage property owners within the noise zones to apply for Property Improvement Loan Insurance (Title I) HUD funding to help in sound attenuation improvements.	2020	☒		☒	☒		☒	☒	☒	☒							
NOI-2	Range Operations Generate Noise that Extends Off-Installation Small arms, field artillery, and aerial bombing training generate an abundance of noise for Fort Sill. These activities occur in all parts of the installation resulting in noise impacting noise sensitive land uses in every direction.																		
		See strategies for Issue NOI-1 to address this issue.																	

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NOI-3		Noise from MLRS Rocket Firing Extends Off Fort Sill Impacts the City of Elgin The firing of MLRS rockets are loud and generate noise levels that impact the City of Elgin primarily during daytime, however there are occasions when firings occur at night. While there are only about 56 rockets fired annually it does result in off base noise impacts.																	
		See strategies for Issue NOI-1 to address this issue.																	
NOI-4		There is No Formal Process for Reporting Noise Complaints to Fort Sill Fort Sill does not have a clearly identified process by which the community can report noise complaints.																	
NOI-4A	Noise	Update Contact Information on Fort Sill's Website Fort Sill should update the Public Affairs Office contact information for noise complain issues from the community.	2020											■					
		Also see strategies for Issue COM-2 to address this issue.																	

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Public Services (PS)																			
PS-1	Flooding Due to the Release of Water Overages from Nearby Dams Impacts Fort Sill's Training Areas The Lake George, Lake Lawtonka, and Lake Elmer Thomas dams occasionally release water to reduce water overages in the lakes. This release of water can flood Fort Sill Training Areas in the northern and southeastern portion of the installation as well as many off-post areas in northern Lawton.																		
PS-1A	N/A	Formalize an Agreement with the US Fish and Wildlife Service and the Lake Elmer Thomas Dam Operations Fort Sill should formalize an agreement with the US Fish and Wildlife Service regarding the Lake Elmer Thomas Dam water release standards. <i>Other Partner: US Fish and Wildlife Service</i>	2020										■						■

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Roadway Capacity (RC)																			
RC-1	Key Gate East Does Not Have a Queuing Area The Fort Sill Key Gate East provides access to the Warrior Training Campus area on Fort Sill. Key Gate East does not have a vehicle queuing area during times of heavy use. This lack of queuing area can cause traffic congestion and other related traffic impacts that can affect traffic flow and mobility on local roadways.																		
RC-1A	N/A	Access Planning Fort Sill should develop alternative strategies that can reduce traffic at peak hours at the Key Gate East, such as: ■ Allowing personnel access while controlling civilian and visitor access ■ Staggered work reporting times ■ Alternative gate access points for specific types of traffic ■ Main gate design improvements	2023										■						
RC-1B	N/A	Conduct Traffic Impact Analysis Fort Sill should work with the Oklahoma Department of Transportation to develop a traffic impact analysis to quantify impacts from increased traffic and future Level of Service along Interstate 44 at exit 41	2023										■	■					

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RC-1C	N/A	Review Fort Sill Gate Access Fort Sill should review its Key Gate East access operations and hours, and consider adjusting operations to maximize gate efficiency	2020										■						
RC-1D	N/A	Promote Carpool Programs Fort Sill should promote carpooling to reduce the number of vehicles entering through the gates during peak traffic hours.	2020 / On-going	□	□	□	□	□	□	□	□	□	■		□	□			

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Safety Zones (SA)																			
SA-1	There is Moderate to High Potential for Wildland Fires in the JLUS Study Area Topography, types of vegetation, and climate conditions within the region are conducive to wildland fires. The high risk for such fires during the year, particularly during fire season within the JLUS Study Area presents a threat to human safety and could cause damage to personal property, personal injury, or death.																		
SA-1A	N/A	Establish and Formalize Coordination Procedures and Protocols Establish an MOA to formalize procedures, protocols, and points of contact for the coordinated and timely dissemination of security and safety information reciprocally between APG and Study Area law enforcement offices and departments that affect areas outside and inside the fenceline. Ensure that all MOA's are current and updated.	2020	■	■	■	■	■	■	■	■	■	■	■		□			
SA-1B	N/A	Federal Programs Utilize federal technical and financial assistance for the implementation of fire mitigation techniques as provided by federal laws such as the Forest Restoration Act, the Disaster Mitigation Act, and the Fire Prevention and Control Act. <i>Other Entity: US Forest Service</i>	On-going	■	■	■	■	■	■	■	■	■	■	■		□			□
SA-1C	N/A	Payment in Lieu of Taxes (PILT)	2020	□	□	□	□	□	□	□	□	■							

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		Comanche County should consider using PILT to pay for new firefighting equipment																	
		Also see strategies under Issue COM-6 to address this issue.																	
SA-2	Stray Ordnance Associated with Falcon Range There is risk for stray ordnance landing off-post on land subject to local jurisdiction land use controls. While there have been few incidents of this occurring, the risk is still a concern for the military and communities surrounding Fort Sill, especially if development continues in the JLUS Study Area.																		
		See strategies under Issue LU-1 to address this issue.																	
SA-3	Future Concern Regarding Fire Hazards and Incompatible Development Adjacent to Falcon Range There is existing infrastructure west of Indianoma Road, just past Falcon Range in an area that is not currently developed. If this area attracts future incompatible development in the future, there may be greater risk of potential damage to the both on and off-post development if there is a large wildfire.																		
		See strategies under Issue LU-1 to address this issue.																	

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SA-4	Incompatible Land Uses in Aircraft Safety Zones There are existing incompatible land uses in the aircraft safety zones of Henry Post Army Airfield that impact military aviation operations.																		
SA-4A	Safety	Incorporate the Safety MCA in Plans and Regulations The City of Lawton and Comanche County should incorporate the Safety MCA in their plans and regulations to minimize safety hazards associated with certain developments in both HPAA's and LAW's Clear Zones and Accident Potential Zones.	2020	■								■							
SA-4B	Safety	Develop Deed Notifications for Future Land Sales and Exchanges All land divisions, building permits, and other proposed development actions located within an Accident Potential Zone should be required to file a deed notification that identifies the property's location within such zone as defined by the US Military. This notice should describe Fort Sill's mission and activities and the potential impacts associated with Fort Sill's operations.	2020	■								■							

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SA-4C	Safety	Add Zoning Regulations within HPAA's Runway Protection Zone The City of Lawton should create and adopt a Runway Protection Zone Overlay District in their zoning code Title 25. Oklahoma Aeronautics Commission Chapter 30. Aircraft Pilot and Passenger Protection Act to protect the aviation training at HPAA and Fort Sill's aviation mission.	2020	■															
		Also see strategies under Issue LU-1 to address this issue.																	

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Vertical Obstruction (VO)																			
VO-1	Uncoordinated Siting of Tall Structures May Impact Low-Level Military Aviation Operations The military has a concern about tall structures including microwave towers and energy development facilities impacting low-level military aviation operations. An uncoordinated microwave tower has already been installed that impacted low-altitude flying north of the installation. This is an area where low-level flights are performed to execute aerial bombing and other military aviation training.																		
VO-1A	Vertical Obstruction	Incorporate the Vertical Obstruction MCA in Plans and Regulations The City of Lawton should incorporate the Vertical Obstruction MAC in their plans and regulations to include FAA Part 77 Compliance standards, which will help protect HPAA and LAW from future vertical obstructions.	2020	■															
VO-1B	Vertical Obstruction	Include Fort Sill on Tower Siting and Review Process JLUS partner communities should include Fort Sill representatives in review or comment on any proposed tall structures above 200 feet. Towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.	On-going	■	■	■	■		■	■	■	■	■			□			

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VO-1C	Vertical Obstruction	Publicly Accessible Map of Low Level Flight Paths Fort Sill should create a publicly available document or map of the military low-level flight paths including their elevations that communities can use to consider potential impacts from tall structures such telecommunication tower placement. The information could be used when considering comprehensive plan priorities and zoning amendments to confirm suitable or unsuitable areas.	2020	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒			☐		☐	
		Also see all the strategies provided for all the Energy Development (ED) Issues.																	

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Vibration (V)																			
V-1	Vibration from Military Training Exercises is Experienced Throughout the Study Area, and Has the Potential to Cause Physical Property Damage Many of the communities along the north-northeastern boundary of Fort Sill experience vibration during heavy artillery training. This vibration has potential to cause damage to private property, as well as critical infrastructure. There is concern that the vibration is causing damage to Lawton's Water Treatment Plant, Lake Lawtonka Dam, and Lake Elmer Thomas Dam.																		
V-1A	N/A	Inform Residents of the DOD Claims Process for Reimbursing Property Damage from Vibration Fort Sill and local community leaders should inform residents of the DOD claims process for reimbursing property damage due to vibration from training activities.	2020	☐	☐	☐	☐		☐	☐	☐	☐	☒						
V-1B	N/A	Prepare a Damage Claims Package Fort Sill should consider preparing a damage claims process that includes a package for homeowners to complete if damage from vibrations felt by military activities is believed to occur. The process should include instructions for completing the claims forms, an overview of the inspection process, procedures for Fort Sill review of potential damage, and potential courses of action.	2020										☒						

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V-1C	N/A	Prepare a Vibration Propagation Study The City of Lawton and ASCOG should prepare a Vibration Propagation Study to assess and determine the extent of vibration damage to the Water Treatment Plant, Lake Lawtonka Dam, and Lake Elmer Thomas Dam. This information can help inform and develop mitigation efforts.	2020	■						□			□			■			
Water Quality / Quantity (WQQ)																			
WQQ-1	Long Term Water Availability / Security for Fort Sill Fort Sill currently does not own any water rights. Fort Sill and the City of Lawton have an existing agreement where the City sells water to Fort Sill. Because the pipeline that carries the water goes through Fort Sill, the agreement provides for lower water rates. However, there have been efforts to increase the water rates charged to Fort Sill. To date there has been little interest to establish a regional plan for water to jointly support water needs.																		
WQQ-1A	N/A	Regional Water Resources Studies Fort Sill and JLUS Partners should participate collaboratively in regional studies of the area's water resources. <i>Other Partners: Army Corps of Engineers, Oklahoma Water Resources Board</i>	2020	□	□	□	□	□	□	□	□	□	□			■			□
WQQ-1B	N/A	Regional Potable Water Master Plan Following the findings of the Regional Water Resources Study in Strategy WQQ-1A, ASCOG should	2023	□	□	□	□	□	□	□	□	□	□			■			□

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WQQ-1B (cont'd)		initiate a Regional Potable Water Master Plan to coordinate future water infrastructure, manage regional water rights, and secure long-term water availability for Fort Sill and all JLUS Partner Communities. <i>Other Partners: Army Corps of Engineers, Oklahoma Water Resources Board</i>																	
WQQ-2	Water Supply Interruptions at Fort Sill Fort Sill lost water supply for approximately 38 hours following a 2010 ice storm that impacted the City of Lawton Medicine Park Water Treatment Plant. Fort Sill obtains water from this facility and is concerned that service interruptions may occur again in the future. As a result, Fort Sill and the City of Lawton are conducting ground water studies to investigate potential backup sources of water.																		
WQQ-2A	N/A	Plan and Coordinate for the Implementation of Infrastructure Improvements to Achieve a Safe and Reliable Potable Water Supply for the Region Develop a coordinated Implementation Plan to execute the Regional Potable Water Master Plan in Strategy WQQ-1B. Include measurable milestones, Capital Improvement Plan projects, dedicated funding sources, and multijurisdictional / multiagency coordination. <i>Other Partners: Army Corps of Engineers, Oklahoma Water Resources Board</i>	2023	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐			☒			☐

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WQQ-2B	N/A	Redundant Water Service Fort Sill should seek other local water service providers to develop a cost-effective method to obtain a redundant water service that can provide availability in the event of an emergency or disaster. <i>Other Partners: Army Corps of Engineers, Oklahoma Water Resources Board</i>	2026	☐	☐	☐	☐	☐	☐	☐	☐		☒			☐			☐
WQQ-2C	N/A	Emergency Planning Identify infrastructure improvements, such as interconnectivity and shared reserves, to ensure availability during emergency situations <i>Other Partners: Army Corps of Engineers, Oklahoma Water Resources Board</i>	2023	☐	☐	☐	☐	☐	☐	☐	☐		☒			☐			☐

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WQQ-3	Cumulative Effect of Jurisdictional and Private Wells Pulling from Same Groundwater Source A general concern was expressed about the number of wells in the JLUS Study Area and its unregulated impact on the overall water resources in this area. The concern also stems from the lack of regional water resources planning and coordination. This can impact all jurisdictions, Fort Sill, and the public.																		
WQQ-3A	N/A	Establish a Regional Water Resource Authority ASCOG, the JLUS Partner Communities, and Fort Sill should establish a Regional Water Resource Authority. This authority will oversee water resources within the region by regulating water resource infiltration, ensure long-term water security, and that water resources are distributed evenly and fairly.	2020 / On-going																
WQQ-3B	N/A	Limit New Development to Connect to Water Infrastructure JLUS Partner Communities should establish ordinances to require new residential, commercial, and industrial developments to connect to water infrastructure, and not permit private wells.	2020	■	■	■	■	■	■	■	■	■							

Please see the next page.

