JOINING FORCES

Aligning Community & Military Missions

REGIONAL JOINT LAND USE STUDY

November 2017

This study was prepared under contract with the North Central Texas Council of Governments, with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of study partners and does not necessarily reflect the views of the Office of Economic Adjustment.

The views the City of Dallas has expressed in this Joint Land Use Study may not be construed to alter its legal rights, authorities, and claims, both asserted and unasserted, in the litigation pending in the United States Court of Federal Claims, "City of Dallas v. United 65nt States," Docket No. 01-284 C.

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This document has been prepared by AECOM in collaboration with the North Central Texas Council of Governments on behalf of the *Joining Forces* Joint Land Use Study

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LIST OF ABBREVIATIONS

ACUB	Army Compatible Use Buffers
AICUZ	Air Installation Compatible Use Zone
APZ	Accident Potential Zone
APZ I	Accident Potential Zone I
APZ II	Accident Potential Zone II
BASH	Bird/Animal Aircraft Strike Hazard
CFR	Code of Federal Regulations
COG	Council of Governments
CZ	Clear Zone
dB	decibel
DFW	Dallas-Fort Worth
DoD	Department of Defense
DNL	day-night average sound level
ERCOT	Electric Reliability Council of Texas
ESQD	explosive safety quantity distance
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
GPS	Global Positioning System
HB	House Bill
IE	Interconnecting Entity
IR	Instrument Route
iSWM	integrated Stormwater Management
JAZ	Joint Airport Zoning
JLUS	Joint Land Use Study
JRB	Joint Reserve Base
LID	Low Impact Development
LZ	Landing Zone
mm	millimeter

LIST OF ABBREVIATIONS

MOA	Military Operating Area
MOUT	Mobile Operations and Urban Training
MSL	mean sea level
MTRs	Military Training Route
NAS	Naval Air Station
NAVAID	Navigation Aid
NCTCOG	North Central Texas Council of Governments
P4	public-public, public-private
PLMC	Planning for Livable Military Communities
RCC	Regional Coordination Council
REPI	Readiness and Environmental Protection Integration
RSAF	Royal Singapore Air Force
RTAHP	Redmond Taylor Army Heliport
SDZs	Surface Danger Zone
SH 183	State Highway 183
SH 199	State Highway 199
SR	Slow Route
SUA	Special Use Airspace
TBD	To be determined
TCC	Texas Commanders Council
TMPC	Texas Military Preparedness Commission
TXANG	Texas Air National Guard
TXARNG	Texas Army National Guard
UAS	unmanned aircraft systems
US	United States
USACE	United States Army Corps of Engineers
UXO	Unexploded Ordnance
VR	Visual Route

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EXECUTIVE SUMMARY

The *Joining Forces* Regional Joint Land Use Study (JLUS) is the culmination of a year-long collaborative effort among local, state, and regional jurisdictions; the public; federal, state, and regional agencies; and military installations within the North Texas region. The JLUS presents recommendations to promote compatible development that protects public health, safety, and welfare, and the ability of the military to accomplish its vital training and operational missions. The purpose of the study is to create and sustain dialogue around complex issues, including land use, economic development, infrastructure, environmental sustainability, and the operational demands and mission changes of military entities. The study highlights common interests, such as economic growth, more efficient infrastructure, healthier and safer environments, improved quality of life, and the protection of Department of Defense (DoD) and civilian investments.

The *Joining Forces* planning team consisted of the North Central Texas Council of Governments (NCTCOG) supported by additional technical staff. The study area consists of bases, military training facilities, and related airspace in the North Texas region and surrounding communities (see **Figure 1**). Military installations in the study are Naval Air Station Fort Worth Joint Reserve Base (NAS Fort Worth JRB); Redmond Taylor Army Heliport (RTAHP); Fort Wolters Training Center; Camp Maxey Training Center; Eagle Mountain Training Center; Brownwood and Brady Military Operating Areas (MOAs); and Colonel Stone Army Reserve Center. The area surrounding these facilities encompasses 24,200 square miles, including portions of 18 counties and more than 60 cities or census-designated communities in proximity to military operations.

The JLUS builds on prior compatibility efforts and background technical analysis in the Existing Conditions (see **Technical Appendix C**) phase to produce a tailored set of compatibility recommendations that reflect the diversity of the region and its stakeholders. This document is strictly advisory, offering a menu of tools and processes to inform future decisions and policy actions by *Joining Forces* partners. While the specific implementation actions will vary within individual communities, the overarching emphasis of the JLUS is continued coordination and communication that strengthens the relationships among study area partners and builds a lasting framework for progress toward goals. The shared vision of this study is to:

- Balance the region's strong population growth and development with protection of military operational capabilities;
- Address encroachment issues associated with emerging technologies, such as renewable energy and unmanned aircraft systems (UAS);
- Maintain the long-term viability and positive economic impact of military facilities in North Texas; and
- Carry forward specific recommendations from the 2008 JLUS for NAS Fort Worth JRB and foster additional partnerships across installations and communities throughout the region.

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Based on these common goals and the issues, trends, and priorities highlighted through public input and technical analysis, the JLUS identifies 152 compatibility strategies for the North Texas region and each set of installations and adjacent communities. The highest priority recommendations are:

Communication and Coordination

- Conduct educational outreach with communities to increase awareness of the security and safety risks associated with UAS operations near airfields and military facilities, and offer technical assistance to local law enforcement agencies to identify and prevent unauthorized or unsafe drone use in the community (see **Technical Appendix H**);
- Build on existing coordination bodies, such as NAS Fort Worth JRB's Regional Coordination Council (RCC) and the Texas Commanders Council (TCC) to create a region-wide forum for communication and advocacy of the military missions, installations, and training assets across North Texas;
- Incorporate stakeholder feedback to identify improvements to the RCC Development Review Web Tool to ensure continuity in use and enhance its effectiveness as a coordination and communication platform (see **Technical Appendix F**);
- Create formal, ongoing channels of communication and coordination between Fort Wolters, local jurisdictions, and Lake Mineral Wells State Park to facilitate consistent dialogue on major community actions, park plans, and military operations that have potential compatibility impacts;
- Create formal, ongoing channels of communication and coordination between Camp Maxey, local jurisdictions, and Pat Mayse Lake reservoir and Wildlife Management Area to facilitate consistent dialogue on major community actions, park use, and military operations that have potential compatibility impacts (see **Technical Appendix J**);
- Coordinate with the Texas Parks & Wildlife Department and the United States Army Corps of Engineers (USACE) to reduce the risk of trespass onto military lands at Camp Maxey;
- Leverage existing City of Dallas and City of Grand Prairie meetings and communication methods to improve military-civilian coordination at among stakeholders at RTAHP; and
- Encourage communication between RTAHP and local governments related to changes in military operations and proposed local ordinances, rules, plans or structures that could create compatibility issues, with NCTCOG assisting RTAHP to monitor local government actions.

Statewide Policy/Legislative Actions

- Actively pursue state legislation that enables local governments to implement targeted land use controls on unincorporated land in specified proximity to military installations and training areas; and
- Actively pursue other statewide legislative actions to mandate, formalize, or standardize coordination processes and regulatory tools for energy siting, UAS operations, and civilian-military consultation on proposed local ordinances, rules, plans, or structures.

Environmental/Cultural Resources

- Explore Readiness and Environmental Protection Integration (REPI) Program or other conservation-based projects within areas around the main base of NAS Fort Worth JRB or/and near off-base training areas

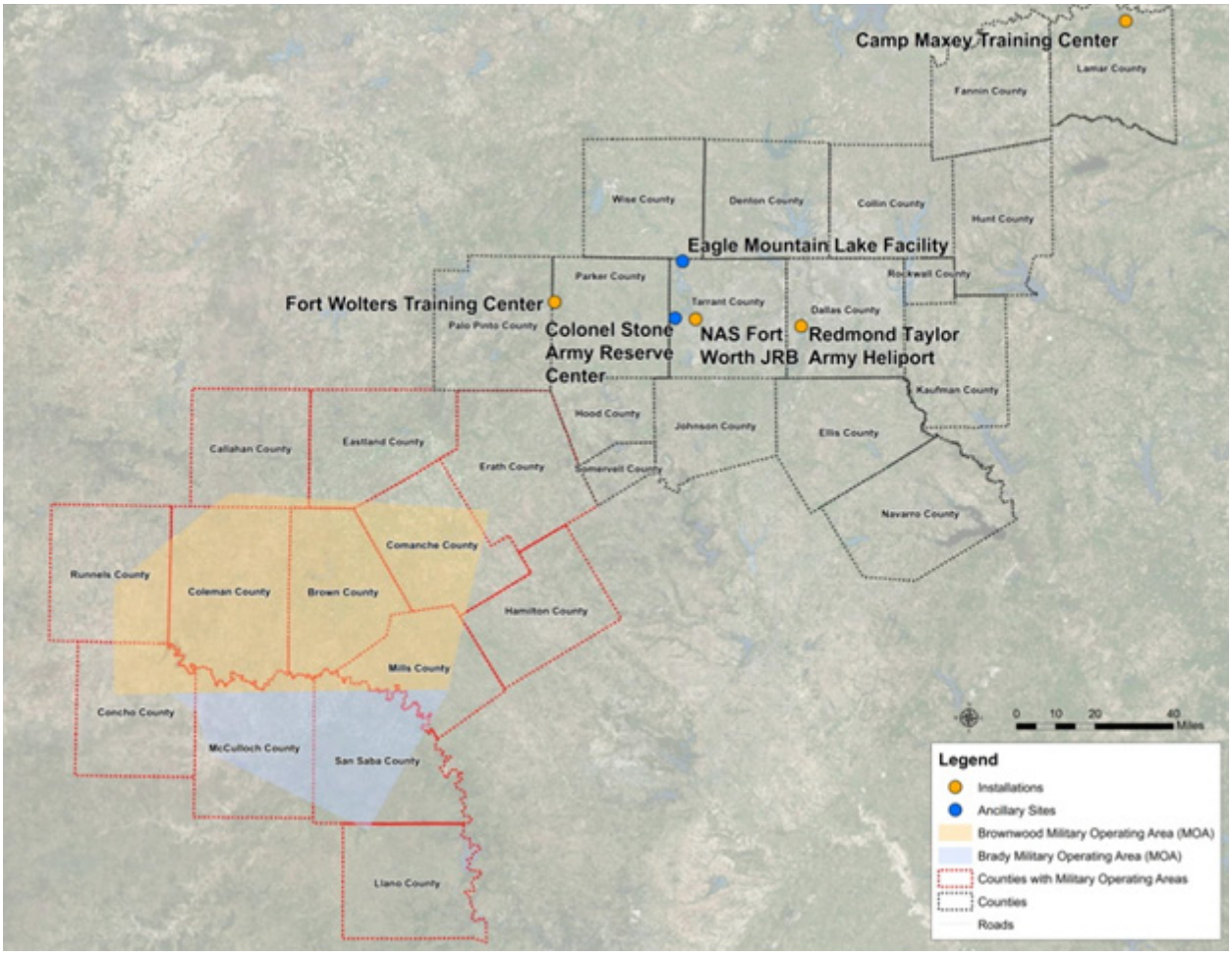
Physical Security

- Protect Camp Maxey operations and mission capabilities from threats associated with UAS and small aircraft, energy infrastructure siting, and Bird/Animal Aircraft Strike Hazard (BASH); and
- Coordinate with RCC members to reduce the risk of trespass onto NAS Fort Worth JRB from Lake Worth or other areas around the installation's perimeter.

Section 5 of the report summarizes the key implementation actions by installation and community area. **Technical Appendix B** includes implementation menus with detailed information on recommended actions.

EXECUTIVE SUMMARY

Figure 1. *Joining Forces* Regional Study Area



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1

INTRODUCTION

1 Introduction

Purpose and Background

A Joint Land Use Study (JLUS) is a collaborative process among local governments, military installations, citizens, and other stakeholders to identify and help mitigate and prevent encroachment issues that may affect current and future military missions and nearby communities. Encroachment occurs when conditions outside the military installation limit the ability of the military to perform its mission safely and effectively, or when military operations diminish quality of life in surrounding areas. This JLUS effort for the North Texas region—*Joining Forces: Aligning Community and Military Missions*—seeks to facilitate dialogue around common interests and strengthen community-military compatibility through communication, education, and the planning process.

Joining Forces builds on the momentum of ongoing regional planning initiatives and prior compatibility studies. Reflecting the size, complexity, and economic dynamism of the region, the goals of this study are to:

- Balance the region's strong population growth and development with protection of military operational capabilities;
- Address encroachment issues associated with emerging technologies, such as renewable energy and unmanned aircraft systems (UAS);
- Maintain the long-term viability and positive economic impact of military facilities in North Texas; and
- Carry forward specific recommendations from the 2008 JLUS for Naval Air Station Fort Worth Joint Reserve Base (NAS Fort Worth JRB) and foster additional partnerships across installations and communities throughout the region.

Joining Forces Study Area

The study area consists of bases, military training facilities, and related airspace in North Texas and surrounding communities (see **Table 1** and **Figure 1**). This area encompasses 24,200 square miles, including six installations, two Military Operating Areas (MOAs), numerous military training routes (MTRs) and Special Use Airspace (SUA), and portions of 18 counties and more than 60 cities or census designated communities near military operations. It also stretches across two regional planning areas. The North Central Texas Council of Governments (NCTCOG) covers 16 counties, including three counties with a major installation (Dallas, Tarrant, and Parker). The Ark-Tex Council of Governments (COG) includes Lamar County, the fourth county that hosts a major installation.

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Given the scale of the region, the JLUS process organizes the installations into functional categories based on the intensity of their activities, tenant mix, and operational missions, as shown in **Table 1**. The high-intensity installations employ large numbers of full-time active-duty, Reservists, and civilian personnel or serve as active training centers for the Texas Military Department. The high-intensity installations also manage ancillary sites for training purposes. The remaining facilities (i.e., not high-intensity) include maintenance sites, administrative centers, or training areas with lower impact operations.

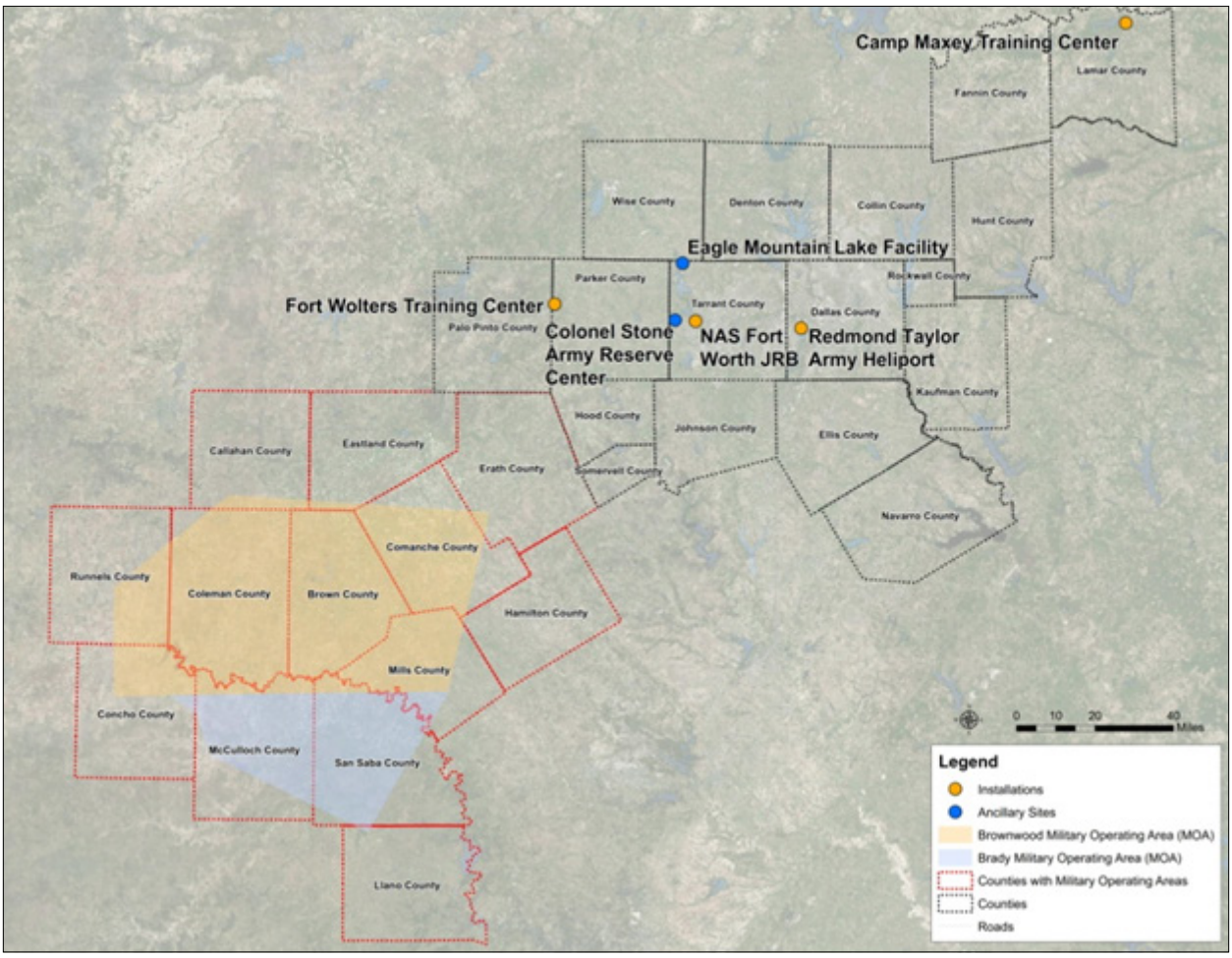
Table 1. *Joining Forces* Installations and Local Governments

LEVEL OF OPERATIONS	INSTALLATION/ MOA	COUNTY	LOCATION	LOCAL GOVERNMENTS
High-Intensity Operations	Naval Air Station Fort Worth Joint Reserve Base	Tarrant	Fort Worth, TX	Cities of Benbrook, Fort Worth, Lake Worth, River Oaks, Sansom Park, Westworth Village, and White Settlement; Tarrant County
	Redmond Taylor Army Heliport	Dallas	Dallas, TX	Cities of Dallas and Grand Prairie
	Fort Wolters Training Center	Palo-Pinto, Parker	Mineral Wells, TX	City of Mineral Wells; Palo Pinto and Parker Counties
	Camp Maxey Training Center	Lamar	Unincorporated Lamar County	City of Paris, Powderly CDP; Lamar County

Table 1. *Joining Forces* Installations and Local Governments (cont.)

LEVEL OF OPERATIONS	INSTALLATION/ MOA	COUNTY	LOCATION	LOCAL GOVERNMENTS
Ancillary Sites	Eagle Mountain Training Center	Tarrant	Pecan Acres Census Designated Place, TX	Pecan Acres Census Designated Place and Tarrant County
	Brownwood and Brady Military Operating Areas	Portions of Brown, Callahan, Coleman, Comanche, Concho, Eastland, Erath, Hamilton, Llano, McCulloch, Mills, Runnels, and San Saba Counties	Brownwood, TX	Portions of Brown, Callahan, Coleman, Comanche, Concho, Eastland, Erath, Hamilton, Llano, McCulloch, Mills, Runnels, and San Saba Counties
Low-Intensity Training/ Maintenance Sites	Colonel Stone Army Reserve Center	Tarrant	Fort Worth, TX	City of Fort Worth; Tarrant County

Figure 1. *Joining Forces* Regional Study Area



Existing Compatibility Partnerships

Regional and Local Compatibility Actions

Managing civilian-military compatibility requires collaboration across a wide array of stakeholders, coordinating the efforts of federal, state, and regional agencies, local governments, DoD entities, as well as community-based groups, non-profit organizations, and the private sector.

Regional entities and their local partners have been very active in planning for compatibility with military operations in North Texas, particularly around NAS Fort Worth JRB. The Cities of Benbrook, Fort Worth, Lake Worth, River Oaks, Westworth Village, and White Settlement, as well as Tarrant County participated in the original JLUS effort. The 2008 study recommended a series of strategies to reduce the risk of encroachment around the base and resulted in forming a Regional Coordination Committee (RCC). The RCC serves as a cooperative forum for developing, implementing, and monitoring programs and policies that enable the continued coexistence of the installation and communities. Since 2008, the RCC has implemented 17 JLUS action items, including creation of the RCC Development Review Web Tool, the Planning for Livable Military Communities (PLMC) study for local government partners, a transportation assessment, and various transportation improvements to facilitate safe and efficient vehicular access around the base.

Local governments in Tarrant and Dallas Counties have also conducted planning studies or implemented specific land use policies to promote compatibility with operational impacts as shown in **Table 2**. **Technical Appendix A** contains links to the referenced plans and codes. In 2014, the City of Benbrook adopted the "NAS" Overlay District to encourage compatible uses in areas with noise exposure of 65 decibels (dB) or higher based on the most recently adopted Air Installation Compatible Use Zone (AICUZ) for the installation. In 2013, the City of Fort Worth adopted an Airport Overlay District and Compatible Use Zone sub-districts for land falling in the Clear Zones (CZs) and north and south Accident Potential Zones (APZs) of the AICUZ. Though much of the prior compatibility effort in the region has focused on NAS Fort Worth JRB, a specific goal of *Joining Forces* is to expand collaborative partnerships and best practices to other defense communities in North Texas.

Table 2. Regional and Local Compatibility Plans and Policies

AGENCY / JURISDICTION	PLAN OR CODE
City of Benbrook	2008 JLUS Building Code PLMC NAS Overlay District
City of Fort Worth	Comprehensive Plan Building Code 2008 JLUS PLMC Naval Air Station/JRB Compatible Use Zones Airport Overlay
City of Lake Worth	2008 JLUS PLMC
City of River Oaks	2008 JLUS PLMC State Highway 199 (SH 199) Master Plan State Highway 183 (SH 183) Corridor Master Plan
City of Sansom Park	2008 JLUS PLMC
City of Westworth Village	2008 JLUS PLMC Building Regulations
City of White Settlement	2008 JLUS PLMC
NCTCOG	2008 JLUS PLMC SH 199 Corridor Master Plan SH 183 Corridor Master Plan
Tarrant County	2008 JLUS PLMC
City of Dallas	Airport Noise Contours and Airport Height Overlay Hensley Field (Redmond Taylor Army Heliport [RTAHP]) Avigation Easement Building Code and One- and Two-family Dwelling Code

State Compatibility Actions

The State of Texas has created entities and programs to protect and promote military missions through advocacy, communication, and compatibility planning. Established in 2003, the Texas Military Preparedness Commission (TMPC) seeks to protect, expand, and attract new installations, military missions, and defense-related businesses in the State of Texas. The TMPC administers two financial and technical assistance programs designed to aid defense communities: the Defense Economic Adjustment Assistance Grant Program and the Texas Military Value Revolving Loan Fund. The Department of Defense (DoD) military installations in the state formed the TCC, a consortium of the commanding officers of the military installations. The commanding officer of NAS Fort Worth JRB is a participating member of the group. As of September 1, 2013 the state officially recognized the TCC in Chapter 436 of the state code. The TCC coordinates with the TMPC on a variety of issues affecting the state's military installations, including encroachment management.

The Texas Military Department consists of the Texas Army National Guard (TXARNG), the Texas Air National Guard (TXANG), the Texas State Guard, Domestic Operations Task Force, and the Office of the Executive Director. The TXARNG staffs three of the major installations in the *Joining Forces* study area: Camp Maxey, Fort Wolters, and RTAHP.

State law determines many of the strategies available to local governments seeking to promote compatibility around installations. Zoning is a common mechanism for reducing conflicts by controlling the intensity or type of development near military operations. The State of Texas, however, does not explicitly grant counties the authority to zone unincorporated land. Since much of the rural land surrounding *Joining Forces* installations is unincorporated, this lack of zoning authority creates a significant implementation challenge for jurisdictions near Camp Maxey and Fort Wolters. The state Legislature has granted some counties in Texas the authority to enact targeted zoning powers near military installations.

Section 241.014 of the Texas Local Government Code also allows jurisdictions "to whose benefit an airport is used in the interest of the public or in which an airport owned or operated by a defense agency of the federal government or state is located" to create a Joint Airport Zoning (JAZ) Board. As an entity, the board has the power to adopt, administer, and enforce compatible land use regulations within a statutorily defined area around a runway.

A special session of the Texas Legislature was held in 2017 and SB 6 (85th Texas Legislature, 1st Called Special Session) was approved. Among other issues addressed, SB 6 allows a municipality to annex property within five miles of a military base or to enforce an ordinance related to land use in the manner recommended by the most recent JLUS study. The bill, as written, limits applicability to federally-owned military facilities in counties with a population under 500,000, so it is not available for use at any of the installations in the *Joining Forces* study area. Efforts could be made during future legislative sessions to amend the law to include Texas Military Department facilities or federally-owned installations in higher populated areas.

Beyond zoning, states often play a role in facilitating notification and coordination on real estate, development, and infrastructure decisions that could affect military-civilian compatibility. Texas Local Government Code requires some local governments in the San Antonio and Wichita Falls areas to seek comments and analysis from base or facility authorities if the community determines that a proposed ordinance, rule, or plan may affect an installation or military exercises or training activities. The Texas Legislature also passed House Bill (HB) 890 during its 85th Regular Session, which provides information to the public and purchasers of real property on the impact of military installations. Effective September 1, 2017, the legislation requires counties and cities in which a military installation is located to ensure the public availability of the most recent AICUZ or JLUS. A Seller's Disclosure Notice must also acknowledge if a property may be near a military installation and subject to high noise, AICUZ, or other operations. During the 2017 session, the Texas Legislature also passed legislation related to regulation of UAS or drones by local governments and the prohibition of the operation of UAS over certain facilities or sports venues. Though HB 1424 (85th Texas Legislature, Regular Session) does not explicitly identify military installations as a protected facility type, the legislation establishes the foundation for additional policies to regulate hobbyist drone activity that could be a risk to military operations. The availability of smaller, affordable drones on the market is spurring rapid growth of commercial applications, as well as hobbyist activity. UAS can create physical hazards, such as midair strikes with aircraft, or pose security and safety threats by flying near military personnel or over sensitive operational areas.

House Bill 1643 amends the Government Code to prohibit a county, municipality, or joint airport board from adopting or enforcing a regulation regarding the operation of an unmanned aircraft except a regulation regarding the use of an unmanned aircraft during certain special events, the political subdivision's use of an unmanned aircraft, or the use of an unmanned aircraft near a facility or infrastructure owned by the political subdivision if the political subdivision holds a public hearing on the political subdivision's intent to apply for Federal Aviation Administration (FAA) authorization to adopt the regulation and receives FAA authorization. The bill expands the definition of "critical infrastructure facility" for purposes of the offense of operation of unmanned aircraft over such a facility to include any structure used as part of a system to provide wired or wireless telecommunications services, certain oil, gas, or chemical production facilities or apparatuses, and a concentrated animal feeding operation.

During the 85th legislative session, the TCC approached state delegates about a state law to restrict UAS activity over military facilities. Although the state legislature did not take such action, in April 2017, under Title 14 of the Code of Federal Regulations (14 CFR) § 99.7 – "Special Security Instructions," the FAA and DoD agreed to restrict UAS flights up to 400 feet within the lateral boundaries of certain military facilities, including NAS Fort Worth JRB. This is a significant milestone protecting installations from unauthorized UAS overflight. However, ongoing efforts are necessary to identify strategies that address UAS activity by local law enforcement beyond the lateral boundaries of a military base. **Technical Appendix H** contains Model UAS Ordinance/Guidelines to assist local governments in developing outreach and regulatory tools.

DoD Compatibility Actions

The DoD established the AICUZ program to define areas of high noise and accident potential and recommend compatible land uses. Using accident data from all military airfields, the AICUZ identifies three zones with a higher statistical risk of an aircraft accident: the CZ, Accident Potential Zone I (APZ I), and Accident Potential Zone II (APZ II). These zones extend from each end of the runway. The probability of an incident is highest in the CZ and declines with distance from the runway in APZ I and APZ II.

To depict the noise impacts of aircraft, the AICUZ expresses average decibel levels over a 24-hour period (day-night average sound level [DNL]). Generally, average noise exposure of 65 decibels or higher can cause conflicts with noise-sensitive uses, such as housing or schools. **Figure 4** shows air safety zones and noise contours around NAS Fort Worth JRB. AICUZ land use guidelines promote compatibility by discouraging people-intensive and noise-sensitive development in areas with exposure to higher safety risks or noise. It should be noted that, while the AICUZ identifies zones with a higher likelihood of impact, noise or aircraft incidents could occur in other areas.

The DoD's REPI program reduces the risk of encroachment by authorizing the Military Services (US Army, US Navy, US Marine Corps, and US Air Force) to enter into agreements with eligible entities, including local governments, non-governmental organizations, and willing land owners for real estate transactions, such as conservation easements on property near a military installation or military airspace. The agreements enable organizations to acquire, ideally on a cost-shared basis, development interests in the properties of voluntary sellers. The property owner typically continues to hold the title for the land, but receives monetary compensation and tax breaks to maintain the encumbered property in a highly limited use that preserves habitat and other sensitive environmental resources. The US Army implements REPI authority through its Army Compatible Use Buffers (ACUB) program.

In 2013, the United States (US) Departments of Agriculture, Defense, and the Interior established the Sentinel Landscapes Partnership initiative. Sentinel Landscapes seeks to preserve working or natural lands, such as farms, ranches, and forests, to achieve the complementary goals of strengthening local economies, conserving habitat and natural resources, and protecting the vital missions of nearby military installations. The region's installations have surrounding environmental features, including lakes, parks, and natural areas; The Nature Conservancy priority areas; wetlands; Federal Emergency Management Agency (FEMA) flood zones; and working lands that could form the basis of potential REPI or Sentinel Landscapes partnerships across the *Joining Forces* study area (see **Technical Appendix C, Existing Conditions Section 2.4 Regional Environmental Resources**).

2

PARTNERS AND PROCESS

2 Partners and Process

Joining Forces Process

NCTCOG received a grant from the DoD Office of Economic Adjustment to coordinate the JLUS. The resulting year-long effort, *Joining Forces*, began with a regional kick-off to identify common issues and continued through existing conditions analysis, public and stakeholder input activities, and recommendations development (see **Figure 2**). The process culminated in a regional session to endorse study findings and build momentum for plan implementation.

Figure 2. *Joining Forces* Schedule

	2016							2017						
	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July
Data Collection		■	■	■	■	■	■							
NAS Fort Worth JRB Analysis								■	■	■	■			
Regional Analysis								■	■	■	■			
Committee Involvement	■				■				■			■		■
Public Involvement			■											■
Draft Plan													■	
Final Plan														■

Formal Study Partners

To balance multiple community, operational, and mission needs within a large region, NCTCOG formed four Policy Committees, representing interests around each of the high-intensity installations (see **Table 3**). The Committees provided overall guidance to the study, assisting the planning team in identifying key issues, gathering technical data, evaluating the feasibility of potential strategies, and developing final recommendations. *Joining Forces* also sought to facilitate a collaborative and inclusive process that engaged residents, businesses, landowners, community groups, and other stakeholders beyond the list of formal participants through interviews, meetings, and an online presence.

Table 3. *Joining Forces* Policy Committees

INSTALLATION	STAKEHOLDER REPRESENTATIVE
Redmond Taylor Army Heliport	City of Grand Prairie City of Dallas Redmond Taylor Army Heliport Texas Military Department – Texas Army National Guard
Fort Wolters Training Center	Palo Pinto County City of Mineral Wells Fort Wolters Mineral Wells/Palo Pinto County Area Growth Council Mineral Wells Area Chamber of Commerce Natural Resources Conservation Service Texas Military Department – Texas Army National Guard Lake Mineral Wells State Park/Texas Parks & Wildlife
Camp Maxey Training Center	Lamar County City of Paris Camp Maxey Texas Military Department – Texas Army National Guard Ark-Tex COG

Table 3. *Joining Forces* Policy Committees (cont.)

INSTALLATION	STAKEHOLDER REPRESENTATIVE
Naval Air Station Fort Worth Joint Reserve Base	City of Benbrook City of Fort Worth City of Lake Worth City of River Oaks City of Sansom Park City of Westworth Village City of White Settlement Tarrant County NAS Fort Worth JRB

Community Involvement

In addition to Policy Committee meetings, the planning team conducted face-to-face or telephone interviews with key stakeholders in the public, private, and community sectors to establish priorities for the study, gather data, and identify challenges and opportunities for further study. **Technical Appendix D** contains the full list of stakeholders. Stakeholders cited a wide variety of themes and issues, highlighting:

- Strong support for the military mission in surrounding communities and an understanding of the positive economic impact of the installations;
- Potential for increasing infill development and land use transitions in mature communities to introduce incompatibilities, especially in built out areas surrounding NAS Fort Worth JRB;
- Lack of county regulatory tools to address even modest growth in rural areas;
- Strong westward growth trajectory within the region, which could bring development closer to Fort Wolters;

- Effectiveness of existing coordination mechanisms and the successful implementation of zoning overlay tools in several communities around NAS Fort Worth JRB;
- Desire for increased military-civilian outreach and coordination in communities surrounding RTAHP, Camp Maxey, and Fort Wolters; and
- Support for additional compatibility measures, such as strategies to address energy infrastructure siting and UAS operations near airfields.

Joining Forces also offered public input opportunities through large format meetings and online content and exercises available on the project website: www.JoiningForcesNTX.org/. The planning team conducted two rounds of public meetings in Grand Prairie, River Oaks/Westworth Village, Paris, and Mineral Wells in August 2016, and July and August 2017.

The initial meetings introduced participants to the JLUS planning process and asked them to prioritize critical issues in their communities. Attendees at the Mineral Wells meeting near Fort Wolters highlighted minor compatibility issues related to development near the installation, the

Wind turbines can interfere with military aviation operations and communication systems. Photo © steve p2008, https://www.flickr.com/photos/stevepj2009/6869406438/

effect of tall structures on aviation, and the presence of cultural resources. Residents around NAS Fort Worth JRB in attendance at the River Oaks meeting noted localized stormwater/flooding issues and compatibility concerns stemming from development around the base, and circulation and traffic access. At the Camp Maxey meeting in Paris, participants highlighted issues related to transportation access around the installation, as well as nearby development. A consistent theme across all meetings was support for continued military-related growth in the surrounding communities and a desire to accommodate expanded operations at Fort Wolters and Camp Maxey.

In July and August 2017, the planning team held meetings in an Open House format, offering attendees an opportunity to review draft recommendations and comment on the JLUS document.

The planning team also conducted stakeholder interviews with city and county officials representing areas affected by military aircraft training in the southwestern portion of the study area. Officials from four of the seven counties with major land areas underlying the MOAs (Brady, Brown, Comanche, and San Saba Counties) provided feedback on community familiarity with military operations; the frequency and intensity of aircraft noise exposure; infrastructure plans, such as renewable energy; and preferred methods for communicating with residents regarding military activities.

Feedback reflected very strong levels of community support for ongoing training activities though officials indicated that residents desire more information about the military missions conducted in the area. According to stakeholders interviewed, communities experience aircraft noise, but the impacts are not intrusive or negatively affecting quality of life. While training produces periodic sonic booms, severe noise events were not recurrent and were not associated with any structural damage.

Overall, officials noted very few noise complaints from residents over an extended period of time. Stakeholders also did not identify any significant issues where aircraft-related noise startled or disturbed cattle or other livestock. Findings reinforced that while communities underlying the MOAs are welcoming and receptive to accommodating military training, additional educational outreach to residents could further strengthen understanding of military operations in the region. Officials did note either the presence of large-scale utility projects or plans to construct facilities. The Rattlesnake Wind Project will begin construction in the northwest corner of McCulloch County. The project will consist of 64 wind turbines. Logan's Gap Wind is an existing 200 megawatt facility in Comanche County that generates power from 87 wind turbines.

3

REGIONAL PROFILE

3 Regional Profile

Regional Land Use and Growth Trends

North Texas is a vast mix of urban centers and suburban-style development with smaller, lightly populated communities on the edges of the metropolitan area. The dynamic Dallas-Fort Worth (DFW) core anchors the region (see **Figure 3**). NCTCOG anticipates that the region will continue its rapid growth, with a population increase of 64 percent over the next two decades. If trends hold, the 12 counties that constitute the NCTCOG Metropolitan Planning Area (Collin, Dallas, Denton, Ellis, Hood, Hunt, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise) will add more than 4 million people, bringing the 2040 population to approximately 11 million.

While communities in the northern and far western portions of the study area are more lightly populated than the urban core, these rural areas still face specific encroachment threats related to regional growth patterns, energy infrastructure development, and nearby natural resources. Forecasts indicate a continued expansion of development throughout the region with a pronounced westward trajectory. Particularly strong growth in Parker and Tarrant Counties will increase opportunities for more intensive redevelopment in established neighborhoods or new development that could draw increased activity near military training.

Advancing regional development, energy production, and transmission infrastructure, such as wind turbines and transmission-line towers, can pose a collision hazard to military aircraft operations, especially in designated low-altitude Military Training Routes (MTRs) or interfere with air traffic control and onboard aircraft radar systems. While wind resource potential in Texas is highest along the coast near Corpus Christi, the Panhandle region, and areas near Abilene[1], renewable energy infrastructure could begin to spread east with changing technologies and demands. The TMPC and TCC have collaborated with the Electric Reliability Council of Texas (ERCOT) and the Public Utility Commission on policy updates to require DoD notification for proposed energy generation and transmission facilities. The ERCOT *Planning Guide* contains a Declaration of Department of Defense Notification for an Interconnecting Entity (IE) (See **Technical Appendix G**). Any IE seeking a study for interconnection to the ERCOT system must submit a declaration certifying that it has notified the DoD Siting Clearinghouse of the proposed generation resource and requested an informal or formal review or demonstrate that the proposed source is not required to provide notice.

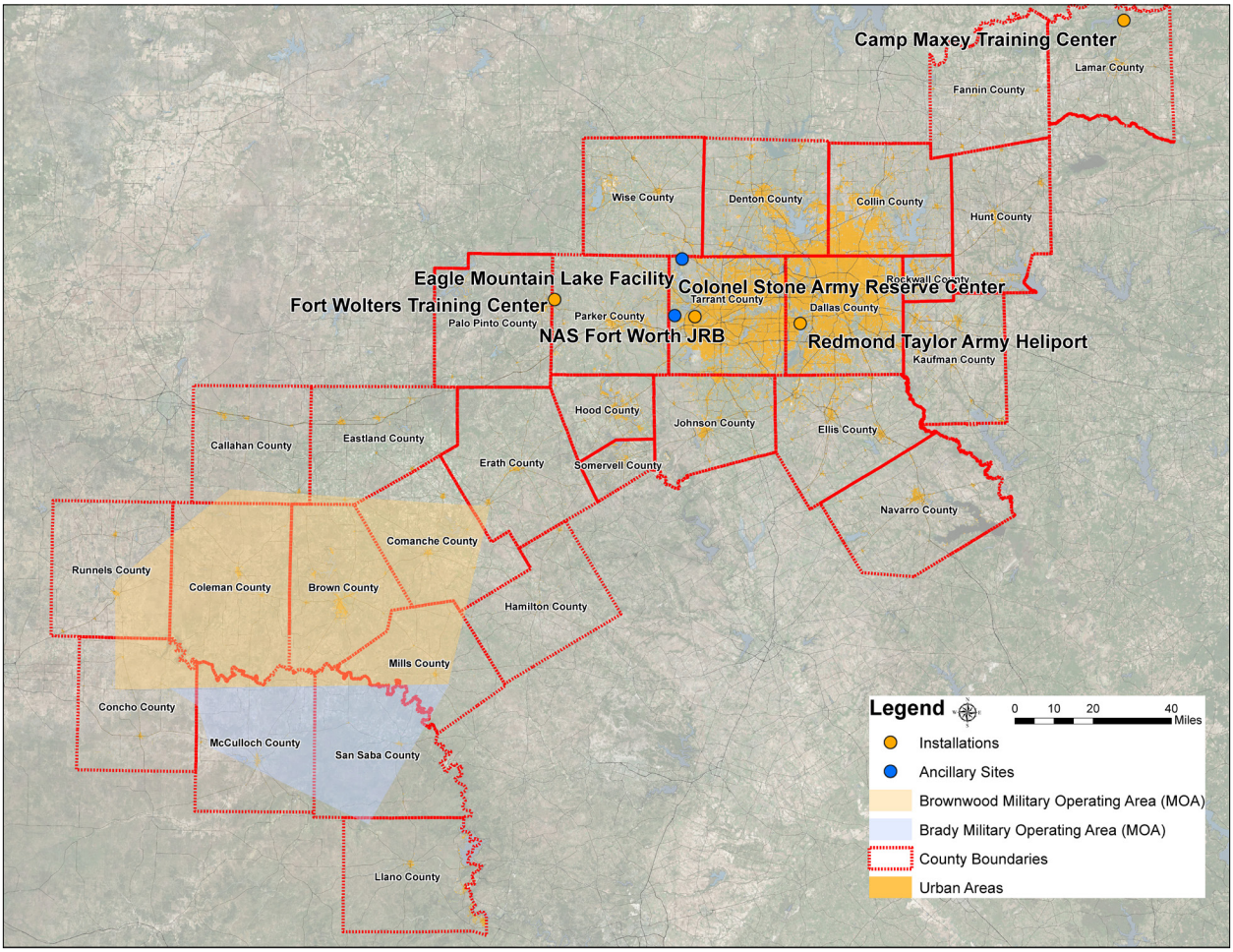
The diverse array of natural, cultural, open space, and recreational resources in North Texas forms part of the area's identity and high quality of life. These assets, however, also pose challenges

1 Texas Wind Resource Map and Potential Wind Capacity, http://apps2.eere.energy.gov/wind/windexchange/wind_resource_maps.asp?stateab=tx

and opportunities for nearby active military operations. The presence of sensitive resources, such as threatened and endangered species or cultural and archaeological sites, can require military installations to implement management and protection measures that restrict the use of land for training purposes. Nearby open space, working lands, parks, and critical habitat, however, also highlight opportunities for highly effective partnerships to preserve natural buffers around military installations, such as the DoD's REPI program.

While the *Joining Forces* region does not have significant encroachment related to threatened and endangered species, the proximity of waterbodies and public lands to the military installations may create a unique land use challenge. Nearby reservoirs and parks could cause issues related to flooding and drainage, as well as security and trespass risks for adjoining military lands. The open rangelands seen around Fort Wolters and Camp Maxey are also more prone to wildfires, particularly during drought conditions. These factors inform specific compatibility recommendations described in **Section 5**.

Figure 3. Urbanized Areas, Joining Region



USAF aircraft flies over Fort Worth, Texas
Source: Tech. Sgt. Charles Hatton, USAF - US Air Force photo 090112-F-4609H-083 from the 136th Airlift Wing website

Regional Economic Profile

The DFW region is one of the most diverse and dynamic economies in the nation. Significant industry clusters include aviation/aerospace, finance, healthcare, high technology, logistics, and manufacturing. Military-related facilities are also major contributors to the region's solid economic base. Installations provide direct jobs to enlisted personnel, contractors, civilians, and support staff. Additionally, personnel boost local economies by spending wages on goods and services produced in their communities. Along with active personnel, veterans compose a substantial percentage of the population, making up 6.5 percent of civilians age 18 or older in the 12-county DFW region and 9.8 percent of civilians age 18 or older in Lamar County, home of Camp Maxey.

Regionally, NAS Fort Worth JRB generates an estimated $6.6 billion in goods and services and $2.7 billion in post-income-tax personal income. The installation supports jobs for 17,466 people, and provides direct and indirect employment to 47,256 workers. The presence of the base and nearby Lockheed Martin has elevated the region to a top aviation and aerospace hub. From 2004 through 2014, employment in Tarrant County attributed to the military increased by six percent. Although no comparable economic data is available for Texas Army National Guard facilities, Camp Maxey and Fort Wolters both saw a substantial increase in use of training facilities between 2012 and 2014.

JOINING FORCES

The Texas military footprint is among the largest in the US. According to the latest analysis from the Texas Comptroller, the state's 15 major DoD installations generate $136 billion in economic activity, support more than 800,000 jobs, and create $48 billion in personal income annually. The impact of Texas military installations ranked ahead of agriculture and just behind energy as the state's biggest economic drivers.

F-35B and F-35C aircraft fly together over Fort Worth, Texas
Source: Lockheed Martin

NAS Fort Worth Joint Reserve Base Profile

NAS Fort Worth JRB's mission is "to provide joint training capabilities to enable War Fighter readiness while sustaining personnel and families' needs, future compatibility and inculcating a culture of safety." The primary responsibility of NAS Fort Worth JRB is to ensure combat readiness by training and equipping aircrews and aviation ground-support personnel. The base hosts over 45 separate tenant commands that represent the US Navy, US Marine Corps, US Army, US Air Force, and TXANG. Approximately 9,900 personnel operate at the 2,300-acre base, including active-duty military personnel, Guardsmen, Reservists, and civilians. These personnel conduct an average of

2,000 air operations each month. Operations take place between 7 a.m. and 11 p.m. **Table 4** shows the squadrons and aircraft at the base. Pilots from NAS Fort Worth JRB use airspace in the Brady and Brownwood MOAs, which are about 70 miles southwest of the base by air travel. The base also hosts a number of transient aircraft. Approximately 210,000 retirees in the region also access the base for a variety of services.

Figure 4 shows the installation and the surrounding communities. The US Air Force has identified NAS Fort Worth JRB as a candidate site for basing of the F-35 aircraft. The US Air Force will make a basing decision in 2017.

The Lockheed Martin facility adjacent to NAS Fort Worth JRB shares the installation runway for manufacturing and testing activities. Lockheed Martin has transitioned to a high rate of Joint Strike Fighter aircraft production at its facility. After $1 billion in investments, the plant will produce one aircraft per day or approximately 17 per month. Along with production, Lockheed Martin conducts flight testing, which can generate noise impacts on surrounding areas, particularly during aircraft hovering. Lockheed Martin faces encroachment challenges similar to NAS Fort Worth JRB, including concerns related to wind turbines, lighting, and UAS operations.

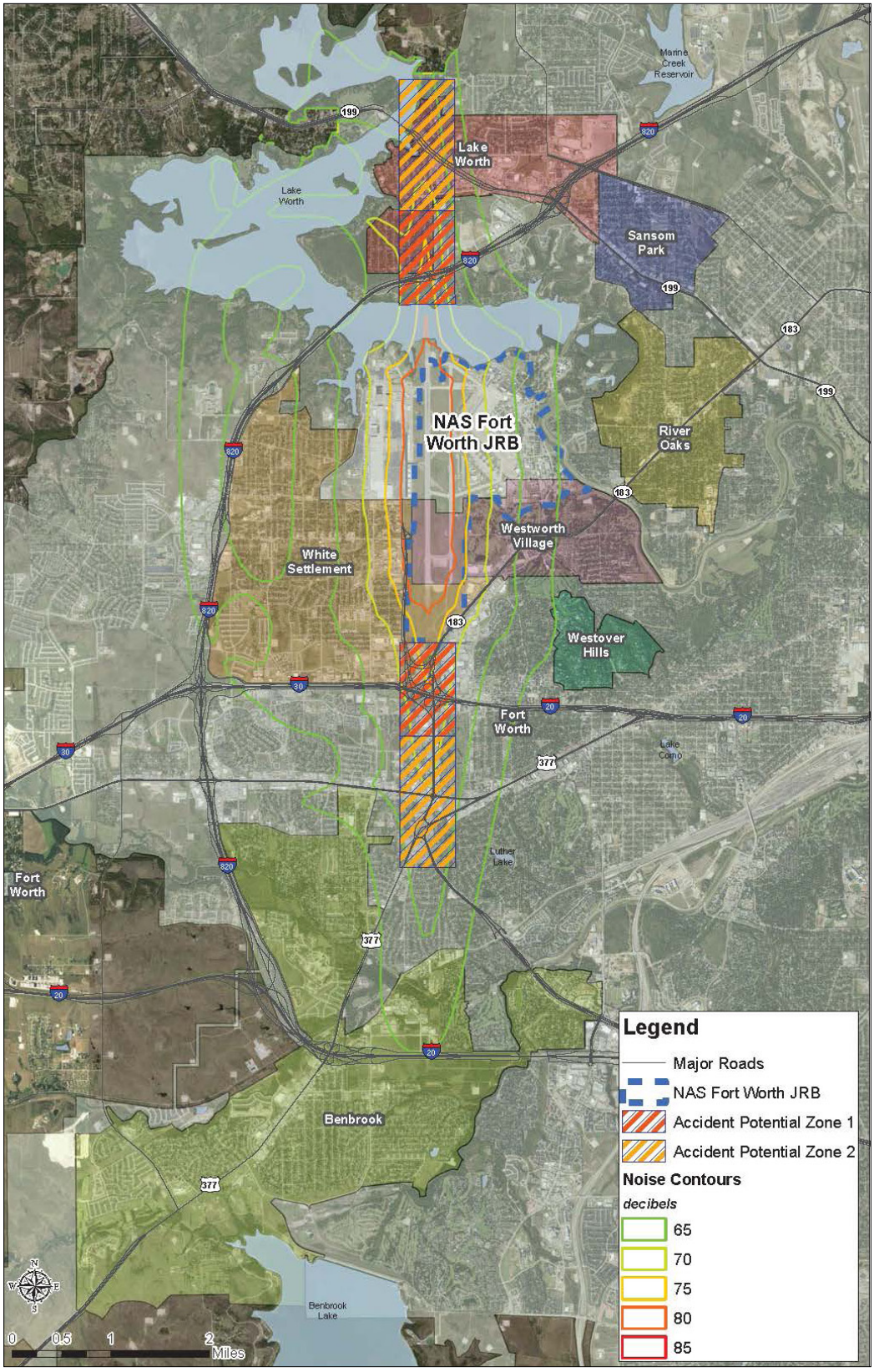
Table 4. NAS Fort Worth JRB Squadrons and Aircraft

FIXED WING	TYPE	QUANTITY
VR	C40	3
VMR	C40	TBD*
VMFA	F-18	4
VMGR	KC-130J	5**
US Army	C12/UC-35	3/1
US Air Force	F-16	24
TXANG	C-130	8

1. * Marines Reserve VMR-1 personnel transition underway. Aircraft arrival date to be determined (TBD).
2. ** Possible Transition to 10-15

Source: Community Planning and Liaison Officer Mike Branum, NAS Fort Worth JRB

Figure 4. NAS Fort Worth JRB and Surrounding Communities



Camp Maxey Training Center Profile

Camp Maxey Gate Source: Handbook of Texas Online, www.tshaonline.org/handbook; Camp Maxey

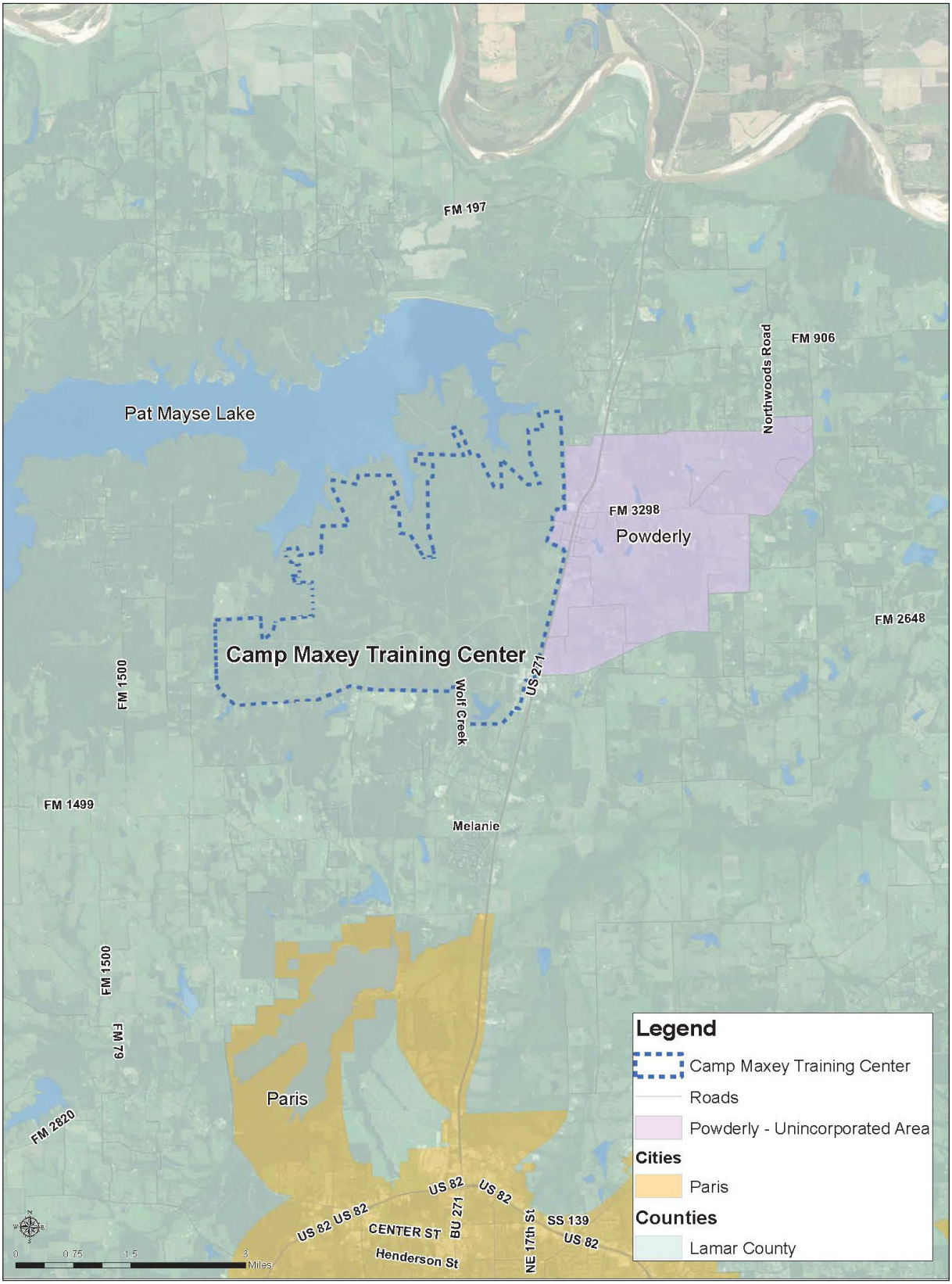
The TXARNG staffs Camp Maxey with 18 full-time personnel on site. Camp Maxey provides combat readiness training for up to battalion-sized elements for TXARNG units in the northeastern part of the state, including:

- Military police training;
- Light Infantry Training;
- Small Unit Tactics and Engineer training;
- Several firing ranges, including 9 millimeter (mm) pistol range, 5.56 mm Pop Up Range, 5.56 mm Zero Range, 7.62 or 5.56 mm fixed machine gun range, and 40 mm Grenade range;
- Land Navigation Course;
- Confidence Course;
- Nuclear Biological Chemical chamber;
- Mobility, counter mobility, survivability and construction operations;
- Mobile Operations and Urban Training (MOUT) site;
- A Unit Training Equipment Site where the motor pool is maintained;
- A buried Ammunition Supply Point; and
- Storage for 8,000 gallons of fuel.

Trainees who visit Camp Maxey include units from the TXARNG, US Army Reserve, US Navy, US Army, and US Marine Corps Reserve, as well as personnel outside of the DoD. The 2nd detachment of Garrison Training Center Command is the main user. Usage tends to be highest on drill weekends from March through October with typically at least one unit participating every weekend. Camp Maxey has experienced a 67 percent increase in use since 2012, with 32,516 personnel training at the site in 2014.

TXARNG Chinooks from RTAHP fly into Camp Maxey once or twice a year; Black Hawks also occasionally use the site. There is an informal Landing Zone (LZ) in the cantonment (developed) area near US 271. **Figure 5** shows the installation and surrounding land uses.

Figure 5. Camp Maxey and Surrounding Communities



Redmond Taylor Army Heliport Profile

RTAHP is on the west side of the former Hensley Field (NAS Dallas). The heliport is an approximately 110-acre lease, housing the Dallas Army Aviation Support Facility #3, the 2-149th Aviation Readiness Center, and the Field Maintenance Shop #16. Approximately 200 Soldiers and Singapore Air Force personnel staff the site on a daily basis. Another 250 military personnel train during drill weekends.

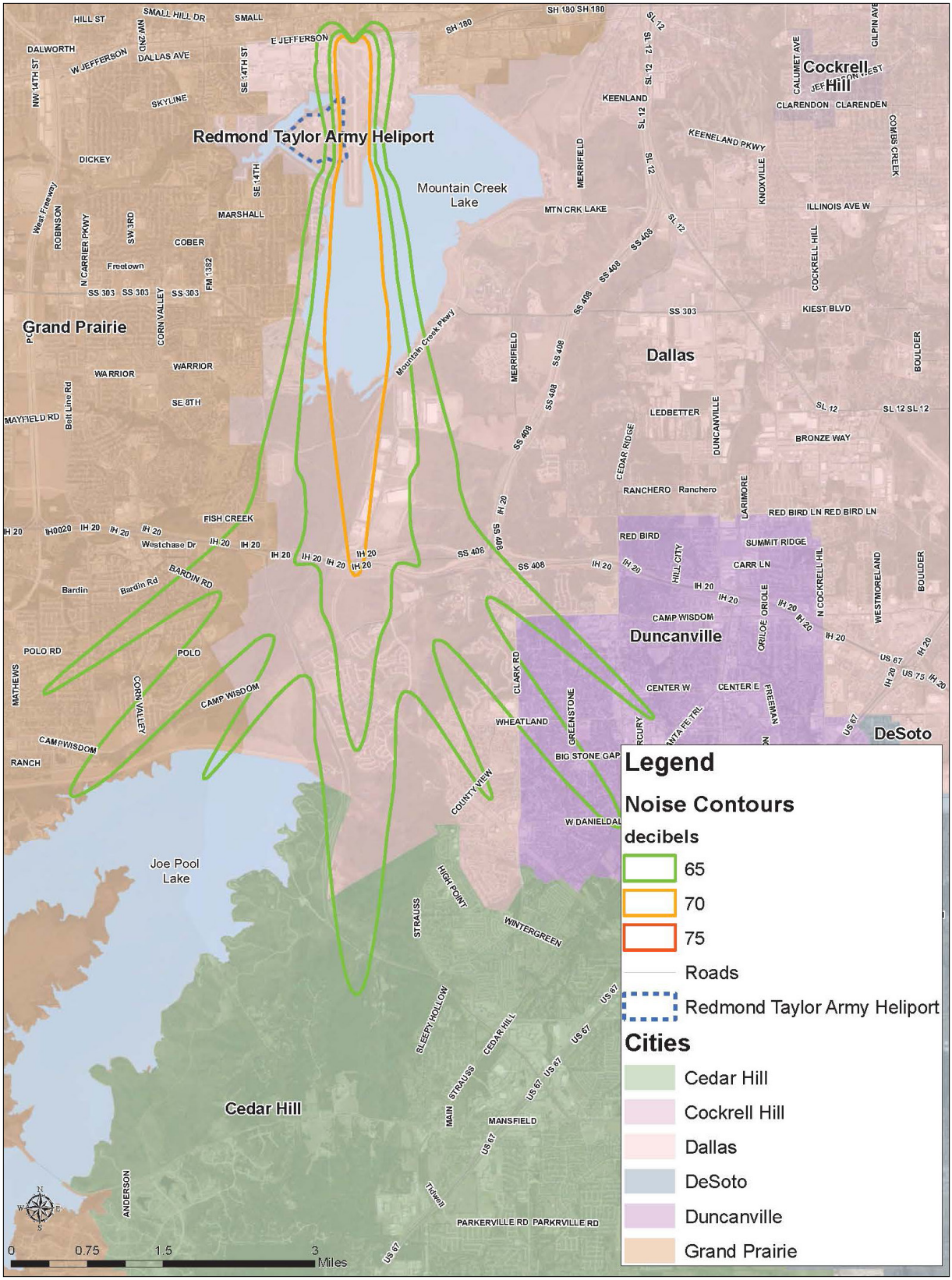
Redmond Taylor Army Heliport
Source: AECOM

The TXARNG operates eight CH-47 Chinooks on site for cargo and troop transport training. The helicopters fly to Kenneth Copeland Airfield in Tarrant County, Fort Wolters in Mineral Wells, and Camp Bowie in Brownwood. The Royal Singapore Air Force (RSAF) conducts training with six Chinooks on the site under a separate lease. Combined, the TXARNG and RSAF units fly approximately eight hours per day, typically Monday through Friday but with occasional weekend flights. Frequent nighttime operations occur Monday through Thursday. In addition to their wartime mission, RTAHP personnel fight wildfires with the Texas Forestry Service and assist local and state authorities during natural disasters, such as hurricanes and floods.

The Grand Prairie Armed Forces Complex is on the east side of the field, serving as an administrative center for several US Armed Forces branches. Facilities include a headquarters building and a large vehicle maintenance area. The TXARNG also houses its 176th Engineer Brigade at the complex. The east side of the installation does not host any aviation assets.

Aviation units at RTAHP log about 1,100 to 1,200 flight hours per year. Activity may increase slightly in the near future, and the site could add up to six UH-60 aircraft, depending on the training needs of the Texas Military Department. **Figure 6** shows the installation and the surrounding communities, along with contours depicting the noise impacts of operating aircraft.

Figure 6. RTAHP and Surrounding Communities



Fort Wolters Training Center Profile

The Maneuver Training Center – Light at Fort Wolters provides pre-mobilization and sustainment training for all northern TXARNG units west of Interstate 35. This training includes:

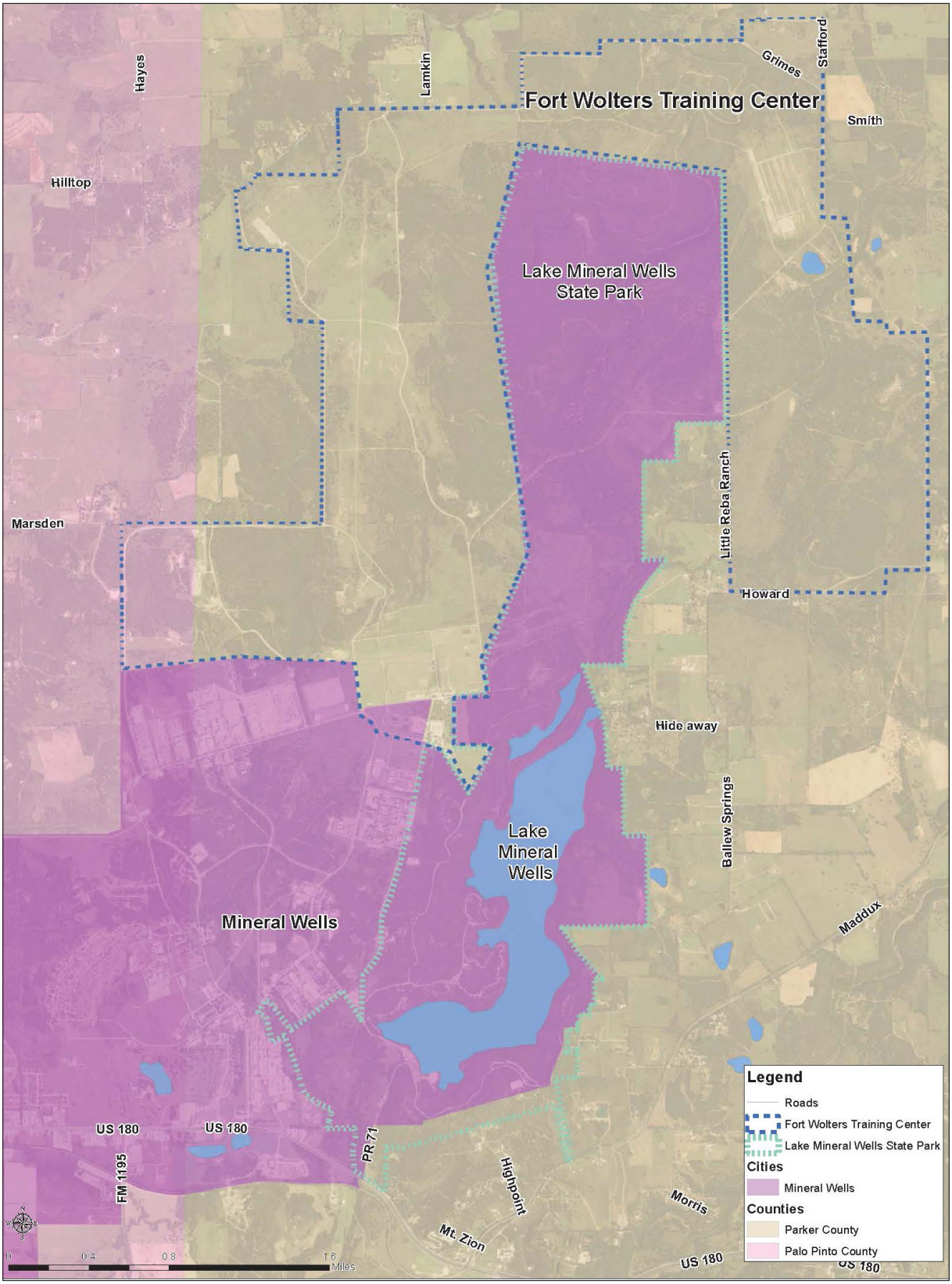
- 24-kilometer Improvised Explosive Device defeat route along the facility perimeter;
- MOUT sites;
- Simulations, including small arms training and known-distance ranges;
- Hand grenade qualification;
- Nuclear Biological Chemical chamber;
- Forward Operating Base simulation;
- Acreage for bivouacking (temporary camping) and maneuver training;
- A Unit Training Equipment Site where the motor pool is maintained (can also serve as a maintenance facility to support habitual users);
- A State Shop for maintenance; and
- Storage for 14,000 gallons of fuel.

Fort Wolters Training Center
Source: AECOM

The installation supports Special Forces, Airborne, and Joint Training operations, including airdrops and air landings from the 136th TXANG unit out of NAS Fort Worth JRB. Operations involve heavy drops, light drops, and personnel drops. Fort Wolters is the closest training site for units from NAS Fort Worth JRB.

Fort Wolters has a staff of 25 full-time personnel, but an increasing volume of military personnel visit the facility each year. Drill weekends from March through May see the highest levels of activity. In 2014, 48,745 total visitors came to Fort Wolters (47,309 military personnel; 1,436 non-DoD personnel), representing a 68 percent increase over 2012 activity. **Figure 7** shows the installation and surrounding communities.

Figure 7. Fort Wolters and Surrounding Communities



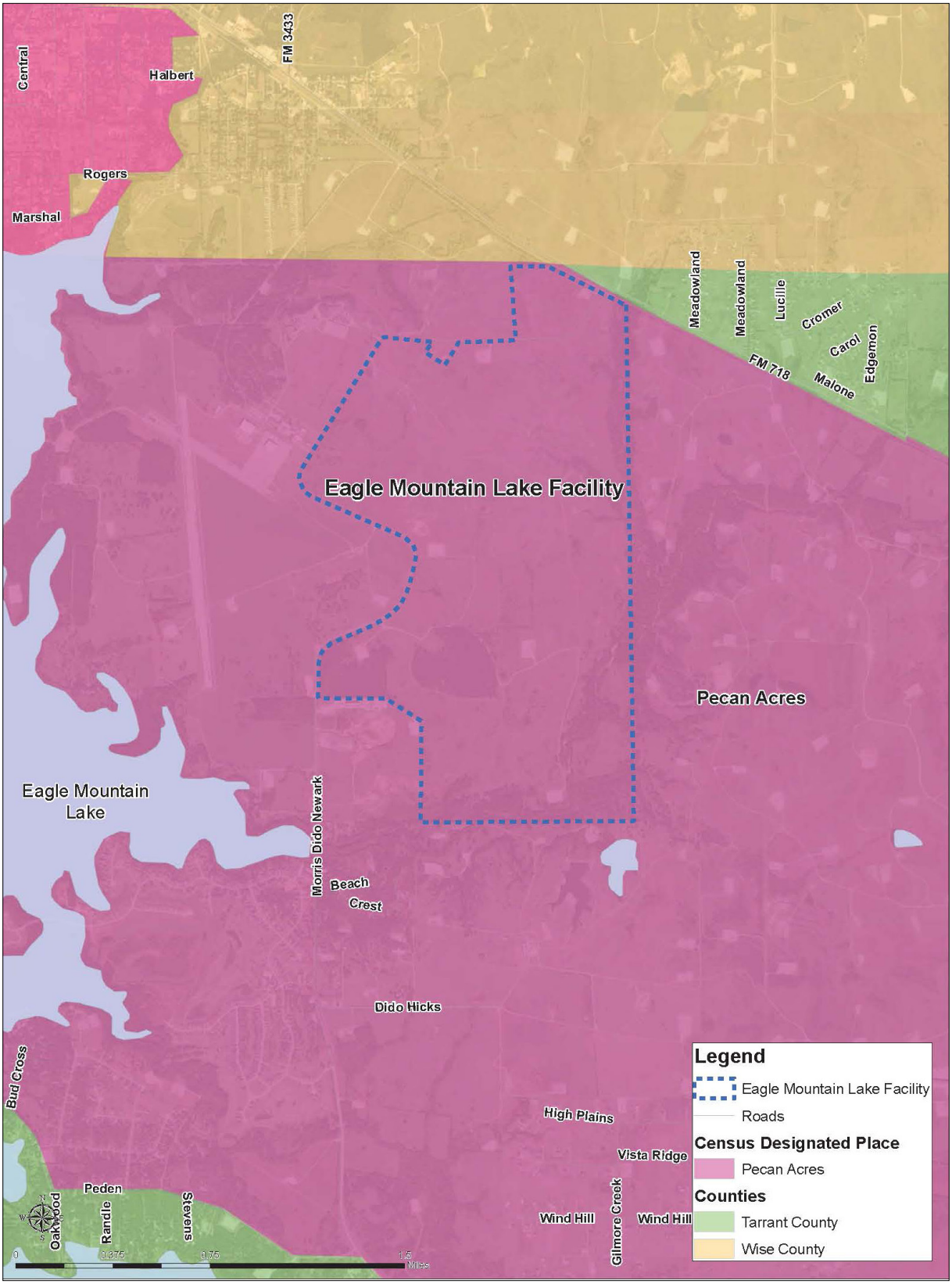
Ancillary Sites

In addition to the four high-intensity installations profiled above, the *Joining Forces* study area includes the following ancillary sites that provide training assets in support of higher intensity facilities, as well as maintenance sites, administrative centers, or training areas with lower impact operations.

Eagle Mountain Lake Facility

Fort Wolters manages the Eagle Mountain Lake Facility, which is east of the Kenneth Copeland Airfield in Tarrant County (see **Figure 8**). The largely rural Pecan Acres community surrounds most of the facility. Personnel use the 1,212-acre site approximately six times per year for field training and bivouacking (temporary camping). Units also conduct regular helicopter confined space landings and angled maneuvers.

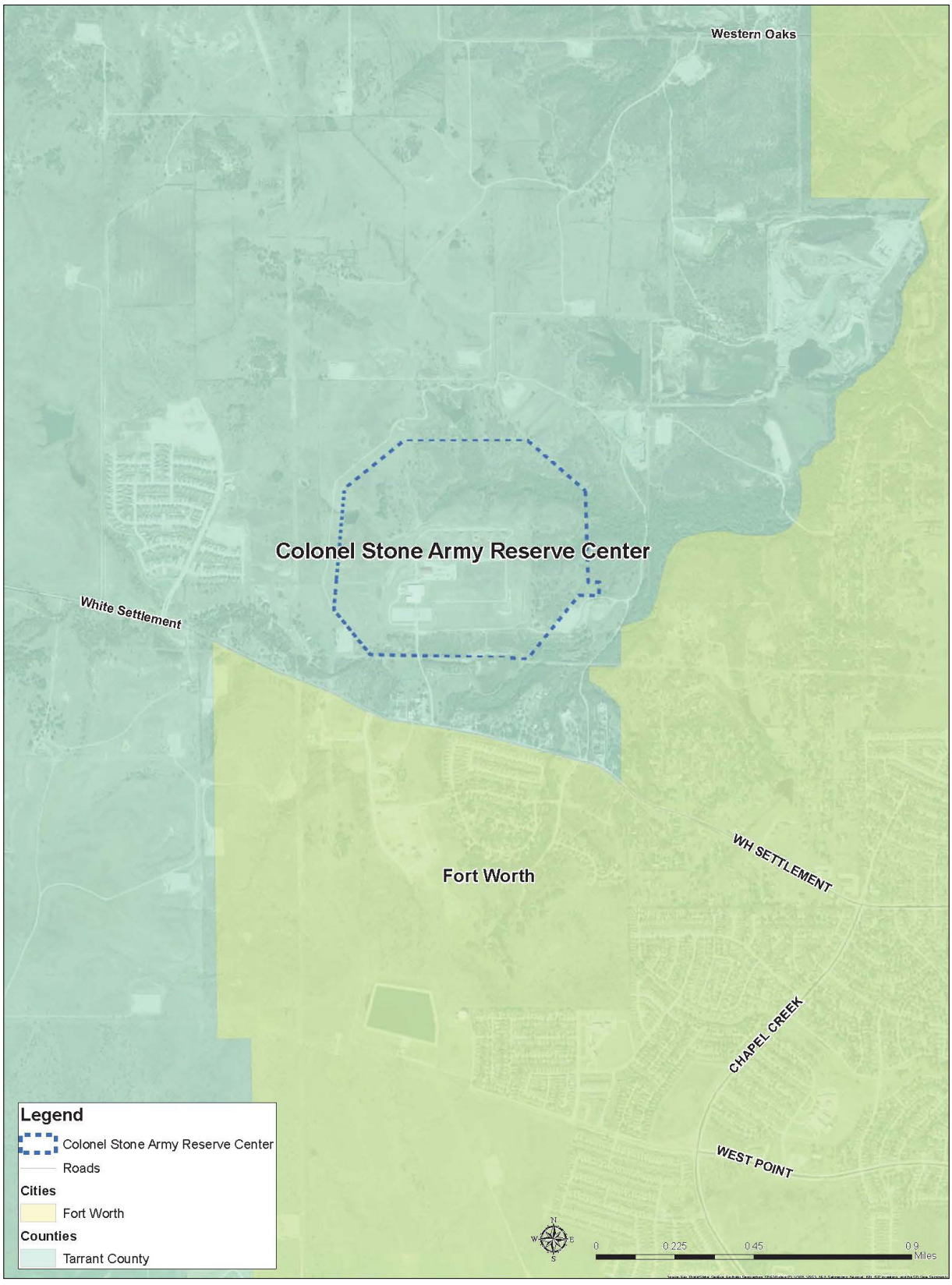
Figure 8. Eagle Mountain Lake Facility and Surrounding Communities



Colonel Stone Army Reserve Center

The Colonel Stone Army Reserve Center (also known as Fort Worth Army Reserve Center) is off White Settlement Road in the western portion of Tarrant County. The 240-acre site supports the 370th Chemical Company, 320th Quartermaster Detachment, and the 90th Aviation Support Battalion. This facility is primarily an administrative center but also accommodates convoy, land, field, and helicopter training. Approximately 500 to 1,000 Reservists come to the facility once a month to drill. In addition, the facility includes an Organization Maintenance Shop building, administrative areas, vault, weapons simulator, and physical fitness area. The site falls in unincorporated Tarrant County but is very close to the City of Fort Worth (see **Figure 9**).

Figure 9. Colonel Stone Army Reserve Center and Surrounding Communities



Brownwood and Brady Military Operating Areas

Due to mission requirements and safety issues, military aircraft participating in training activities must separate from non-military aircraft. SUA designates the boundaries of military operations and restricts access to the area by non-military aircraft during active operations. MOAs are a type of SUA. NAS Fort Worth JRB tenant units conduct training activities in the Brownwood and Brady MOAs, approximately 70 miles southwest of the base (see **Figure 10**). The MOAs also establish maximum and minimum altitudes for aircraft operations. This training airspace is operational from sunrise to 11 p.m., Monday through Friday, or as posted by FAA-issued Notices to Airmen.

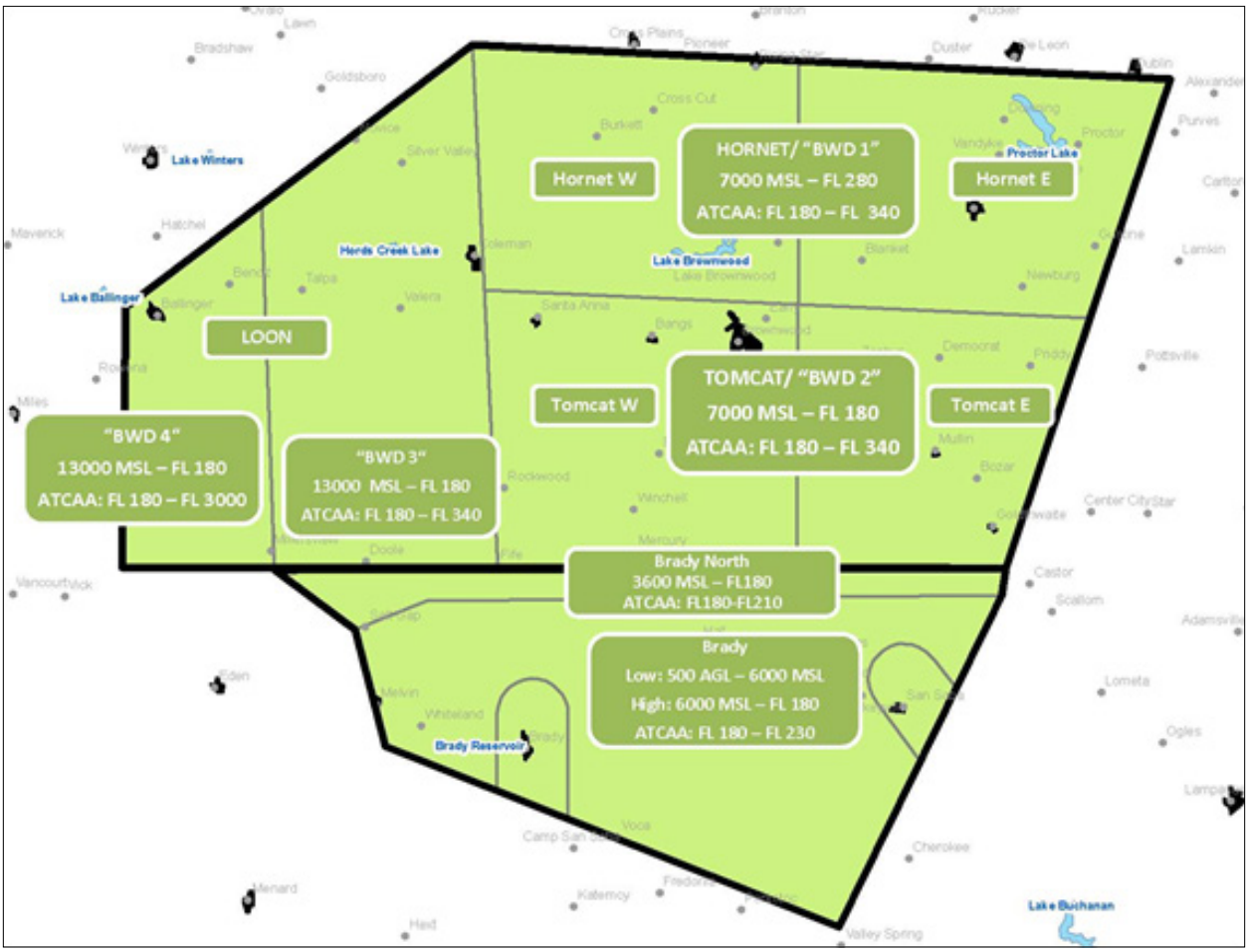
The US Air Force owns the Brownwood MOA, which encompasses approximately 3,200 square miles of training airspace. Altitudes range throughout the area from a low of 7,000 feet above mean sea level (MSL) to a high of 18,000 feet MSL when in use. The US Air Force also owns the Brady MOA directly south of the Brownwood MOA. This area offers approximately 1,500 square miles of training airspace. The Brady MOA altitudes range from 500 feet above ground level to 18,000 feet MSL. The US Air Force's 301st Fighter Wing schedules use of the Brownwood and Brady MOAs.

The MOAs cover the far southwestern part of the study area, overlying portions of Brown, Callahan, Coleman, Comanche, Concho, Eastland, Erath, Hamilton, Llano, McCulloch, Mills, Runnels, and San Saba Counties.

Aircraft participating in training exercises use MTRs to access airspace. These routes designate air corridors for low-altitude, high-speed military flight traffic and training. The US Air Force's 301st Fighter Wing schedules use of MTRs to access local training areas. Commonly used MTRs are Instrument Routes (IRs) 103, 105, 123, 124, and 139; Visual Routes (VRs) 101, 104, 118, 143, 186, 1110, 1124, 1128, and 1137; and Slow Routes (SRs) 228 and 270 (see **Figure 11**).

Personnel at NAS Fort Worth JRB have noted an increase in activity in the MOAs with the number of annual operations rising from approximately 3,500 in 2009 to 6,000 in 2012. Factors related to use or the scheduling of airspace, however, have not adversely affected the training environment.

Figure 10. Brownwood and Brady MOAs



Source: Community Planning and Liaison Officer Mike Branum, NAS Fort Worth JRB

Figure 11. Local Military Training Routes

4

COMPATIBILITY FACTORS

4 Compatibility Factors

The central purpose of the JLUS is to reduce or, when feasible, eliminate compatibility issues between the military and surrounding civilian land uses. Compatibility challenges occur when:

- Certain types of development limit the ability of the military to perform its missions or cause changes in training or testing operations that reduce mission effectiveness; and/or
- Communities experience higher than normal levels of impacts from military activities, such as noise or safety risks, which can then affect quality of life or uses of land.

The planning process began by identifying 14 potential compatibility factors in the North Texas region. **Table 5** describes these factors and indicates if the installation and nearby communities experience related encroachment issues. As the analysis highlights, compatibility challenges are specific to each installation's individual context, varying due to surrounding land use, military operations, and the intensity of use. Other factors, such as airspace, air quality, energy, and flooding have regional implications due to their complexity and multi-jurisdictional scale.

The remainder of **Section 4** elaborates on the compatibility concerns for each installation or training area. The analysis of these factors forms the basis of the strategies found in the compatibility menus described in **Section 5**.

Table 5. Compatibility Factors

COMPATIBILITY FACTOR	NAS FORT WORTH	FORT WOLTERS	FORT MAXEY	RTAHP	EAGLE MOUNTAIN	STONE ARMY RES.	MOAs
Air quality refers to air pollution and any limitations on operational activities that could result from non-compliance with air quality standards.	●			●			
Airspace refers to conditions that either constrain the capacity of airspace or create safety hazards. Conflicts may result from air traffic congestion, mid-air strike hazards from birds, UAS or small aircraft, or vertical intrusions.	●	●	●	●	●	●	●
Cultural resources include historic districts, sites, structures, included, or eligible for inclusion, in the National Register of Historic Places. Resources on or off the installation can restrict use of training lands.		●					
Development reflects the growth of nearby communities, resulting in additional housing and infrastructure, higher population densities, and the conversion of agricultural, grazing, or forest lands.	●			●	●	●	

Table 5. Compatibility Factors (cont.)

COMPATIBILITY FACTOR	NAS FORT WORTH	FORT WOLTERS	FORT MAXEY	RTAHP	EAGLE MOUNTAIN	STONE ARMY RES.	MOAs
Energy includes compatibility conflicts from the development, siting, distribution, or transmission of energy resources. Structures, such as wind turbines, transmission lines, or gas wells can interfere with air traffic control and onboard aircraft radar systems or create aviation hazards.	●	●	●	●	●	●	●
Flooding refers to poor drainage that disrupts military operations (e.g. standing water on airfield) or creates flooding impacts in nearby communities.							
Frequency spectrum refers to competition or interference that restricts the military's access to bandwidth or that blocks or impedes its ability to transmit or receive data (e.g. Navigation Aid [NAVAID] Systems and radar). Military operations can also interfere with the civilian use of frequency spectrum (e.g. Global Positioning System [GPS] jamming).	●						
Light pollution/glare refers to stray or excessive light from lighting systems or signs that can interfere with pilot vision or the use of night-vision training devices during military training operations.	●						

Table 5. Compatibility Factors (cont.)

COMPATIBILITY FACTOR	NAS FORT WORTH	FORT WOLTERS	FORT MAXEY	RTAHP	EAGLE MOUNTAIN	STONE ARMY RES.	MOAs
Munitions involve safety and environmental concerns that are a consequence of mission activities. Examples are Unexploded Ordnance (UXO) or the presence of people or development near the safety fans of weapons firing areas or explosive hazards (munitions storage).	●	●	●				
Noise is any sound produced by military readiness activities (e.g., aircraft operations, small and large caliber weapons firing) that affects nearby communities.	●			●			●
Security encroachment occurs from actions that might compromise the safety of either training military personnel or civilians. An example is the unauthorized access (either intentional or unintentional) of members of the public onto military lands or weaknesses in perimeter security or access control points.	●		●	●			

Table 5. Compatibility Factors (cont.)

COMPATIBILITY FACTOR	NAS FORT WORTH	FORT WOLTERS	FORT MAXEY	RTAHP	EAGLE MOUNTAIN	STONE ARMY RES.	MOAs
Species and habitat refer to threatened and endangered species, critical habitat, or areas of environmental sensitivity either on the installation or in adjacent communities. Mandated protection of species and/or habitat can result in restrictions on the use of military lands for training purposes.							
Transportation impacts include military vehicle use of local roadways and localized traffic impacts in surrounding communities resulting from delayed ingress and egress at installation gates.	●		●			●	
Water encroachment results from either water quality (e.g. pollution) or supply (i.e., quantity and availability) issues.				●			
Wildfire encompasses the increased risk of wildfire due to weapons firing or ordnance use. Installations may also be at risk of wildfire that spreads from the surrounding community.		●	●				

NAS Fort Worth JRB Compatibility

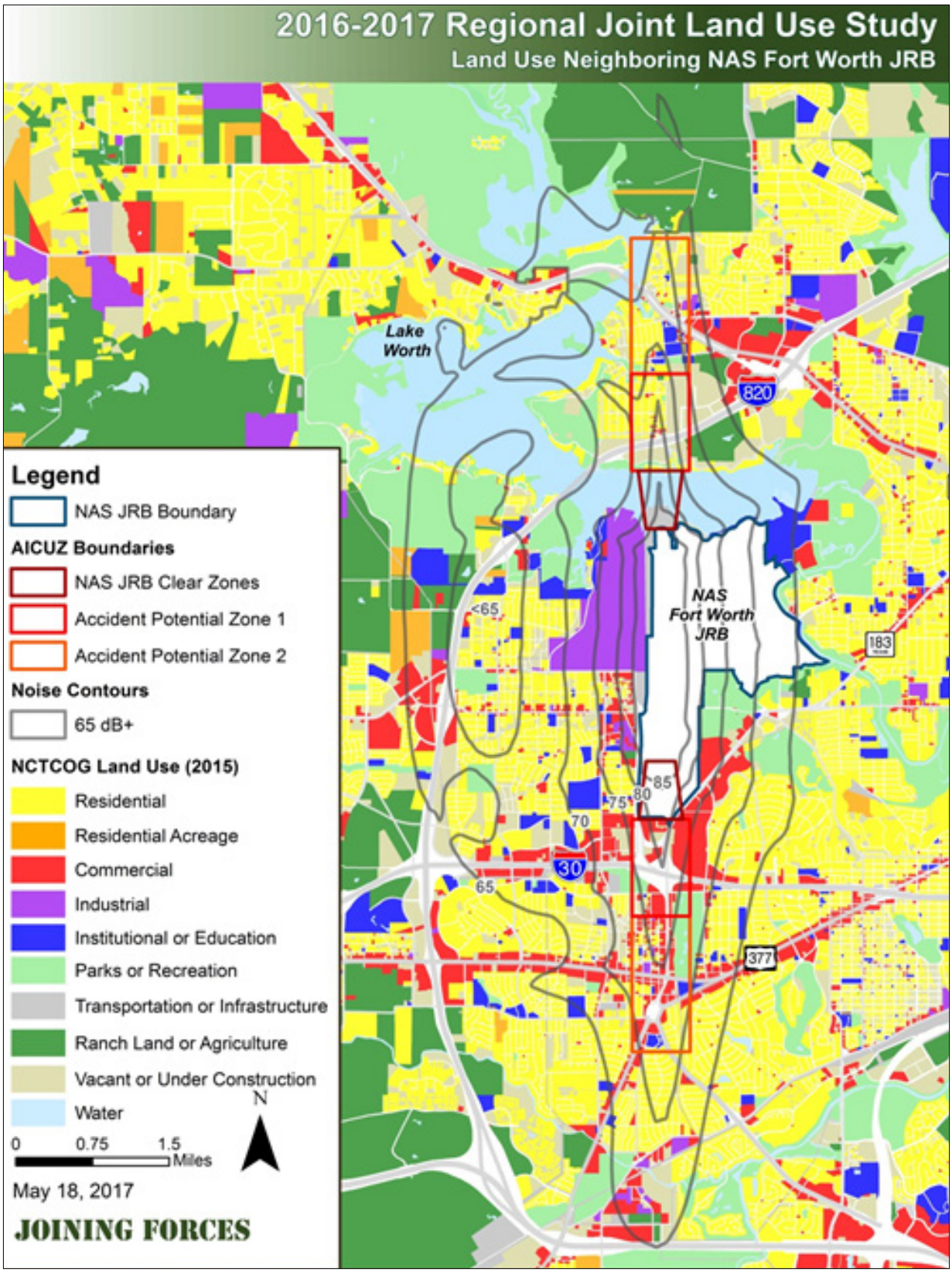
NAS Fort Worth JRB Compatibility Issues

NAS Fort Worth JRB affects and interacts with several cities in Tarrant County: Fort Worth, Benbrook, Lake Worth, River Oaks, Sansom Park, Westover Hills, Westworth Village, and White Settlement (see **Figure 4**). **Figure 12** shows the heavily residential character of areas surrounding the base, as well as concentrations of retail use to the south. The base's compatibility issues are:

- Airspace
- Development
- Energy
- Flooding/drainage
- Frequency spectrum
- Light pollution
- Airborne Noise
- Security
- Transportation
- UXO/Munitions

The NAS Fort Worth JRB AICUZ identifies air safety zones (CZ, APZ I, and APZ II) that extend to the north off the base. To the south, APZ I and APZ II cross the installation boundary into the community. The extended centerline of the assault landing strip on base also extends to the south over a commercial redevelopment opportunity (Ridgmar Mall) in the City of Fort Worth.

Figure 12. NAS Forth Worth JRB Surrounding Land Use, 2015

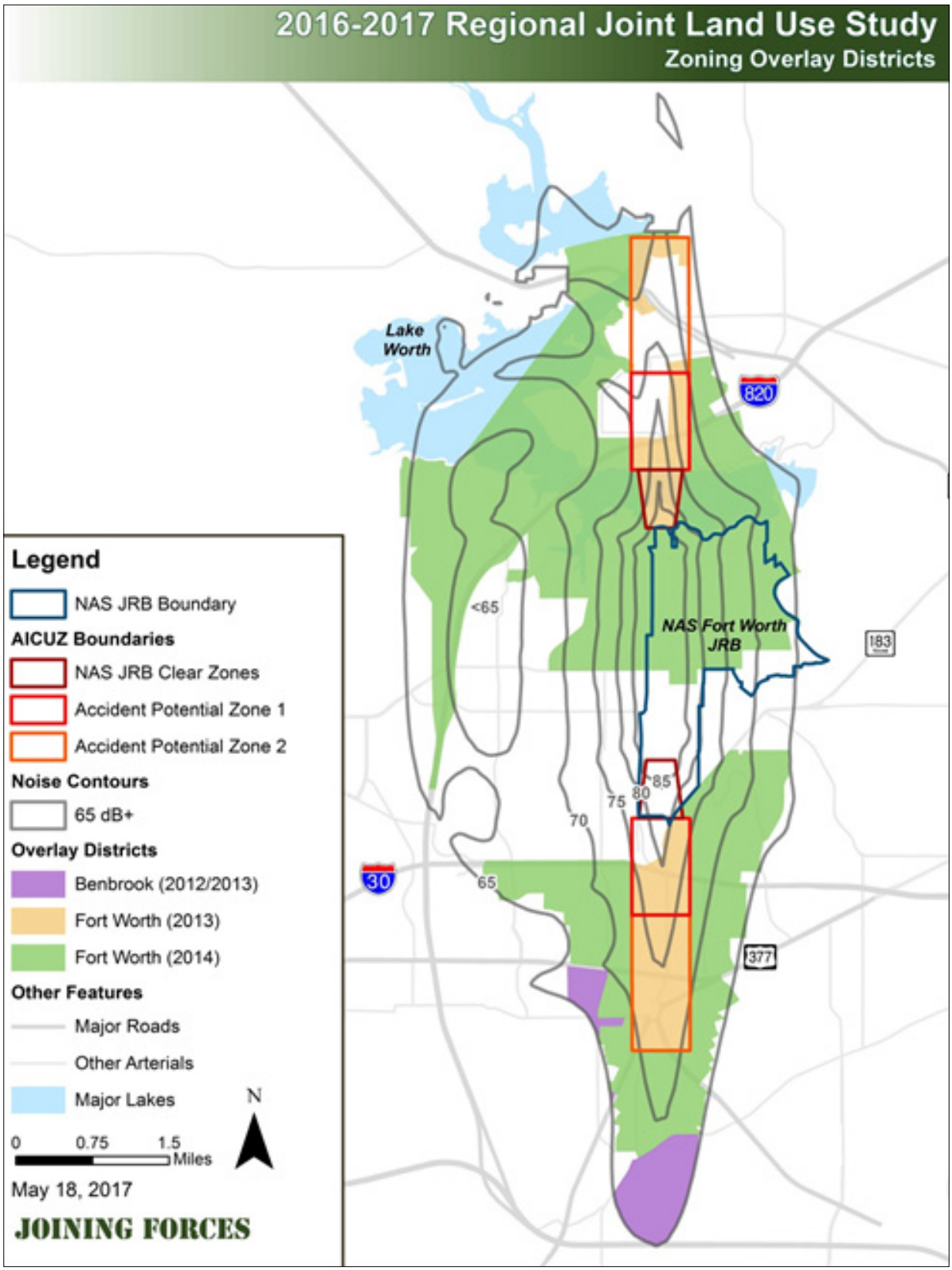


High average levels of aircraft noise extend north and south from the runway with lower noise exposure spreading farther into the community. The cities of Benbrook and Fort Worth have adopted overlays to address air safety and noise impacts (see **Section 2** and **Figure 13**). On the air safety side, portions of the APZs within Lake Worth to the north and White Settlement to the south do not have regulatory overlays in place to control development intensity or land use type in areas of higher accident risk.

In general, community and stakeholder feedback indicates that aircraft noise around NAS Fort Worth JRB does not significantly affect quality of life. In the previous 12 months, the base received 10 noise-related complaints, 8 of which did not originate from NAS Fort Worth JRB aircraft operations. Base aircraft, however, may generate noise impacts, including supersonic booms, when conducting training activity in outlying airspace, affecting communities in the far southwestern portion of the study area. Lockheed Martin also conducts flight testing at and around the base, which can generate noise impacts on surrounding areas, particularly during aircraft hovering.

The most significant compatibility concerns for NAS Fort Worth JRB revolve around new development pressures and flight obstructions. Even though current residents are relatively accustomed to existing noise, increasing infill development and redevelopment activity in surrounding communities could place more people in proximity to aircraft noise. Similarly, residential turnover in nearby mature neighborhoods could attract new residents without ties to the base or familiarity with the area's long military history.

Figure 13. NAS Forth Worth JRB Zoning Overlay Districts, 2017



NCTCOG conducted an analysis of land use compatibility in the AICUZ surrounding the base. Using DoD compatibility guidelines, the analysis seeks to determine if community land use change from 2005 to 2015 has produced more or less compatibility with noise and safety impacts. In all of the noise contours, the changes showed a mix of decreasing and increasing compatibility. The majority of land use changes in both the north and south APZ II resulted in an increase in compatibility, except for some changes that took place along the shore of Lake Worth. The land use changes in both APZ I areas showed a mix of decreasing and increasing in compatibility. No land use changes occurred in the CZs (see **Technical Appendix E** for the full Land Use Compatibility Memorandum).

Along with development, mission change could affect overall compatibility by altering the noise environment. NAS Fort Worth JRB is a candidate site for basing of the F-35. Though noise varies based on operational characteristics, the F-35 aircraft is in general louder than the current F-16. In addition, the engines of this 5th generation fighter operate at another frequency that could produce differing perceptions of nuisance in the community.

The only explosive safety quantity distance (ESQD) arcs that extend beyond the installation's property boundaries are those associated with the northern munitions storage facilities. These ESQD arcs extend approximately 1,000 feet out into Lake Worth, which is open to the public for recreational purposes, although a buoy line was recently refreshed in the area to prevent public access. This buoy line is enforced with the cooperation of the City of Fort Worth Police Lake Worth Marshal. NAS Fort Worth JRB has site approval from the DoD Explosive Safety Board for the ESQD arc, and the boundary of the arc is marked with buoys.

Other compatibility impacts relate to energy and transportation. Energy-related infrastructure, including utility-scale wind and solar, transmission lines, and gas wells can pose a collision threat and interfere with radar and navigational aids near the base and in MTRs to the southwest. The base has also had sightings of UAS in the area, which can create a flight hazard for low-flying aircraft and a security risk for military personnel. Special events at NAS Fort Worth JRB or other periods of high demand such as drill weekends can delay access at the gate and cause vehicular congestion on the local road network. NCTCOG, as the Metropolitan Planning Organization responsible for transportation planning in the region, has undertaken numerous projects to enhance access to NAS Fort Worth JRB and improve area roadway function.

Stormwater Management

NAS Fort Worth JRB is bounded by Lake Worth on the north, the West Fork of the Trinity River to the east, and the Farmers Branch Creek Watershed, which flows through two large culverts under the southern runways of the airfield. Thunderstorms bring significant rainfall to the region, producing localized flooding. The City of White Settlement, in particular, is prone to flooding given the high

percentage of impervious surface in the area. NAS Fort Worth JRB previously experienced flooding on runways during rainfall events. Flooding on airfield runways can be highly disruptive to training and can jeopardize the safety of personnel and damage aircraft.

To address ongoing flooding and drainage issues, the *Joining Forces* study included a review of prior flooding studies and additional hydrologic and hydraulic analysis of the installation, surrounding communities, and the Farmers Branch Creek Watershed (see **Technical Appendix K** for the full Stormwater Memo). The USACE completed an update to the original FEMA Hydrology and Hydraulics for the Farmers Branch Watershed in November of 2005. The report concluded that the Farmers Branch Creek experienced costly, repetitive flooding even during minor storm events and identified several options to reduce impacts, including replacement of bridge and culvert structures along the floodplain, detention ponds near Interstate Highway 820, and widening of the existing channels. Previous NCTCOG corridor master plan efforts, specifically SH 183 (River Oaks Boulevard) and SH 199 (Jacksboro Highway) have also assessed flooding issues in areas surrounding NAS Fort Worth JRB. Inadequate drainage collection, minimal storm drain inlets, insufficient upstream and on-system capture areas, and wide swaths of impervious cover contribute to poor drainage along the corridors and subsequent flooding. NAS Fort Worth JRB confirms there are currently no significant, or recurring, flooding concerns within its fence line.

While the base and surrounding areas have made progress in addressing flooding, a regional emphasis on stormwater management is necessary to maintain manageable rates of stormwater flow as development in the watershed continues and ensure the effective function of current stormwater infrastructure. Substantial increases in future stormwater flow and any degrading of the capacity of the stormwater system could generate new flooding risks at the base or affect access and safety due to flooding in surrounding areas. **Section 5** and **Technical Appendix L** explore planning-, infrastructure-, and maintenance-related strategies.

NAS Fort Worth JRB Communication and Coordination

Communication and coordination refers to the existing processes and tools that an installation and surrounding communities can use to increase understanding of military missions and activities, identify potential encroachment issues, and promote compatibility through inter-jurisdictional and inter-agency cooperation on critical planning issues. The collaborative framework supporting NAS Fort Worth JRB is the strongest in the North Texas region due to long-standing compatibility efforts that date back to the 2008 JLUS and the 2013 PLMC. As noted earlier, study partners, along with the NCTCOG, formed the RCC to serve as a joint forum for ongoing military and community planning. NCTCOG also hosts the RCC Development Review Web Tool, a web-based clearinghouse to track and review community projects and initiatives. In this collaborative context, the base has maintained an active presence in local planning initiatives, and community stakeholders have expressed strong support for base personnel and operations.

Given the mature partnership between NAS Fort Worth JRB and nearby local jurisdictions, the emphasis of the *Joining Forces* study in this area is on refining and enhancing available tools, such as the RCC Development Review Web Tool as described in **Section 5**.

MOA Compatibility

Training airspace in the Brady and Brownwood MOAs is prone to noise-, flight obstruction-, and energy infrastructure-related compatibility challenges. Participating aircraft can generate noise that affects nearby communities, particularly during low altitude exercises or supersonic flight operations. The Brady and Brownwood MOAs allow for supersonic flight, which produces a distinctive percussive boom as the aircraft travels in excess of the speed of sound. These outlying rural areas are also likelier to be the site of large-scale energy infrastructure. Aircraft can be vulnerable to physical intrusions, such as tall structures in low-level corridors or radar interference from wind turbines. These issues suggest opportunities for additional community outreach and consultation processes to coordinate on energy infrastructure development.

Fort Wolters Compatibility

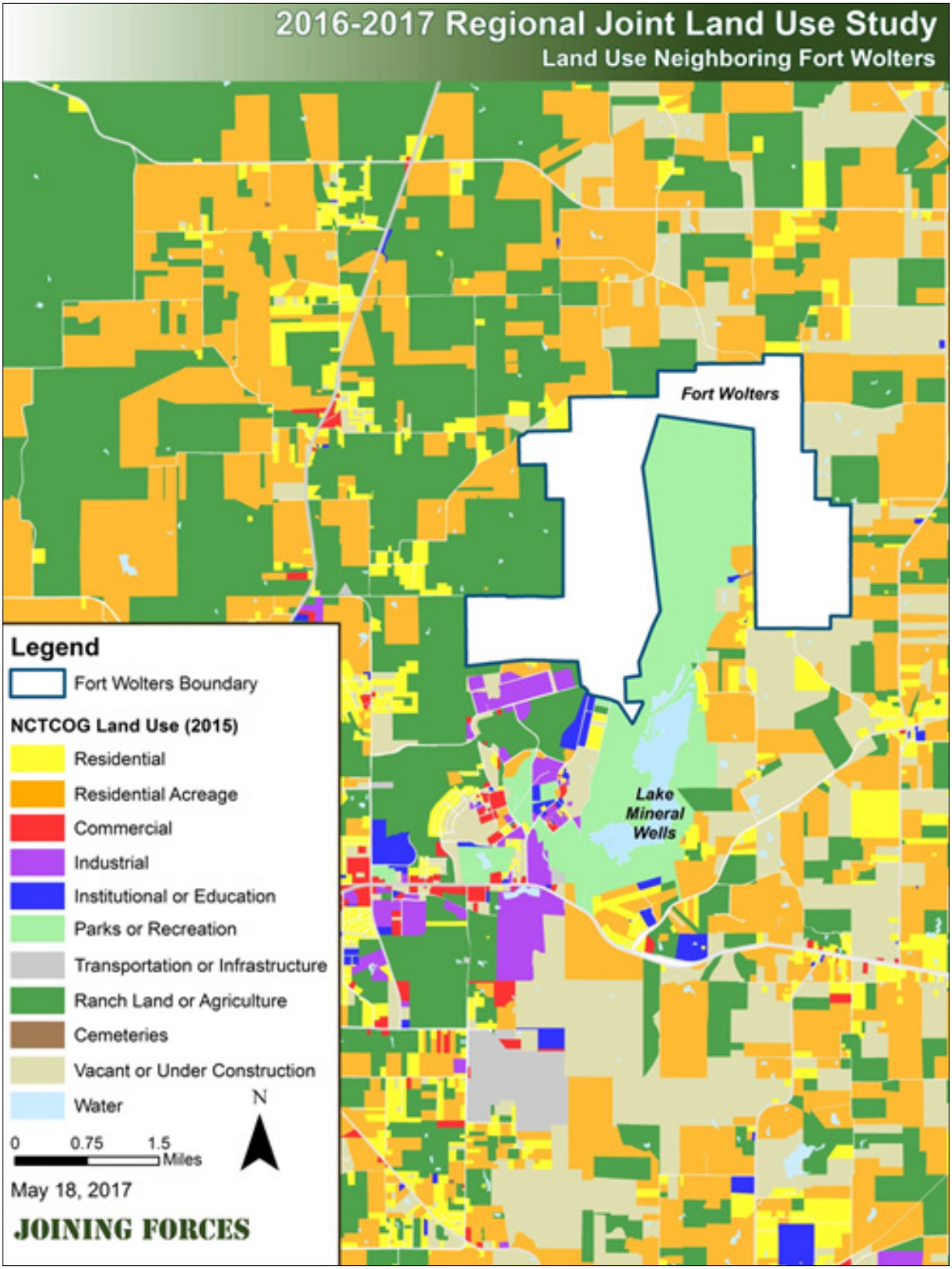
Fort Wolters Compatibility Issues

The almost 4,000-acre installation largely surrounds Lake Mineral Wells State Park and Trailway (see **Figure 7**). **Figure 14** shows surrounding land use. The installation's compatibility issues are:

- Airspace
- Cultural Resources
- Energy
- Munitions
- Wildfire

While the area is mostly rural, a small amount of residential development to the north requires aircraft flying to Fort Wolters along a north-south route to navigate between two houses. Housing to the west also brings residents close to the boundary of Surface Danger Zones (SDZs), which are the computer-modeled footprint for an impact area related to ammunition fired from the Fort Wolters firing ranges. These homes are within the east-west drop zone area. Future development north or west of the installation could affect C-130 drop zone run-ins. Wind energy development is also a growing compatibility concern for the area. Several wind turbines exist near the drop zone run-ins, and developers have announced additional wind farms. Stakeholders also cited the presence of scattered UXO in the area.

Figure 14. Fort Wolters Surrounding Land Use, 2015



Though the installation is next to a large park, trespassing has not been a major issue to date. However, this proximity raises the risk of illegal entry onto military lands by hunters or other recreational users and places emphasis on opportunities for coordination with the Texas Parks & Wildlife Department.

The area is rich in natural and cultural resources. Fort Wolters is home to 52 documented archaeological sites, including historic military sites, late 19th- to early 20th-century homesteads, and Native American burial grounds and camp sites. The area has plentiful deer hunting opportunities. Stakeholders have noted the increasing presence of an invasive and potentially destructive feral pig population. The installation is interested in exploring an ACUB initiative to identify priorities for establishing conservation-related buffers.

Fort Wolters Communication and Coordination

Fort Wolters enjoys a strong collaborative relationship with the City of Mineral Wells. For example, recent consultation between the military and the City on a communications tower proposal to the west of the installation resulted in denial of the request due to concerns over aviation safety. There are no current formal, standing channels of communication and coordination between the installation and surrounding communities though stakeholders have met once informally and have expressed interest in meeting more regularly. Interaction with the Counties of Palo Pinto and Parker is absent. The community of Mineral Wells is highly supportive of the nearby military mission and has emphasized interest in accommodating increased operations at the installation. Both military and civilian stakeholders have stated a desire for additional outreach and coordination to facilitate growth of the military mission and compatibility.

Camp Maxey Compatibility

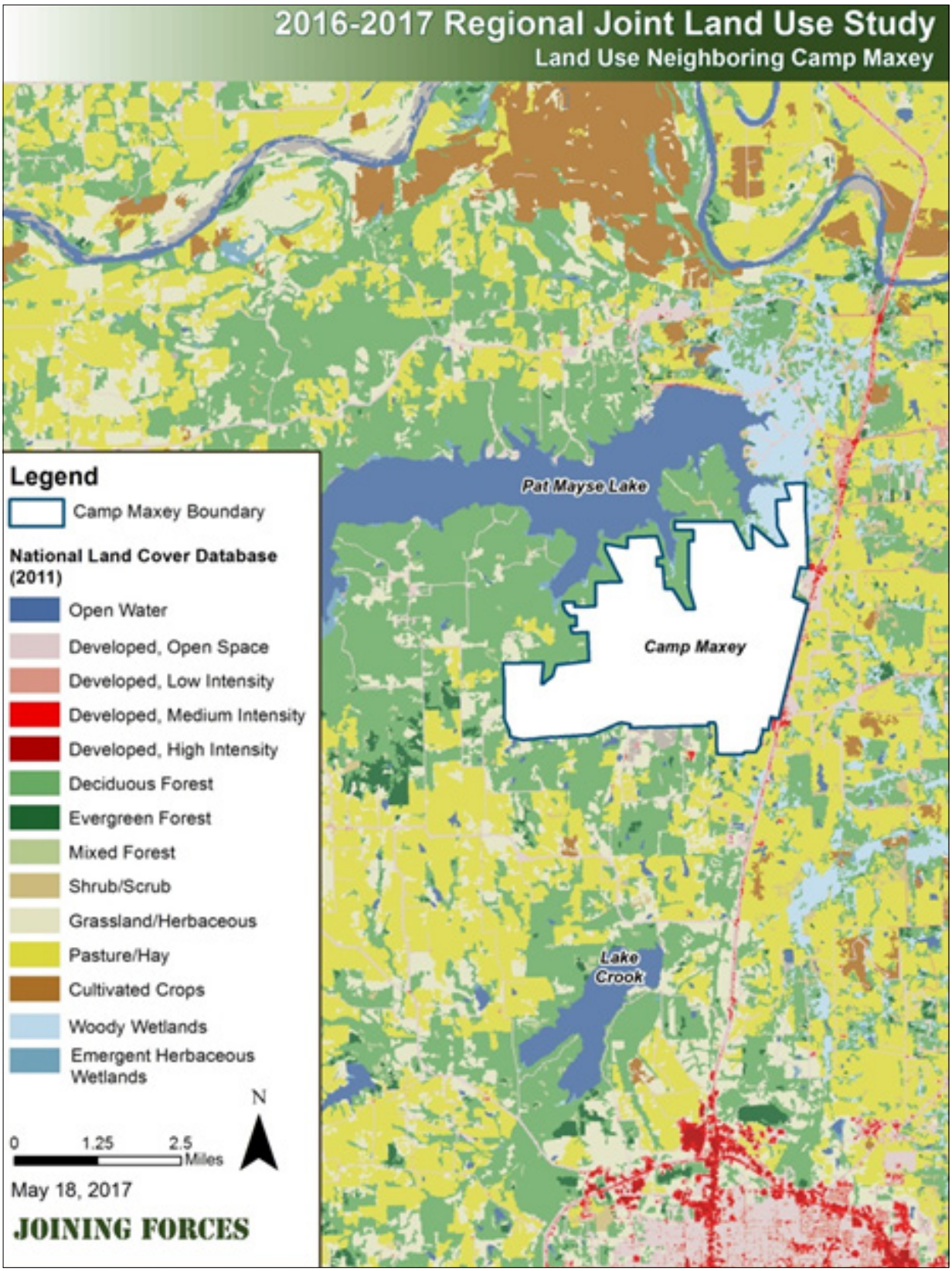
Camp Maxey Compatibility Issues

The 6,650-acre Camp Maxey is less than 10 miles north of the City of Paris, neighboring the unincorporated community of Powderly (see Figure 5). Figure 15 shows land use surrounding the installation. The installation's compatibility issues are:

- Airspace
- Energy
- Munitions
- Security
- Transportation
- Wildfire

Currently, there is minimal residential development surrounding the installation with a very low-density subdivision, Beaver Creek, close to the boundary, and manufactured houses in Powderly near range operations. Personnel are not aware of noise or other complaints from residents. Any northward shift of interest in residential development, however, would place new houses closer to Camp Maxey.

Figure 15. Camp Maxey Surrounding Land Use, 2015



The primary land use incompatibility facing Camp Maxey results from adjacency with Pat Mayse Lake. The installation boundary does not extend to the shores of the lake, preventing Camp Maxey from effectively securing its northern perimeter. Hunters entering from adjacent recreational lands regularly trespass onto Camp Maxey, posing a safety risk for themselves, as well as for soldiers in the training areas. Stakeholders have noted that hunting stands placed on USACE property are sometimes oriented toward the installation, creating an inward firing hazard.

Camp Maxey faces operational constraints due to size. The acreage at the installation is not sufficient to accommodate necessary training, requiring units to travel to other facilities around the state. Part of the SDZ, which predicts the area in which a projectile will land by direct fire or ricochet, falls partially outside of the installation boundary. The installation has an agreement with the USACE to lease the affected land outside of the boundary. The range fan is 5 meters too short to accommodate 50 caliber weapons training. Base stakeholders have noted that small aircraft, non-military periodically fly low over the eastern portion of the installation during range operations, halting firing activity due to safety risks for both the pilot and on-the-ground military personnel.

Camp Maxey faces several transportation-related issues both on and off the installation. The City of Paris holds an easement for use of an on-base road; however, entities other than the city often use the on-base road, creating potential conflicts with training activities. On the surrounding local roadways, increasing commercial and installation traffic, including military convoys, create safety risks and congestion at the main gate. The lack of signs and wayfinding contributes to a lack of visibility for the installation, which can make access more challenging for visiting units and increase safety issues.

As with Fort Wolters, range operations could increase the risk of wildfire spreading outward onto nearby lands. In previous years, the absence of firebreaks has enabled fires from surrounding community lands to cross onto the installation property.

Camp Maxey Communication and Coordination

Camp Maxey has held open house events in the past but has not conducted community outreach activities recently. The installation maintains a strong relationship with the USACE Southwestern Division, Fort Worth District. There are no formal, standing channels of communication and coordination between the installation and surrounding communities. The City of Paris, however, is highly supportive of the military mission and has expressed interest in accommodating increased activity at the base. The Ark-Tex COG, which includes Lamar County, has also recently joined the JLUS effort as new compatibility partner.

RTAHP Compatibility

RTAHP Compatibility Issues

RTAHP is directly adjacent to residential areas in the Cities of Dallas and Grand Prairie (see **Figure 6**). **Figure 16** shows surrounding land uses. The installation's compatibility issues are:

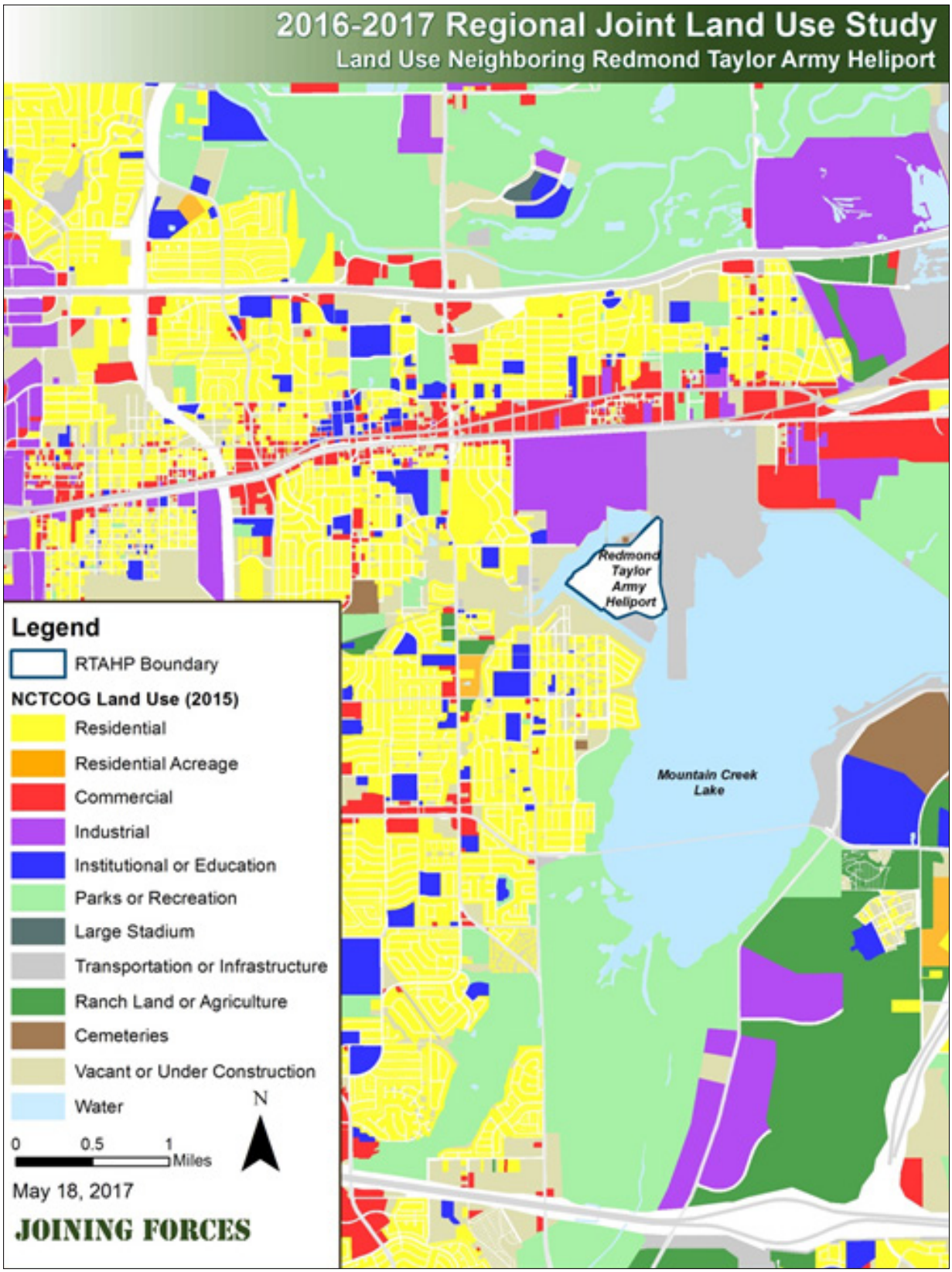
- Airspace
- Energy
- Noise
- Security
- Transportation

Close-in residential neighborhoods pose both noise- and security-related issues and constrict available training space at RTAHP. City officials have cited some noise complaints related to helicopter operations from residents in the Redbird community of Dallas. Most noise complaints are around airfields when units practice approaches.

To reduce noise exposure in the community, the aviation units use half of the local traffic pattern, avoiding incompatible areas, including development southwest of the base. Two significant recent routing adjustments in the remaining airspace further limit opportunities for realistic training and complex air maneuvers. Recent proposals could result in more land use conflicts due to increased noise sensitivity. Development pressure in the area includes proposed housing at the former Triumph Aerostructures site just to the north; commercial/potential mixed-use development south of Mountain Creek Lake; the continued growth of residential areas to the north, west, and south of the airfield; and the potential for the redevelopment of current warehouse uses to the east and south.

The direct adjacency of housing to the installation and the use of private security at the entry have raised ongoing security concerns. Though trespass is less significant than at Camp Maxey, community stakeholders have noted at least isolated examples of unauthorized access with people cutting fencing to gain illegal access to the facility. The surrounding residential context also generates transportation-related conflicts. All traffic, including heavy vehicles, heading to and from

Figure 16. RTAHP Surrounding Land Use, 2015



the installation must travel through a neighborhood of single-family homes, creating a nuisance and potential safety risk for residents.

Commercial and general aviation, flight obstructions, and UAS activity create airspace challenges for RTAHP operations. The proximity of the busy Class B airspace of the Dallas Fort Worth International Airport and Dallas Love Field imposes altitude restrictions on flights and reduces the ability of RTAHP units to vary routes. The City of Dallas recently rejected a proposal for a gas well to the southeast of the heliport due to concerns that it would be a flight hazard. Installation personnel have reinforced the concern that UAS activity is an increasing security and encroachment issue for air operations.

While the City of Dallas has explored re-use opportunities for the overall site, RTAHP is the long-term tenant with an expectation of continued tenancy. Joint site use produces some compatibility issues. The city and neighboring businesses use parts of the vacant runway for vehicle storage and police driver training, limiting operational use and causing liability concerns. According to stakeholder feedback, infrastructure is aging and inadequate, including a bridge just inside the installation gate that may require repair. The site is subject to a long-standing Settlement Agreement between the City of Dallas and the US Navy in which the Navy agreed to assume the cost of environmental cleanup. Despite prior cleanup activity, the Navy has indicated that there will be delays and additional costs in achieving full soil and water cleanup to residential standards by 2017. Resolution of ongoing remediation issues could affect future use of the site. Contamination also affects nearby Mountain Creek Lake.

RTAHP Communication and Coordination

To date, military and community stakeholders at RTAHP have not participated in a formal process to coordinate on compatibility issues. Continued challenges and the risk of more operational constraints, however, have heightened RTAHP's interest in building stronger relationships with surrounding communities. Community stakeholders have expressed interest in using existing communication channels, rather than the creation of new process, to increase awareness of issues and strengthen coordination.

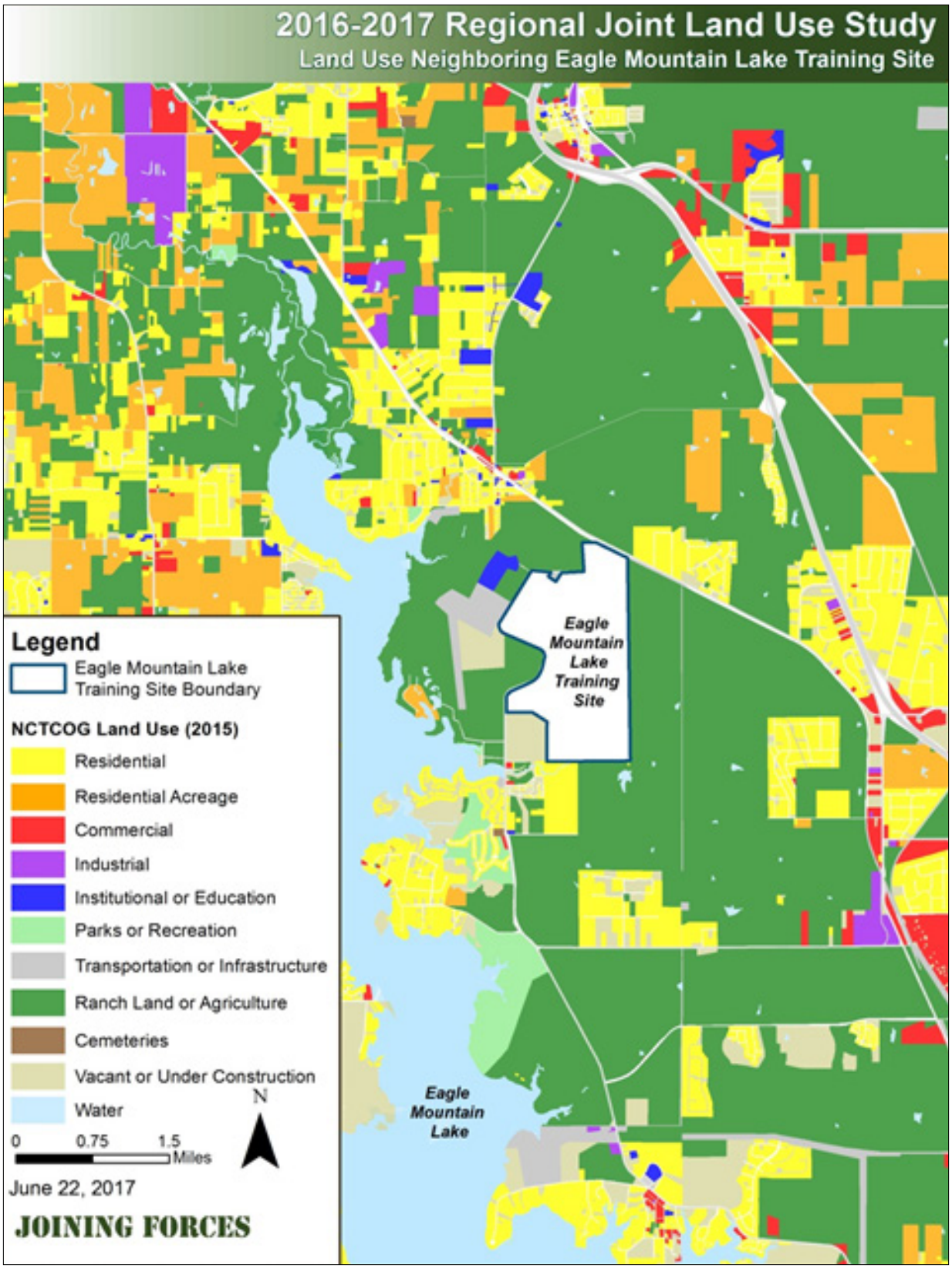
Ancillary Sites Compatibility

In addition to the four high-intensity installations, the *Joining Forces* study assessed compatibility at ancillary sites that provide training assets in support of higher intensity facilities.

Eagle Mountain Lake Facility

Fort Wolters manages the Eagle Mountain Lake Facility, which is east of the Kenneth Copeland Airfield in Tarrant County (see **Figure 8**). **Figure 17** shows surrounding land use. Energy infrastructure and development pose the most significant encroachment threats to the facility. Proposed wind turbines near the installation would create a potential flight hazard for operating aircraft. Continued strong growth pressure in Tarrant County could bring more housing and commercial activity closer to the site.

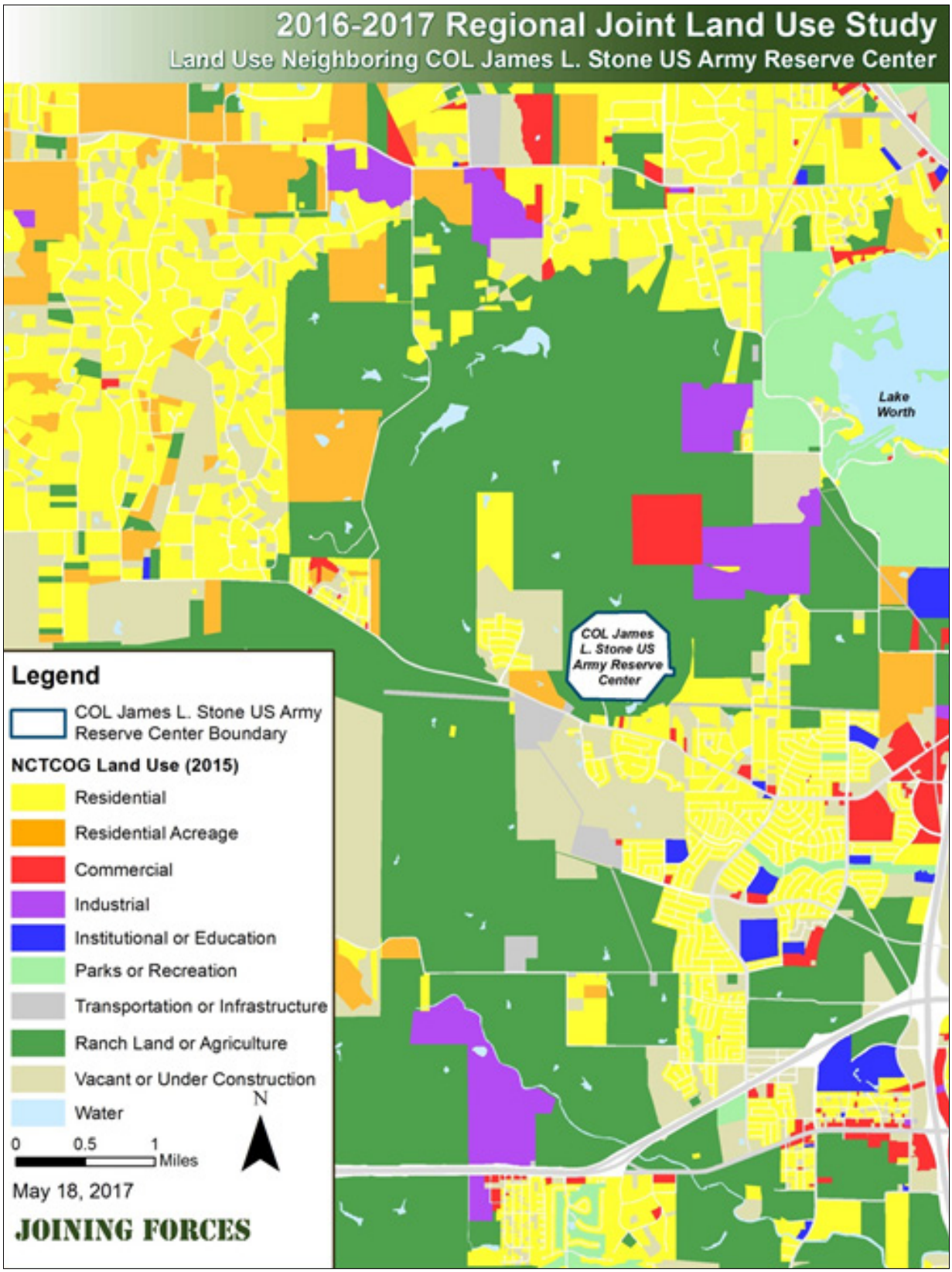
Figure 17. Eagle Mountain Lake Surrounding Land Use, 2015



Colonel Stone Army Reserve Center

The Colonel Stone Army Reserve Center is in unincorporated Tarrant County but is very close to the City of Fort Worth (see **Figure 9**). **Figure 18** shows surrounding land use. Development, energy infrastructure, and transportation are the primary compatibility factors affecting installation operations. Subdivisions built in the past decade surround the southern and western boundaries, increasing the risk of noise sensitivity. High levels of activity at the installation could produce traffic safety concerns around the entrance. Continued growth could hamper operational capacity by exacerbating traffic issues and increasing the risk of noise complaints.

Figure 18. Colonel Stone Surrounding Land Use, 2015



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5

COMPATIBILITY STRATEGIES

5 Compatibility Strategies

One of the unique aspects of the North Texas study area is its diversity–in terms of adjacent land use and growth patterns, the type and intensity of operations conducted at the installations, and differing mission encroachment threats and community impacts experienced. Stakeholders vary widely in the level and formality of current military-civilian communication and coordination processes.

To recognize this diversity, the *Joining Forces* JLUS has developed a series of compatibility menus organized around each installation and set of affected communities (see **Technical Appendix B** for the full tables). As noted earlier, the JLUS is strictly an advisory document that identifies tools and processes available to each study partner. The menus offer a wide range of strategies that partners can adapt to reflect the resources, needs, and interests of their local context. The menus include strategies grouped into the general categories (in alphabetical order) shown in **Table 6**.

Table 6. Compatibility Strategy Categories

CATEGORY	TYPE OF STRATEGIES	COMPATIBILITY ISSUES ADDRESSED
Air Quality	Regional environmental analysis of aircraft emissions	Air pollution and required air quality compliance
Aviation and Airspace Safety	Communication and outreach on regional and local airspace use; state and local regulations for small UAS operations	Airspace congestion; interference of small general aviation aircraft or UAS with training activities (Technical Appendix H)
Communication and Coordination	Information sharing and consultation to increase awareness	Multiple issues (Technical Appendix J)
Economic Development	Strategic investments and public-public, public-private (P4) partnerships	Multiple issues through potential shifting of operations to less intensively used facilities

Table 6. Compatibility Strategy Categories (cont.)

CATEGORY	TYPE OF STRATEGIES	COMPATIBILITY ISSUES ADDRESSED
Energy Infrastructure	Outreach and consultation; formal permitting processes for siting	Vertical intrusions; radar and NAVAID interference (Technical Appendix G)
Environmental/Cultural Resources	Environmental analysis; conservation easements	Multiple issues through creation of natural buffers
Frequency and Spectrum Management	Outreach and consultation; formal permitting processes for siting; de-confliction of use	Frequency availability; frequency communication and interference; potential radar interference from wind turbines; integration of new technologies
Land Use/Urban Development	Zoning; design and siting guidelines; infrastructure planning	Multiple issues through compatible land use planning (Technical Appendix I)
Local Government Plans	Comprehensive and sub-area plans; joint consultation	Multiple issues
Military Plans/Operations	Feasible operational adjustments; environmental analysis; community outreach to raise awareness	Multiple issues
Noise Management/ Avoidance	Structure attenuation; feasible operational adjustments	Noise exposure in communities
Outdoor Lighting/Signs	Sensitive (dark sky) lighting applications	Light pollution/glare
Physical Security	Perimeter reinforcement; signage	Trespass

Table 6. Compatibility Strategy Categories (cont.)

CATEGORY	TYPE OF STRATEGIES	COMPATIBILITY ISSUES ADDRESSED
Statewide Policy/ Legislative Actions	Advocacy and support for statewide policy	County land use authority; energy infrastructure; strategic capacity investments; community development notification; dark sky lighting; military compatible annexation reform
Stormwater Management	Outreach; low impact development; infrastructure improvements	Flooding (Technical Appendix K)
Transportation	Roadway upgrades; gate improvements; access improvements	Roadway congestion; gate congestion; military/civilian traffic conflicts

No single strategy can reduce or eliminate all of the current or anticipated issues identified in the *Joining Forces* process. Instead, the tools work in concert to address as many compatibility factors as possible. The compatibility menus contain 152 action steps, some of which build on each other to establish longer-term tools or processes that promote partnerships and enhance communication and collaboration. The menus organize strategies with the highest priority and shorter-term actions at the top of each category followed by lower priority and longer-term measures.

Protection of the military mission requires collaboration beyond local governments to include state and regional agencies, agriculture, energy producers, recreational interests, utility and transportation entities, economic development agencies, environmental groups, and the private sector. The NCTCOG, and increasingly the State of Texas, plays a significant role in promoting military-civilian compatibility. State and regional support and resources are particularly critical for addressing complex or emerging encroachment issues (UAS, airspace management); coordinating action on large-scale projects with potential impacts that span multi-jurisdictional areas (energy infrastructure); and formalizing clear and consistent communication processes, such as real estate disclosure and installation/community consultation. The ability to articulate a coordinated regional vision for compatibility is of value in highlighting common interests and concerns among all

installations in North Texas and attracting state and DoD resources in support of current and future military missions. To stress this comprehensive approach to encroachment management, the JLUS developed a regional menu of compatibility strategies focused on overarching issues.

In developing the menus, the *Joining Forces* Policy Committees, in collaboration with the planning team, confirmed a set of compatibility factors based on analysis of existing and foreseeable conditions and public input (see **Section 4**). The Committees then evaluated and refined a broad array of potential compatibility solutions appropriate for their local contexts.

Given the number of strategies and study partners, the complexity of some compatibility issues, and finite resources for implementation, *Joining Forces* emphasizes a phased approach that focuses first on foundational, near-term actions. To assist in organizing the region's implementation efforts, the planning team facilitated a dialogue with Committee members to identify the most critical of the high priority and short-term (1 to 2 years) action steps from among the longer list of available strategies. The Committees drew from the following criteria to identify those actions that:

- Represent an easy win and can be put into place quickly;
- Contribute to building an organizational framework for cooperation beyond the current study;
- Address another time sensitive action that could affect compatibility, such as an upcoming development project in the study area or a state legislative activity;
- Address an ongoing compatibility issue that has a major impact, especially related to safety on military operations or community; or
- Address an ongoing compatibility issue for which there are no existing tools or policies in place within the region or surrounding communities.

The selection of critical items is meant to assist all *Joining Forces* partners in prioritizing their implementation efforts. The list of priority actions varies across the region. The remainder of **Section 5** highlights the top actions selected for each area, as well as regional strategies. Strategies for installations and affected communities include actions appropriate both for the military and local governments. Some actions bundle related strategies to create a linked set of activities that work in concert to address issues. The full compatibility menus remain as a comprehensive toolkit that all partners can revisit and adapt as appropriate to meet changing conditions, needs, and goals (see **Technical Appendix B**).

Regional Actions

While most compatibility strategies are geared toward a specific installation or set of local communities, other measures require broader implementation. These strategies typically address compatibility issues that are common across all of the region's installations. Management of their associated impacts tends to cross jurisdictional boundaries. Airsheds, watersheds, energy infrastructure systems, and airspace, for example, all stretch over larger geographies, encompassing numerous governments. As a result, these strategies must draw from the support of multiple federal, state, local, and private sector actors. Other tools, such as targeted land use authority in unincorporated areas, involve changes in the current policy environment. *Joining Forces* identifies these actions as part of a regional compatibility menu to encourage a comprehensive, coordinated approach to encroachment management in North Texas.

The regional compatibility menu identifies 17 strategies (see **Technical Appendix B**). Five of the strategies are high priority and short-term actions:

- Address the security and safety risks associated with increasing hobbyist UAS activity near airfields or other secure facilities;
- Create a region-wide forum for communication and advocacy for compatible development in communities surrounding military installations;
- Promote an early notification and consultation process regarding siting of tall structures (e.g. energy and communications infrastructure);
- Promote early outreach with energy developers and regulators during the project planning phase to shape compatible siting decisions; and
- Actively pursue state legislation that enables local governments to implement targeted land use controls on unincorporated land.

Of the five strategies, stakeholders identified three critical actions related to UAS outreach, creation of a region-wide forum, and advocacy for a statewide policy/legislative initiative enabling local governments to use targeted land use controls near military operations. Given its ongoing function as a facilitator, convener of diverse interests, and technical resource, NCTCOG will play an essential role in advancing these regional strategies. **Table 7** expands on these key regional compatibility actions.

Table 7. High Priority Regional Implementation Plan

Action - UAS Outreach: Conduct educational outreach with communities to increase awareness of the security and safety risks associated with UAS operations near airfields and military facilities and offer technical assistance to local law enforcement agencies to identify and prevent unauthorized or unsafe drone use in the community

Purpose: Military stakeholders have noted a rise in UAS activity near installations. Small UAS create a risk of mid-air collision with low-flying aircraft or can intrude on training or other secured areas, posing a threat to military personnel and sensitive operations. Despite the increasing popularity of drones, many hobbyist operators may be unaware of these risks. Increased outreach in the community would improve awareness of UAS impacts, deter unsafe operations, and empower local law enforcement officials to recognize and stop unauthorized activity.

Milestone Implementation Actions:

- Collaborate with military installations and regional airports to determine appropriate "no-fly" zones for UAS
- Coordinate with the FAA to align local actions with federal policy and identify appropriate roles for local officials
- Publish a brochure that identifies UAS risks to military operations and highlights FAA guidelines on small UAS operations
- Post UAS-related technical resources and policy/regulatory updates on the NCTCOG Aviation Planning and Education web site
- Conduct specific outreach with city and county law enforcement to assist them in identifying UAS threats and establishing penalties (e.g. fines)
- Collaborate with FAA and DoD to define Temporary Flight Restrictions over military facilities

Lead Partner: NCTCOG

Supporting Partners: Military Installations, Regional Airports, City and County Governments, FAA

Geographic Area: Clear zones and accident potential zones; airfield clearance zones and portions of Part 77 imaginary airspace; drop zones; low-level approach and departure paths; and/or other specified distances from airfields, range training areas, or installation perimeters

Table 7. High Priority Regional Implementation Plan (cont.)

Action – Regional Forum: Build on existing coordination bodies, such as NAS Fort Worth JRB's RCC and the state TCC, to create a region-wide forum for communication and advocacy of the military missions, installations, and training assets across North Texas

Purpose: The RCC and TCC both function effectively as coordinating bodies for NAS Fort Worth JRB and statewide issues respectively. However, no comparable umbrella body exists to articulate common interests among the four major installations of North Texas. Creation of a region-wide advisory group would enable all *Joining Forces* partners to identify overarching issues, advocate in a coordinated fashion for federal and state resources, highlight market attractiveness to defense-related private sector businesses, and continue dialogue on the sharing of training assets or the potential shifting of operations and training activity within the region.

Milestone Implementation Actions:

- Identify participating representatives of the region-wide body
- Define basic organizational roles and responsibilities, and areas of focus through bylaws and operating procedures
- Identify an existing organizational structure to house regional activities (e.g. RCC or TCC)
- Convene a yearly forum of *Joining Forces* military and community stakeholders to communicate updates in missions and operational activities, identify common interests and available resources, track progress on compatibility actions, and jointly pursue legislative and funding opportunities
- Participate in statewide coordination among communities undergoing Joint Land Use Studies or implementing recommendations from a JLUS report

Lead Partner: NCTCOG

Supporting Partners: Military Installations, City and County Governments, Texas Military Department, TCC, Texas Military Preparedness Commission

Geographic Area: *Joining Forces* region and statewide

Table 7. High Priority Regional Implementation Plan (cont.)

Action - Targeted Local Government Land Use Controls: Actively pursue state legislation that enables local governments to implement targeted land use controls on unincorporated land in specified proximity to military installations and training areas

Purpose: The State of Texas does not explicitly grant counties the authority to zone unincorporated land. Since much of the rural land surrounding *Joining Forces* installations is unincorporated, this lack of zoning authority creates a significant implementation gap for jurisdictions near Camp Maxey and Fort Wolters, as well as areas around ancillary facilities. The state legislature has granted some counties the authority to enact targeted zoning powers near military installations.

Milestone Implementation Actions:

- Continue to identify targeted zoning around military installations as a legislative priority for the TCC, RCC, and *Joining Forces* region-wide body
- Highlight best practice examples from counties that currently enact land use controls near installations
- Meet with administrative staff of area legislators and discuss the sponsorship and drafting of proposed legislation to mitigate the impact of incompatible development and practices on military operations
- Prepare to provide expert testimony during Legislative Session in support of bill passage

Lead Partners: Military Installations, TCC, NCTCOG

Supporting Partners: City and County Governments

Geographic Area: Unincorporated counties

NAS Forth Worth JRB and Communities Actions

NAS Fort Worth JRB and surrounding communities have been engaged in ongoing compatibility planning since the 2008 JLUS. The base actively participates in ongoing community planning initiatives. Similarly, two surrounding communities have adopted regulatory overlays to address noise and air safety impacts. As a result, the emphasis of *Joining Forces* in the area is on refining established communication processes and filling gaps in the regulatory and policy tools available to local communities.

The NAS Fort Worth JRB compatibility menu identifies 39 strategies (see **Technical Appendix B**). Twelve of these strategies are high priority and short-term actions:

- Identify specific off-base areas vulnerable to security and safety threats from unauthorized UAS activity for purposes of designating drone "no fly zones" and coordinate with regional and local government efforts to create appropriate UAS ordinance adhering to relevant federal and state regulations;
- Incorporate stakeholder feedback to identify improvements to the RCC Development Review Web Tool to ensure continuity in use and enhance its effectiveness as a coordination and communication platform;

NAS Fort Worth JRB
Source: NAS Fort Worth JRB

- Create a Technical Subcommittee of the RCC to share best practices and assist in the implementation of changes to the RCC Development Review Tool;
- Support implementation of HB 890 (85th Texas Legislature, Regular Session) by ensuring the ready availability of compatibility-related studies, such as the most recent NAS Fort Worth JRB AICUZ and *Joining Forces* JLUS;
- Prepare and distribute a "welcome packet" with information on base background, mission, and operations for incoming residents to promote an understanding of operations and potential impacts as neighborhoods transition and redevelop;
- Coordinate on the siting of energy infrastructure to reduce safety threats to aviation activity through updated mapping of the location of energy infrastructure and use of the RCC tool to facilitate consultation on siting decisions;
- Explore REPI Program projects within areas around the main base or/and near off-base training areas;
- Explore adoption of a land use/development regulatory overlay in additional communities to promote compatibility within clearly defined planning zones, including noise contours, and airfield APZ;
- Continue to support area development/in-fill plans and designs that are consistent with the US Navy's AICUZ land use compatibility guidelines and maintain safety with aircraft operations along the extended centerline of the assault landing strip on NAS Fort Worth JRB;
- Adopt sound attenuation building standards and/or energy efficiency practices to achieve indoor noise reduction in the construction of sensitive receptors, such as housing, schools, or medical facilities within noise zones associated with airfield operations;
- Strengthen awareness and promote the implementation of integrated Stormwater Management (iSWM™) strategies and Low Impact Development (LID) techniques to reduce flooding risks across the watershed;
- Increase the capacity and function of existing stormwater infrastructure through the re-grading of ditches and cleaning out culverts along highway corridors and the implementation of engineering improvements in storm drain inlets and in upstream and on-system capture areas; and
- Continue implementing priority transportation and mobility projects to enhance access around NAS Fort Worth JRB and surrounding communities, including planned improvements to Meandering Road and the SH 183 and 199 corridors.

Of the 13 strategies, stakeholders identified three critical actions related to improvement of the RCC Development Review Web Tool (see **Technical Appendix F**), pursuit of potential REPI conservation partnerships, and advocacy for statewide compatibility initiatives. **Table 8** expands on these key compatibility actions.

Table 8. High Priority NAS Fort Worth JRB and Communities Implementation Plan

Action - RCC Development Review Web Tool: Incorporate stakeholder feedback to identify improvements to the RCC Development Review Web Tool to ensure continuity in use and enhance its effectiveness as a coordination and communication platform

Purpose: As an outgrowth of the prior JLUS, NCTCOG hosts the RCC Development Review Tool, a web-based clearinghouse to track and review proposed community projects and initiatives. While the tool functions as an effective platform for facilitating consultation on potential compatibility impacts, turnover of personnel and site access issues have contributed to a lack of continuity in use. Consistent and expanded use of the tool would further strengthen compatibility dialogue.

Milestone Implementation Actions:

- Create a Technical Subcommittee of the RCC to share best practices and assist in the implementation of changes to the RCC Development Review Tool
- Provide training, particularly to new RCC members and planning and technical staff
- Align the tool with municipalities' existing workflows to facilitate incorporation into daily activities
- Update the web design and mapping component of the tool, including use of an interface such as ArcGIS Online to enable better data collection and spatial data management
- Incorporate additional categories and mapping layers, such as zoning overlays, to make the tool more robust and relevant for the end user
- Provide submittal criteria for items of interest that impact military operations, such as land use plan amendments, major thoroughfare plan amendments, requests for zoning and rezoning of properties, Master Development Plans and Planned Unit Developments, Extraterritorial Jurisdiction boundary adjustments, etc.

Lead Partner: NCTCOG

Supporting Partners: NAS Fort Worth JRB, Municipalities, Tarrant County

Geographic Area: Tarrant County and Municipalities

Table 8. High Priority NAS Fort Worth JRB and Communities Implementation Plan (cont.)

Action – REPI Partnerships: Explore REPI Program opportunities for military- and conservation-based projects within areas around the main base or/and near off-base training areas

Purpose: REPI provides funding on a competitive basis for the purchase of development interests in the properties of voluntary sellers. The resulting agreements limit the use of land for compatibility with military missions, while preserving, or introducing, habitat and other sensitive environmental resources and creating a natural buffer that protects areas surrounding installations and training areas from incompatible development.

Milestone Implementation Actions:

- Meet with state and regional stakeholders to introduce conservation objectives, partnerships, and benefits to the community and base
- Identify potential areas for land preservation and conservation programs through partnerships with land conservation organizations and land trust agencies
- Explore potential statewide partnerships with Texas A&M University, the Texas A&M AgriLife Extension Service, and the TCC to prepare a strategic plan for identifying place-based conservation pilots, and preparing nomination documentation to establish Texas REPI and Sentinel Landscapes projects
- Align possible REPI areas around the main base of NAS Fort Worth JRB with regional and local conservation priorities or opportunities for the voluntary acquisition of land in airfield AICUZ areas

Lead Partner: NAS Fort Worth JRB

Supporting Partners: Natural Resources Conservation Service, Texas A&M University, Texas A&M AgriLife Extension Service; US Fish & Wildlife Service, DoD, City and County Governments, NCTCOG, Trust for Public Land

Geographic Area: Conservation lands as identified near NAS Fort Worth JRB, Fort Wolters, or other off base training areas

Table 8. High Priority NAS Fort Worth JRB and Communities Implementation Plan (cont.)

Action – Statewide Compatibility Initiatives: The *Joining Forces* regional compatibility menu identifies a series of statewide legislative actions to mandate, formalize, standardize, or enable coordination processes and regulatory tools for land use control in unincorporated areas; energy siting; UAS operations; and civilian-military consultation on proposed ordinances, rules, plans or structures. This action bundles support for these initiatives into a coordinated advocacy effort for increased statewide compatibility planning.

Purpose: As noted earlier, the lack of county zoning authority creates a significant implementation challenge for *Joining Forces* installations. Without formalized consultation procedures in place, the region also has localized communication gaps that could hamper encroachment management. Statewide provisions for real estate disclosure (passed in 2017), targeted county zoning authority (granted to select county jurisdictions outside of North Texas), energy siting, and general civilian-military consultation on designated actions of interest would create a clear, consistent regulatory and policy framework for all defense communities engaged in compatibility planning.

Milestone Implementation Actions:

- Monitor proposed legislation that encourages military-community compatibility
- Continue to identify statewide compatibility initiatives as legislative priorities for the TCC, RCC, and region-wide body
- Meet with administrative staff of area legislators and discuss the sponsorship and drafting of proposed legislation to mitigate the impact of incompatible development and practices on military operations
- Meet with representatives of state-level agencies, such as ERCOT to facilitate statewide coordination and data sharing
- Prepare to provide expert testimony during Legislative Session in support of bill passage

Lead Partners: Military Installations, NCTCOG, TCC, *Joining Forces* region-wide body

Supporting Partners: City and County Governments

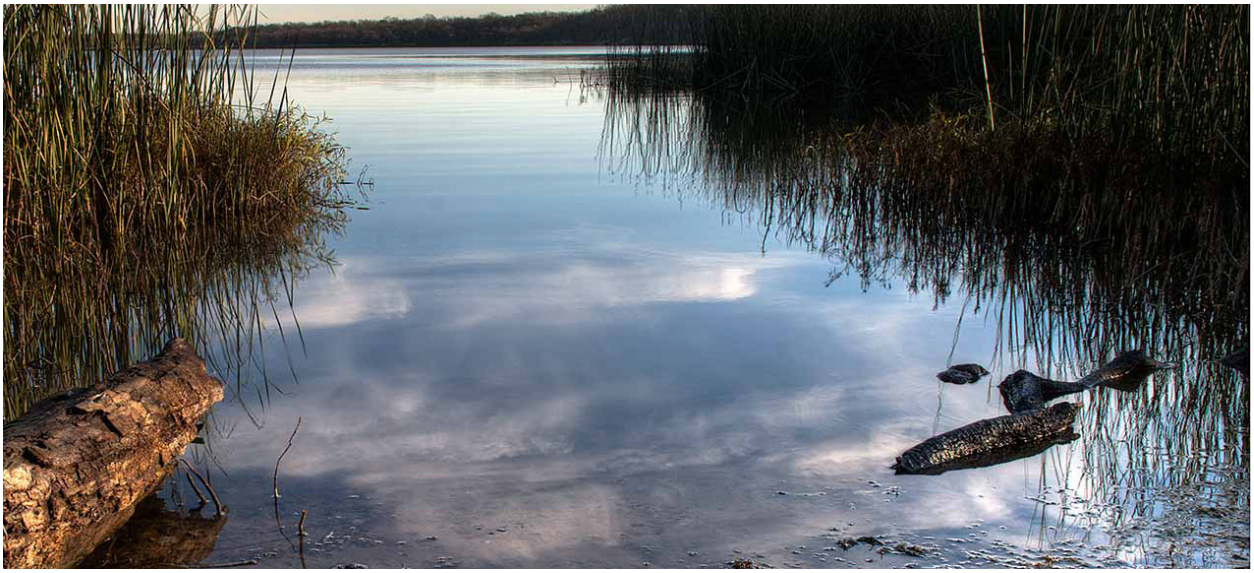
Geographic Area: *Joining Forces* region

Fort Wolters and Communities Actions

Fort Wolters enjoys a strong collaborative relationship with the City of Mineral Wells, and the surrounding community has expressed a strong interest in accommodating increased operations at the installation. However, there are no formal, standing channels of communication and coordination between the installation and surrounding communities. Interaction with the Counties of Palo Pinto and Parker is absent. Much of the area surrounding the installation is in unincorporated Parker County, creating an implementation challenge due to a lack of land use control authority. The focus of the *Joining Forces* study for this area is on building the basic structure for continued communication and coordination between military and civilian stakeholders and in addressing current gaps in the ability to shape compatible land use patterns in the future.

The Fort Wolters and Communities compatibility menu identifies 33 strategies (see **Technical Appendix B**). Eleven of these strategies are high priority and short-term actions with a primary emphasis on developing strong communication mechanisms:

- Identify specific off-installation areas vulnerable to security and safety threats from unauthorized UAS activity for purposes of designating drone "no fly zones";
- Continue briefings with regional partners to build support and strengthen engagement in ongoing *Joining Forces* compatibility implementation activities, particularly at the county level;
- Create formal, ongoing channels of communication and coordination between Fort Wolters and local communities to exchange information on major community actions and military operations that have potential compatibility impacts;
- Develop outreach materials to include information on mission, economic impact, and clear points of contact at Fort Wolters, as well as a map highlighting general operational impacts, such as noise in surrounding communities;
- Establish a formal coordination process with the entities that manage Lake Mineral Wells State Park to ensure that ongoing operations, management actions, and plans consider environmental and security impacts on Fort Wolters operations;
- Support implementation of HB 890 (85th Texas Legislature, Regular Session) by ensuring the ready availability of compatibility-related studies, such as the *Joining Forces* JLUS;
- Explore use of State of Texas authority to establish a JAZ Board to prevent aviation-related hazards around the Fort Wolters airfield;
- Coordinate on the siting of energy infrastructure to reduce safety threats to aviation activity, including updated mapping of the location of energy infrastructure;



Lake Mineral Wells State Park
Source: Texas Parks and Wildlife

- Collaborate with local communities to reinforce existing safety and reporting guidelines in the event of discovery of UXO on off-installation land;
- Coordinate with Lake Mineral Wells State Park on security issues and enhance outreach to recreational users on the safety risks associated with trespass onto Fort Wolters; and
- Identify strategic investments, such as improvements in infrastructure to support a potential increase in installation capabilities at Fort Wolters and/or compatible re-use of the Fort Wolters Industrial Park.

Of the 10 strategies, stakeholders identified two critical actions related to establishing an ongoing military-civilian communication structure and pursuing a JAZ Board. **Table 9** expands on these key compatibility actions.

Table 9. High Priority Fort Wolters and Communities Implementation Plan

Action – Communication/Coordination Structure: Create formal, ongoing channels of communication and coordination between Fort Wolters, local jurisdictions, and Lake Mineral Wells State Park to facilitate consistent dialogue on major community actions, park plans, and military operations that have potential compatibility impacts.

Purpose: The absence of standing channels of coordination between the installation and surrounding communities, particularly at the county level may lead to gaps in communication that result in incompatibilities. The adjacency of Lake Mineral Wells State Park also introduces another jurisdictional authority whose actions can affect Fort Wolters operations. Establishing consistent processes through structured meetings, clear points of contact, and defined expectations for information sharing will strengthen dialogue and ongoing compatibility efforts.

Milestone Implementation Actions:

- Collaborate with NCTCOG, as necessary, on the organizational structure of the coordination body and potential technical support
- Conduct outreach to county officials to build support for participation in compatibility efforts
- Identify participating representatives of the coordination body to include a representative from Lake Mineral Wells State Park
- Define basic organizational roles and responsibilities, and areas of focus through bylaws and operating procedures
- Convene at least a yearly session of the coordinating body and develop an email database for more frequent, informal communication

Lead Partners: Fort Wolters, City of Mineral Wells

Supporting Partners: NCTCOG, Texas Military Department, Parker County, Palo Pinto County, Texas Parks & Wildlife Department

Geographic Area: Palo Pinto and Parker Counties and Municipalities

Table 9. High Priority Fort Wolters and Communities Implementation Plan (cont.)

Action – Explore JAZ Board: Explore use of State of Texas authority to establish a JAZ Board to prevent aviation-related hazards around the Fort Wolters airfield.

Purpose: Surrounding unincorporated areas limit the ability to shape compatible land use patterns around much of Fort Wolters. State law grants a JAZ board the same power to adopt, administer, and enforce airport hazard area zoning regulations or airport compatible land use zoning regulations as a municipality. These regulations are intended to protect the safety of adjacent lands exposed to noise or safety risks associated with airport operations, including the taking off and landing of aircraft. The code specifically includes airports operated by defense agencies. Permissible land use authority must fall within a rectangular area bounded by lines that are 1.5 miles from the centerline of a runway and 5 miles from each end of the paved surface of a runway.

Milestone Implementation Actions:

- Conduct mapping to determine the area of JAZ Board land use authority around Fort Wolters
- Based on feasibility of a JAZ Board, identify appointees for an airport zoning commission
- Conduct more detailed compatible land use mapping in the area of authority
- Develop airport zoning regulations

Lead Partners: City of Mineral Wells, Palo Pinto County, Parker County

Supporting Partners: Fort Wolters, Texas Military Department, NAS Forth Worth JRB

Geographic Area: Statutorily defined JAZ area around runway surface

Camp Maxey and Communities Actions

Camp Maxey enjoys a supportive relationship with the City of Paris, and the surrounding community has expressed a desire to accommodate increased operations at the installation. However, there are no formal, standing channels of communication and coordination between the installation and surrounding communities. While Paris is to the south, the nearby census-designated community of Powderly and other parts of unincorporated Lamar County surround the installation. The adjacency of county land creates the common challenge of a lack of land use control.

The Camp Maxey and Communities compatibility menu identifies 30 strategies (see **Technical Appendix B**). Ten of these strategies are high priority and short-term actions with a primary emphasis on developing strong communication mechanisms and addressing trespass risks:

- Identify specific off-installation areas vulnerable to security and safety threats from unauthorized UAS activity for purposes of designating drone "no fly zones";
- Work with local airports and conduct outreach to the general aviation community to communicate safety risks to low-flying aircraft during active range operations and prevent unauthorized overflight near Camp Maxey;
- Create formal, ongoing channels of communication and coordination between Camp Maxey and local communities to exchange information on major community actions and military operations that have potential compatibility impacts;
- Establish a formal coordination process with the entities that manage Pat Mayse Lake reservoir and Wildlife Management Area to ensure that ongoing operations, management actions, and plans consider environmental and security impacts on Camp Maxey operations;
- Support implementation of HB 890 (85th Texas Legislature, Regular Session) by ensuring the ready availability of compatibility-related studies, such as the *Joining Forces* JLUS;
- Coordinate on the siting of energy infrastructure to reduce safety threats to aviation activity, including updated mapping of the location of energy infrastructure;
- Coordinate with the State Legislature and Lamar County representatives to establish the legal authority to implement land use controls that promote compatibility on unincorporated lands near critical Camp Maxey operations;
- Coordinate with Pat Mayse Lake reservoir and Wildlife Management Area on security issues, and enhance outreach to recreational users on the safety risks associated with trespass onto Camp Maxey;
- Work with the USACE to explore strategies to reduce the risk of trespass; and

- Coordinate maintenance of easement road on Camp Maxey and regulate use to reduce potential trespass and safety conflicts with training operations.

Of the 10 strategies, stakeholders identified four critical actions related to establishing an ongoing military-civilian communication structure, reducing instances of trespass onto military lands, and a suite of strategies to protect the mission capabilities of Camp Maxey. The Committee supported advocacy for statewide legislation to enable targeted county zoning near military installations. **Section 5.1** addresses this action as a regional strategy. **Table 10** expands on key compatibility actions for Camp Maxey and its environs.

Table 10. High Priority Camp Maxey and Communities Implementation Plan

Action – Communication/Coordination Structure: Create formal, ongoing channels of communication and coordination between Camp Maxey, local jurisdictions, and Pat Mayse Lake reservoir and Wildlife Management Area to facilitate consistent dialogue on major community actions, park use, and military operations that have potential compatibility impacts.

Purpose: The absence of standing channels of coordination between the installation and surrounding communities may lead to gaps in communication that result in incompatibilities. The adjacency of Pat Mayse Lake reservoir and Wildlife Management Area also introduces another jurisdictional authority whose actions can affect Camp Maxey operations. Establishing consistent collaboration processes through structured meetings, clear points of contact, and defined expectations for information sharing will strengthen dialogue and ongoing compatibility planning.

Milestone Implementation Actions:

- Collaborate with Ark-Tex COG on the organizational structure of the coordination body and potential technical support
- Conduct outreach to county officials to build support for participation in compatibility efforts
- Identify participating representatives of the coordination body to include a representative from Pat Mayse Lake reservoir and Wildlife Management Area
- Define basic organizational roles and responsibilities, and areas of focus through bylaws and operating procedures
- Convene at least a yearly session of the coordinating body and develop an email database for more frequent, informal communication

Lead Partners: Camp Maxey, City of Paris, Lamar County

Supporting Partners: Texas Military Department, Red River Veterans Authority, Ark-Tex COG

Geographic Area: Lamar County and Municipalities

Table 10. High Priority Camp Maxey and Communities Implementation Plan (cont.)

Action – Trespass Reduction: Coordinate with the Texas Parks & Wildlife Department and the USACE to reduce the risk of trespass onto military lands

Purpose: The boundary of Camp Maxey does not extend to the shores of the lake, preventing the installation from effectively securing its northern perimeter. Hunters entering from adjacent recreational lands regularly trespass onto Camp Maxey, posing a safety risk for themselves, as well as for soldiers in the training areas. There is also some risk of hunting on adjacent lands creating a firing hazard onto military lands.

Milestone Implementation Actions:

- Explore moving the Camp Maxey boundary north to the lake, thus eliminating hunting at the northern installation boundary and helping to improve anti-trespass enforcement
- Explore banning hunting (and restricting other access) to the area between Camp Maxey and the lake
- Install signage to indicate safety risks associated with unauthorized entry onto training lands
- Jointly develop outreach materials in printed and digital formats to raise safety awareness among recreational users and hunters and deter trespass

Lead Partners: Camp Maxey, Texas Military Department

Supporting Partners: Texas Parks & Wildlife Department, USACE

Geographic Area: Areas of Camp Maxey with adjacency to public lands on the north

Table 10. High Priority Camp Maxey and Communities Implementation Plan (cont.)

Action – Protect Mission Capabilities: Protect Camp Maxey operations and mission capabilities from threats associated with UAS and small aircraft, energy infrastructure siting, and BASH. This action bundles strategies that reduce aviation, vertical intrusion, and mid-air collision risks to installation operations.

Purpose: Small, non-military aircraft periodically fly low over the eastern portion of the installation during range operations, requiring a halt of firing activity due to safety risks for both the pilot and on-the-ground military personnel. Birds and the nearby siting of energy infrastructure can similarly pose a safety risk due to mid-air collision or intrusions into protected airspace. These strategies are designed to protect mission capabilities by maintaining the safe and efficient use of range and airspace assets.

Milestone Implementation Actions:

- Identify specific off-installation areas vulnerable to security and safety threats from unauthorized UAS activity for purposes of designating drone "no fly zones"
- Jointly develop informational materials with local airports, and conduct outreach to the general aviation community to communicate safety risks to low-flying aircraft over Camp Maxey
- Develop a consistent consultation process with Camp Maxey on the potential siting of energy infrastructure and provide any updated mapping of the location of tall structures
- Establish siting and design standards for uses, such as detention ponds, sanitary landfills, and crops in areas subject to low-level flights
- Coordinate on BASH measures with resource management entities, particularly at Pat Mayse Lake

Lead Partners: Camp Maxey, City of Paris, Lamar County

Supporting Partners: Texas Military Department, USACE, Texas Parks & Wildlife Department

Geographic Area: Airfield clearance zones; drop zones; low-level approach and departure paths; and/or specified distance from airfield or installation boundary

RTAHP and Communities Actions

RTAHP faces a series of complex compatibility challenges, including the long-term lease of the training site from the City of Dallas and a physically constrained training environment both in terms of airspace and the surrounding residential land use pattern. To date, military and community stakeholders at RTAHP have not participated in a formal process to coordinate on these compatibility issues. Continued challenges and the risk of more operational constraints, however, have heightened interest in building stronger relationships. The focus of the *Joining Forces* study in this area is to build a solid foundation for further dialogue by leveraging existing communication channels.

The RTAHP and Communities compatibility menu identifies 32 strategies (see **Technical Appendix B**). Eleven of these strategies are high priority and short-term actions with a primary emphasis on developing stronger communication mechanisms and addressing noise issues:

- Identify specific off-installation areas vulnerable to security and safety threats from unauthorized UAS activity for purposes of designating drone "no fly zones";
- Continue briefings with regional partners to build support and strengthen engagement in ongoing *Joining Forces* compatibility implementation activities;
- Enhance RTAHP participation in established channels of communication for major community actions, such as proposed zoning changes, that have potential compatibility impacts;
- Leverage existing relevant public meetings and communication methods to improve coordination;
- Post compatibility-related studies, such as the *Joining Forces* JLUS, on NCTCOG website to comply with HB 890 (85th Texas Legislature, Regular Session);
- Develop outreach materials to include information on mission, economic impact, and clear points of contact at RTAHP, as well as a map highlighting general operational impacts such as noise in surrounding communities;
- Continue to support a framework for on-site maintenance, infrastructure, and tenant activity that promotes compatible community and military uses at RTAHP through the existing lease agreement, as applicable;
- Coordinate on the siting of energy infrastructure to reduce safety threats to aviation activity and ensure updated mapping of the location of energy infrastructure;
- Use aircraft noise attenuation requirements in the existing building code to promote compatible development within noise contours established for the former Hensley Field;

- Consider sound attenuation building standards and/or energy efficiency practices to achieve indoor noise reduction in the construction of sensitive receptors, such as housing, schools, or medical facilities within noise zones; and
- Initiate outreach to neighborhoods experiencing noise impacts from RTAHP operations, including areas in proximity to RTAHP and Dallas Executive Airport.

Of the 11 strategies, stakeholders identified two critical actions related to improving military-civilian communication. **Table 11** expands on key compatibility actions for RTAHP and the surrounding area.

Table 11. High Priority RTAHP and Communities Implementation Plan

Action – Communication/Coordination Structure: Leverage existing City meetings and communication methods to improve military-civilian coordination

Purpose: The absence of ongoing coordination, particularly in light of complex encroachment threats can heighten the risk of incompatibilities at RTAHP. The use of existing meetings and communication networks within the Cities of Dallas and Grand Prairie enables the quick improvement of information sharing and coordination capabilities, while stakeholders consider longer-term opportunities to develop a more formal organizational structure.

Milestone Implementation Actions:

- Establish clear points of contact in departments, such as the City of Dallas Real Estate Division of the Sustainable Development and Construction Department, the City of Dallas Aviation Department, the City of Grand Prairie City Council Development Committee, and Real Property at the Texas Military Department
- Consider inviting *Joining Forces* partners, as relevant, to participate as a stakeholder in major plan updates and amendments, including Comprehensive Plans, and area, neighborhood, or corridor plans, which could affect RTAHP operations

Lead Partners: RTAHP, City of Dallas, City of Grand Prairie

Supporting Partners: NCTCOG, Texas Military Department, Dallas County

Geographic Area: City of Dallas, City of Grand Prairie, Dallas County

Table 11. High Priority RTAHP and Communities Implementation Plan (cont.)

Action – Enhance Coordination: Encourage communication between RTAHP and local governments related to changes in military operations and proposed local ordinances, rules, plans, or structures that could create compatibility issues nearby military operations, with NCTCOG assisting RTAHP to monitor local government actions

Purpose: As a step beyond the leveraging of existing meetings and communication methods, increased communication would bring additional structure, predictability, and clarity in roles to ongoing military-civilian coordination. In addition to RTAHP and local governments, the participation of other stakeholders, including the USACE, Texas Parks & Wildlife Department, and private utility providers would enhance compatibility. In the longer term, a structured process could also facilitate broader interaction on more complex issues, such as on-site maintenance, infrastructure, and future tenant activity.

Milestone Implementation Actions:

- Identify interested parties and develop a contact list for various coordination efforts
- Develop information sharing protocols, including items of interest, notification procedures, and methods of communication
- NCTCOG should identify resources to assist RTAHP in monitoring development and planning activities in surrounding communities

Lead Partners: RTAHP, City of Dallas, City of Grand Prairie, NCTCOG

Supporting Partners: Texas Military Department, Dallas County

Geographic Area: City of Dallas, City of Grand Prairie, Dallas County

Ancillary Site and MOA Actions

The less intensively used facilities of Eagle Mountain Lake and the Colonel Stone Army Reserve Center face compatibility challenges common to the region's rural installations. Surrounding unincorporated land limits the ability of local partners to regulate development and promote compatible land use patterns. Both facilities, however, are in rapidly growing Tarrant County rather than an outlying metropolitan county, making the areas more susceptible to development pressure and the conversion of agricultural or ranch lands. Given their location, the facilities are more vulnerable to incompatibilities associated with energy infrastructure. Strategies for these areas should focus primarily on improving coordination on land use and development and protecting operations from interference by gas wells or other energy structures.

Priority compatibility strategies for Eagle Mountain Lake Facility are:

- Review Eagle Mountain compatibility issues as part of routine communications by the Fort Wolters/Communities coordination body; and
- Continue outreach that engages stakeholders, including Fort Wolters, Eagle Mountain Lake Facility, Texas Military Department, Tarrant County, the unincorporated Pecan Acres community, and Wise County to build an awareness of compatibility issues, understand growth trends in the area, and coordinate on the siting of energy infrastructure or other potential aviation-related hazards near facility operations

Priority compatibility strategies for Colonel Stone Army Reserve Center are:

- Continue outreach that engages stakeholders, including Colonel Stone Army Reserve Center, Tarrant County, and the City of Fort Worth to build an awareness of compatibility issues, understand growth trends in the area, and coordinate on the siting of energy infrastructure or other potential aviation-related hazards near facility operations; and
- Develop an access and circulation plan for the facility entry to address traffic safety concerns

The Brady and Brownwood MOAs cover the far southwestern part of the study area, overlying portions of 13 counties - Brown, Callahan, Coleman, Comanche, Concho, Eastland, Erath, Hamilton, Llano, McCulloch, Mills, Runnels, and San Saba. Training airspace in the MOAs and MTRs is prone to noise, flight obstruction, and energy infrastructure-related encroachment threats. The expansive geographic area and rural development patterns produce significant challenges for outreach and coordinated planning.

Priority compatibility strategies for counties underlying MOAs are:

- Continue to pursue statewide coordination on the mapping and future siting of energy infrastructure to reduce threats associated with radar interference or aviation hazards;
- Coordinate to develop updated mapping of the location of energy infrastructure in areas underlying airspace;
- Draw from technical analysis of airspace and corridor use, and conduct additional targeted outreach with county officials and stakeholder groups to identify specific areas affected by aviation noise, particularly supersonic booms; and
- Develop a set of outreach techniques, including radio, print, County Extension Offices, social media, or events that allow for effective communication with rural communities. Focus on educational outreach that increases community understanding of the purpose, nature, and type of military training conducted in the region.

6

CONCLUSION

JOINING FORCES

Given the size and diversity of the North Texas region, no single stakeholder can take all of the steps necessary to balance community growth with military mission compatibility. This *Joining Forces* process embodies a continuing partnership among residents, communities, agencies, and the military.

Initial follow-up implementation efforts are likely to focus on preparation of more detailed small area plans, such as a study of compatible re-use options for the City of Mineral Wells facilities on Wolters Industrial Park adjacent to Fort Wolters, development of a regional spatial database to support planning and infrastructure siting decisions, outreach to promote weatherization/sound attenuation practices, and the building of local and regional organizational capacity to maintain collaboration among *Joining Forces* partners.

As the JLUS effort transitions from planning to implementation, all stakeholders are encouraged to revisit their applicable compatibility menus and adapt or add tools as appropriate to meet changing conditions, mission needs, and priorities.

The ability to monitor outcomes is a critical component of sustaining momentum beyond the life of the study. Existing coordination bodies, such as the RCC or a newly formed region-wide committee should carefully track the implementation of recommended actions. In addition to noting the number of measures put into place, stakeholders should measure substantive progress by:

- Collaboratively developing a set of compatibility metrics and organizing results into a report on the state of the North Texas region and its defense communities;
- Conducting periodic surveys of local, regional, state, and DoD stakeholders to gauge the level and effectiveness of coordination activity and identify emerging issues; and
- Developing regional mapping products, such as existing land use around installations or the location of energy infrastructure or other aviation hazards, to inform decision-making and serve as a benchmark of compatibility conditions.

All of these steps encourage a more coordinated, comprehensive approach to compatibility planning and contribute to building a stronger, healthier, and more prosperous region.