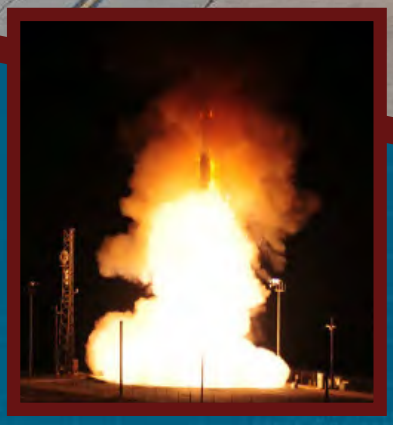

MINOT AIR FORCE BASE JOINT LAND USE STUDY

SOURIS BASIN PLANNING COUNCIL

SEPTEMBER 2015

FINAL REPORT

MINOT AIR FORCE BASE JOINT LAND USE STUDY

SOURIS BASIN PLANNING COUNCIL

FINAL REPORT

prepared for

Bottineau County

Burke County

McHenry County

McLean County

Mountrail County

Renville County

Sheridan County

Ward County

Mandan, Hidatsa, and Arikara Nation

City of Minot

Minot Air Force Base

prepared by

SRF HDR

September 2015

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Introduction

North Dakota has been in the midst of an economic growth cycle not seen before in the state's history. The oil and gas extraction has been increasingly fueling the state's growth since approximately 2005, when rock fracturing ("fracking") proved to be a technologically and economically feasible method of extraction. Oil extraction has both directly and indirectly created job opportunities that have led to unprecedented population growth. The relatively recent emergence of fracking and other technologies have enabled oil companies to reach oil reserves that were unreachable 30 years ago. Such is the case with the Bakken oil formation beneath parts of Montana, North Dakota, and Canada. Surpassing one million barrels per day in April of 2014, North Dakota exceeded Alaskan production and became second only to Texas in domestic oil production. Hundreds of oil rigs, semi-trucks, new housing and other developments accompanying the extraction of oil and gas changed the character of rural North Dakota in the Bakken Region, which includes most of the eight-county Joint Land Use Study area. Historically, oil and gas production is subject to boom and bust cycles and in 2014 North Dakota and the nation saw a slowdown in oil activity due to lower oil prices.

Minot Air Force Base (MAFB) lies at the eastern edge of the Bakken shale formation, where the majority of oil and gas is currently being extracted. 150 Missile Launch Facilities (LFs) and 15 MAFs (MAFs) form an arc around the Air Force base, covering an area of 8,500 square miles spanning eight counties in north-central North Dakota.

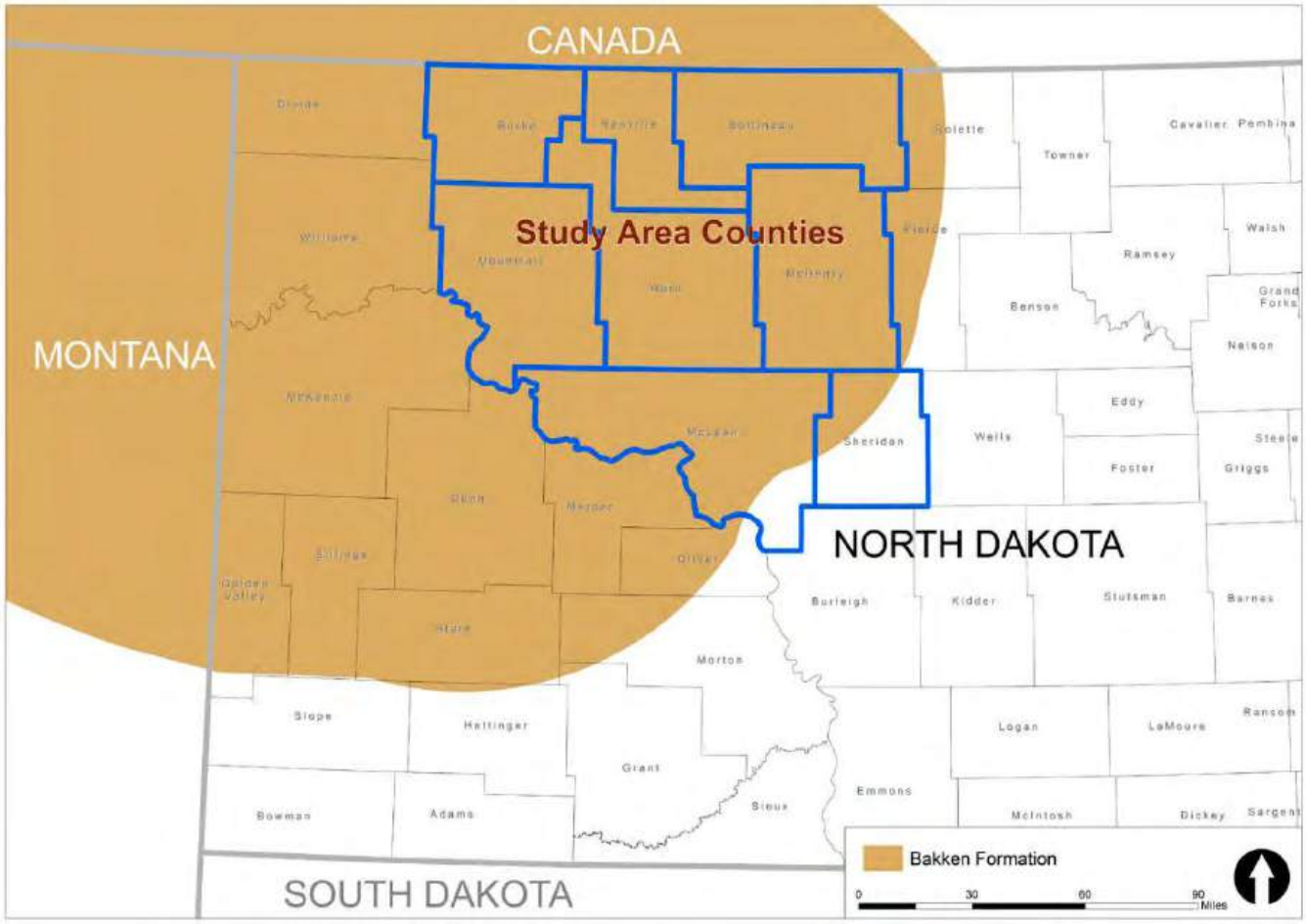
As of 2013, the presence of MAFB was estimated to have brought $577.8 million to the regional economy. This economic impact includes the base's annual payroll, expenditures for construction, materials, services, and indirect jobs created. The financial ripple effect is realized throughout the region – in the city of Minot, Fort Berthold Reservation, and within all eight counties where Air Force installations are located. While the economic benefits of Minot Air Force Base may not be as significant as the oil and gas boom, the military provides a much more sustainable presence which is not as vulnerable to the boom and bust cycles of the oil and gas industry.

Growth and development of the oil industry near the missile complex has already impacted some military installations. Incompatible development, increased traffic, and other concerns have created increased risks to civilians and military operations. With an expected resurgence of growth in the oil industry and spin-off developments, additional military installations could be impacted with the potential to limit military operations and to complicate the Air Force mission.

Collaboration among local jurisdictions and the military is necessary to protect the military mission, to assure the safety and well-being of local residents, and to assure the continued health and long-term sustainability of the regional economy.

This Joint Land Use Study (JLUS) provides the means for local jurisdictions to begin working together and with the military to address incompatible development with uniform and consistent standards. Recommendations presented in this study are designed to alleviate existing conflicts and avoid future incompatibilities between civilian and military developments and operations within the study area.

Figure 1: Study Area Counties and Bakken Formation



Chapter 1

ABOUT THE STUDY

WHAT IS A JOINT LAND USE STUDY?

A JLUS is a planning effort done in partnership between active military installations, surrounding communities, and other affected agencies, organizations, and local governments. The intent of the planning effort is to foster a working relationship between military installations and surrounding communities. The end result is an environment where these entities work together to prevent and curtail any areas of conflict related to growth, development, and the military mission.

The Minot Air Force Base JLUS is funded by a grant from the Department of Defense, Office of Economic Adjustment. The local sponsor and grant administrator is the Souris Basin Planning Council.

WHY PREPARE A JOINT LAND USE STUDY?

Since the Minot Air Force Base and missile complex was first established in the 1950s and 1960s, the activity in north-central North Dakota has moved into the fast lane. Although most missile facilities are still located in remote agricultural areas, recent increases in oil activity have resulted in industrial and civilian developments emerging everywhere – in both urban and rural locations. Some new developments have been built too close to military facilities. Traffic volumes, with high percentages of semi-truck traffic, have grown exponentially on many roadways throughout the study area. This complicates security patrols between some military installations, resulting in safety concerns for military personnel and civilians.

Developers and entrepreneurs have responded to the region's growth by locating commercial and industrial services in the area and by building new housing for the influx of workers.

In response to this growth, utility and transportation systems continue to undergo significant expansions and improvements. Decisions made by the State of North Dakota and local governments on where and how to allow development can result in potential conflicts with military installations and operations.

As mentioned earlier, some developments are occurring too close to military facilities. These encroachments can have negative impacts on community safety, economic development, and the ability of the military to carry out its mission. Mission readiness is essential in maintaining national security.

This study will recommend tools to mitigate existing conflicts and avoid future conflicts.

REGIONAL ECONOMIC AND LOCAL IMPORTANCE

The 2013 American Community Survey (ACS) five-year population estimate was 64,008 persons for Ward County, home of the City of Minot and MAFB. The City of Minot had an estimated population of 42,870. The city and the installation together account for the bulk of the population of Ward County.

Ward County, the City of Minot, and the surrounding region are significantly impacted by energy industry growth. Total building permit valuations provide an indicator of regional growth trends. From calendar year 2011 to 2012, the pace of construction approximately doubled in the City of Minot. In 2012, the City recorded $304,947,436 in total building permit valuations. By 2014, however, building permit valuations were recorded at $182,893,500 – a decline of 40 percent in the two-year period. This slowdown corresponds to reduced regional oil and gas production, and the settling of the housing market in the wake of the 2011 flood.

When the military payroll for nearly 7,000 personnel is spent within the region and when MAFB lets contracts to businesses in the surrounding counties, these expenditures have multiplier effects which generate additional economic activity. Because it serves as the largest regional, single-site employer, MAFB remains a vital contributor to the economy of the greater Minot area and a significant economic engine for the entire region.

MILITARY STRATEGIC IMPORTANCE

MAFB is home to two major United States Air Force (USAF) wings, the 5th Bomb Wing (5 BW) and the 91st Missile Wing (91 MW). Both are components of the Air Force Global Strike Command (AFGSC), which is focused on providing full-spectrum deterrence or responsive and precise conventional and nuclear combat capability, if necessary.

The MAFB Critical Mission Elements are:

- DOD's only installation hosting two legs of the nuclear triad – strategic bombers and intercontinental ballistic missiles.
- Two active squadrons of B-52H bombers (27 aircraft) capable of providing strategic attack, offensive counter-air and maritime operations.
- 15 MAFs and launch facilities for 150 Minuteman III missiles.
- 2,200 conventional munitions line items valued at over $144 million and stored in more than 100 munitions storage facilities.
- 91 MW Security Forces Group (91 SFG) and 54th Helicopter Squadron (54 HS) provide constant protection of MAFB assets.

The 5 BW, host command at MAFB, operates and maintains two squadrons of B-52H Stratofortress bomber aircraft and is responsible for supporting the 91 MW, whose airmen defend the United States with safe, secure, and effective intercontinental ballistic missiles (ICBMs).

COMMUNITY INITIATIVES

The expression "Team Minot" is used to refer to the dynamic spirit of cooperation and teamwork between the base and the local community. Relationships between the installation, the City of Minot, and various other communities are very close, cooperative, and accommodating.

In many respects there is a significant, mutually beneficial interdependence between the installation and the community. For example, the Joint Military Affairs Committee (JMAC), which operates under the sponsorship of the Minot Area Chamber of Commerce and the installation, was formed to lead and strengthen the relationship between the community and the military. The JMAC sponsors a Sports Day Picnic, International Military Ball, Golf Scramble, Sportsmen's Feed, and more. Similarly, the Minot Restoration Advisory Board addresses environmental cleanup on base and has proven to be a mutual-interest organization that strengthens community and base relationships.

JOINT LAND USE STUDY GOAL

The overall goal of this study is to reduce potential land use conflicts while accommodating growth, sustaining the economic health of the region, protecting public health and safety, and protecting private property rights. These goals can be achieved through implementation of the objectives listed below.

JOINT LAND USE STUDY OBJECTIVES

Understanding. Convene community, agency, and Minot Air Force Base representatives to study the issues in a transparent and open forum, taking into consideration community and military viewpoints and needs. This includes public outreach for input by citizens.

Collaboration. Encourage cooperative land use and resource planning between Minot Air Force Base and surrounding communities so private sector growth and development is compatible with existing military facilities and operations.

Action. Provide a recommended set of tools, activities, and procedures which local jurisdictions, agencies, and Minot Air Force Base can use to achieve the goals and objectives established in the JLUS process. The proposed actions include operational measures to mitigate Minot Air Force Base impacts, as well as local government and agency approaches to reduce impacts on Air Force Base facilities.

STUDY AREA

Minot Air Force Base and the missile complex are located in north-central North Dakota. The City of Minot and the Air Base are centrally located within the missile complex. The study focuses on two general areas, the area around the Air Force Base and the outlying missile complex. The Air Force Base covers eight square

miles. It is 13 miles from the front gate of the Air Force Base to Minot's central business district. The missile complex is located within portions of the Fort Berthold Reservation and the counties of Bottineau, Burke, McHenry, McLean, Mountrail, Renville, Sheridan, and Ward. The City of Minot and Minot Air Force Base are in Ward County.

LOCAL REPRESENTATION

Two committees of local representatives were formed to work with the consultant and guide the development of the Joint Land Use Study. A Policy Committee comprised mainly of elected local government officials was supported by a Technical Committee comprised of local government staff. Committee members represented each of the counties in the study area, the MHA tribe, the City of Minot, and Minot Air Force Base.

MILITARY FACILITIES AND OPERATIONS

HISTORY OF MAFB

The initial groundbreaking ceremony at Minot Air Force Base was held over 60 years ago, on July 12, 1955. The decision to create a new Air Force Base north of Minot had been made the previous year. Minot citizens and area businessmen made nearly $50,000 in donations to buy the first parcels of land for the Air Base (adjusted for inflation, $50,000 in 1954 is equivalent to $444,000 in today's dollars).

The actual construction of the Air Base didn't get underway until May of 1956 and it was officially opened in January of 1957 as an Air Defense Command base. In 1958 the first Strategic Air Command unit was assigned to Minot Air Force Base and in 1959 the first refueling tanker aircraft arrived. About the same time, a Lockheed U-2 reconnaissance aircraft, capable of flying at altitudes of over 70,000 feet, was also stationed at MAFB.

In January 1960, the first Convair F-106 Delta Dart interceptor aircraft was brought to Minot. This aircraft was designed to intercept and destroy Soviet bombers coming in from the north. This F-106 could be rolling down the runway in less than three minutes after initial alert. It could travel at Mach 2.31 (1,656 miles per hour) at an altitude of eight miles above the surface of the earth and carried nuclear rockets and guided missiles. Theoretically, the F-106 could be flown from takeoff, directed to the target, have its armaments deployed, return and land, all by remote control from the SAGE ground control center.

The Semi-Automatic Ground Environment (SAGE) building was constructed at Minot Air Force Base in 1958. It was an enormous, heavily reinforced concrete bunker. For redundancy, two 275-ton IBM computers were to be installed in the basement. The AN/FSQ-7 computers were the largest computers ever built. Development of the SAGE system exceeded the cost of the Manhattan Project and was the predecessor to the FAA's air traffic control systems. The SAGE would collect and process data from numerous radar sites. Real time tracking data on incoming targets could be sent directly to the airborne F-106 Delta Darts with a programmed vector for intercepting the target. The SAGE program at MAFB was deactivated in 1963 and the building was converted to military offices. It is now known as the Professional Results In Daily Endeavors Building (PRIDE).

SAGE Weapons Director Console at the Computer History Museum, Mountain View, CA – Flickr by Joi / Wikimedia Commons

In 1961, the Minot Air Force Base region was chosen as the site for a new intercontinental ballistic missile complex. Under the direction of the US Army Corps of Engineers, construction began in January of 1962. The construction contractor, Peter Kiewit & Sons, brought in 6,000 men, 1,100 vehicles and 115 cranes to complete

construction on schedule. The last of 150 Minuteman I missiles was placed in its silo three years after construction began, in February of 1965.

Changes and upgrades in military systems and hardware have regularly occurred at Minot Air Force Base. About the same time as the decision was made to build the missile complex, in 1961 the first B-52 Stratofortress nuclear bomber aircraft arrived at MAFB. In the 1970s, the 150 ICBMs were upgraded to Minuteman III nuclear missiles. During the mid-1980s, the F-106 Delta Darts were replaced with the F-15 Eagles, but only for a few years. In 1988 that Fighter Interceptor Squadron was deactivated. In 1989 the Air Launched Cruise Missile was added to MAFB's armaments and in 1993 the Advanced Cruise Missiles were added to the B-52's arsenal.

On September 3, 2009, the 69th Bomb Squadron (69 BS) was reactivated at MAFB, becoming the fourth operational B-52H Stratofortress squadron in the USAF and joining the 23rd Bomb Squadron (23 BS) as the second squadron at MAFB. The new squadron was established to provide the wing with two active-duty, combat-coded squadrons, which gave the USAF bench depth to rotate the squadrons across the mission sets as recommended in the Defense Science Board Report. MAFB is one of two remaining bases hosting the B-52H Stratofortress bombers. The 5 BW operates 27 bombers and claims extensive combat honors and a long history as "Guardians of the Upper Realm."

MAFB occupies 5,342 acres (approximately 8 square miles) of federally owned land. The installation is located along U.S. Highway 83, which parallels the eastern boundary of the Base. MAFB has the largest approach control-designated airspace in the continental United States consisting of 4,800 square miles from the ground surface to an altitude of 23,000 feet. The availability of open airspace presents unique opportunities to conduct aerial training that are not available at many other installations.

The installation is composed of administrative offices, maintenance facilities, hangars and other flightline facilities, an active airfield with more than one million square yards of pavement, as well as specialized structures built to support the functions and operations of the 5 BW and 91 MW. In total, there are 339 buildings on the installation, 1,192 dormitory rooms and 1,720 privatized housing units. Including the MAFs and LFs, MAFB operates and maintains 8,134,055 square feet of building space with a total replacement cost of $3.15 billion. Many of these facilities were constructed during the Cold War era and are subject to increased operations and maintenance (O&M) costs due to their aging mechanical, electrical, and plumbing systems.

5TH BOMBER WING (5 BW)

Current Mission Operations

The mission of the 5 BW, host command at MAFB, is to provide global strike and combat-support capabilities while supporting the mission of the 91 MW. To support the mission of the 91 MW, four groups are assigned to the 5 BW: the 5th Operations Group (5 OG), 5th Mission Support Group (5 MSG), 5th Maintenance Group (5 MXG) and 5th Medical Group (5 MDG). As of 2013, the 5 OG manages 30,000 military aircraft operations each year and the installation airfield averages 82 aircraft operations daily.

Mission Statement

Known by its nickname, the Warbirds, the 5th Bomb Wing and its fleet of B-52H Stratofortress bombers serve as part of the Air Force's conventional and strategic combat force as Air Expeditionary Force (AEF) warriors. The men and women of the wing are capable of flying anywhere around the world and delivering a wide range of precision-guided bombs and munitions. Excellence is the daily standard and is echoed by its motto, "Guardians of the Upper Realm."

Future Mission Operations

It is anticipated that MAFB will continue to host B-52H Stratofortress bombers of the 5th BW. MAFB's Class B runway will potentially support any aircraft within the Air Force inventory. Additionally, due to its remote location and existing land use protections, MAFB is protected from being encroached upon by private sector development. These factors enhance the flexibility for MAFB to quickly adapt to any changes in future mission operations or to make facility improvements and expansions when needed.

91ST MISSILE WING (91 MW)

Current Mission Operations

The 91 MW operates 15 Missile Alert Facilities (MAFs) as well as launch facilities (LFs) for its 150 Minuteman III missiles which are deployed in off-Base missile fields that encompass more than 8,500 square miles. The 91 MW consists of the 91st Operations Group (91 OG), 91st Maintenance Group (91 MXG) and 91st Security Forces Group (91 SFG). For the most up-to-date and detailed mission, organizational and tenant information, please refer to www.minot.af.mil.

Mission Statement

As one of the Air Force's three operational intercontinental ballistic missile units, the 91st Missile Wing, whose members are known as the Rough Riders, are responsible to defend the United States with combat ready nuclear force and if ordered, conduct a global strike with a fleet of Minuteman III missiles.

Future Mission Operations

The current and future mission of the 91 MW is deterrence, to discourage and prevent a nuclear attack from occurring on the US and its allies. The future mission will not change unless and until there is no longer a need for deterrence as determined by the US Government. The facilities of the 91 MW will continue to require protections from encroachment into the foreseeable future. As development pressure is expected to increase proportionally with increases in oil activity, the level of protection from encroachments must also be increased.

Minuteman III Intercontinental Ballistic Missile (ICBM)

The Minuteman III is a strategic weapon system using a ballistic missile of intercontinental range. Missiles are dispersed in hardened silos to protect against attack and are connected to an underground launch control center through a system of hardened cables. Launch crews consisting of two officers maintain around-the-clock alert status in the launch control center. A variety of communication systems provide the President of the United States and the Secretary of Defense with highly reliable, virtually instantaneous direct contact with each launch crew. Should command capability be lost between the launch control center and remote LFs, specially configured E-6B airborne launch control center aircraft automatically assume command and control of the isolated missile or missiles. Fully qualified airborne missile combat crews aboard airborne launch control center aircraft would execute the president's orders.

MISSILE LAUNCH FACILITIES (LFs)

An ICBM LF is an underground vertical cylindrical container (silo) for the storage and launching of ICBMs. The silo is protected by a large, armored "blast door" on top. Silos are connected by underground cable to a launch control center.

MISSILE ALERT FACILITIES (MAFS)

MAFs are located at each operational missile wing for command, control, and monitoring of the Minuteman LFs. Each MAF consists of a buried and hardened Launch Control Center (LCC), an above-ground Launch Control Support Building (LCSB), and a buried and hardened Launch Control Equipment Building (LCEB) to house the cooling and generator systems. The MAF topside contains living quarters and support equipment for the facility manager (FM), chef, and security personnel.

LAUNCH CONTROL CENTER (LCC)

The LCC is an underground structure of reinforced concrete and steel of sufficient strength to withstand weapon effects. It contains equipment and personnel capable of controlling, monitoring, and launching missiles in the unmanned LFs within the squadron. The LCC outer structure is cylindrical with hemispherical ends. A blast door permits entry into the LCC from the tunnel junction. An escape hatch is located at the far end of the LCC. The escape hatch and associated tunnel are constructed to withstand weapon effects and allow personnel egress in the event of damage to the vertical access shaft. Essential LCC launch equipment along with the missile combat crew are located in a shock-isolated room suspended within the blast−proof outer structure. The room is steel and suspended like a pendulum from four shock isolators.

HARDENED INTERSITE CABLE SYSTEMS (HICS)

The HICS is an extensive network of buried copper cables designed to survive a nuclear attack. This underground communications link connects the LCCs. HICS serve as the command and control communications network for the ICBMs.

DEMOGRAPHICS OF THE INSTALLATION

MAFB maintains a workforce population of 6,771 including 5,683 active and reserve duty military personnel and 1,094 appropriated and non-appropriated fund personnel and contracted civilians. The addition of 5,987 dependents of active-duty personnel brings the total population supported by the installation to 12,764. More than half of active-duty personnel and their dependents live on the base, with the remaining 45 percent of active-duty personnel and their families living off base.

INSTALLATION ECONOMIC IMPACT

MAFB heavily contributes to the local, regional and state economies. According to the Economic Impact Analysis from September 2014, the installation's total annual economic impact for the Minot area was $577,802,962. Table 1 includes the annual payroll of the base, the indirect value of regional goods and services such as construction that support base activity, and the additional spending that military personnel and their families contribute to the regional economy. MAFB is the largest, single-site employer in the greater Minot area, with 6,487 employees (5,416 active duty and reserve duty military personnel; 1,071 civilians including Appropriated Fund and Non-Appropriated Fund (NAF) personnel, contracted civilians, and employees of private business) provided annual earnings of $357 million. The estimated number of indirect jobs (2,029) created by the installation earned an estimated $96 million in 2014. The indirect contribution of expenditures for construction, services, and procurement of materials and supplies contributed $124,873,250. The base itself supports 5,620 military family members, and the surrounding community is home to 1,380 military retirees who depend on base facilities.

Figure 2: Military Personnel Splice an HICS Cable

Source: Minot Air Force Base

Table 1: Estimated Economic Impact of Minot Air Force Base, 2013

Estimated Economic Impact	Dollars
Payroll	
Military	$309,649,035
Civilian	$39,213,385
Civilian NAF/BX	$7,264,473
Bank/Credit Union	$790,539
Construction and Services	$124,873,250
Estimated annual dollar value of jobs created	$96,012,280
TOTAL	$577,802,962

Source: Minot Air Force Base

ON-BASE MILITARY HOUSING

Family Housing

The military contracts with private sector providers for on-base housing services and facilities. Balfour Beatty Communities recently assumed operations of Minot Family Housing. Upon execution of the contract, Balfour Beatty Communities now owns the 1,720 family housing units located on the MAFB and will be responsible for maintaining, repairing, constructing, and managing the community.

Dormitories

The intent of the 2011 MAFB Dormitory Master Plan (DMP) is to reduce the dormitory footprint by modernizing and consolidating them into their three respective campus areas. As of May 2014, MAFB was nearing completion of a fourth new dormitory, Building 214. Presently, the inventory of 1,192 dormitory beds still includes older facilities intended for demolition or repurposing for use as lodging, administrative space, or contingency dorms to house crews and maintainers temporarily at the MAFB for training from Barksdale AFB. MAFB is in the process of developing a new dormitory campus to bring facilities up to current standards and create a small surplus of rooms.

LOCAL GOVERNMENTS

FORT BERTHOLD RESERVATION

The Reservation is home to the Mandan, Hidatsa, and Arikira Nations, or MHA Nation, also known as the Three Affiliated Tribes. Established in 1870, the Fort Berthold Reservation is bisected by Lake Sakakawea. It covers portions of McLean, Mountrail, Dunn, McKenzie, Mercer, and Ward Counties. The two largest communities on the Fort Berthold Reservation are the cities of New Town and Parshall.

The Mandan, Hidatsa, and Arikira tribes are separate tribes with separate cultures. Historically, the Mandan were settled farmers and traders as opposed to other semi-nomadic tribes of the Great Plains. The Hidatsa originally lived in the Devil's Lake region of North Dakota, before being pushed westward by the Lakota and white settlement. The Arikara, who call themselves Sahnish, were forced into Mandan territory by conflict with the Lakota in the 1870s. The numbers of all three tribes began to decrease significantly after a series of smallpox epidemics in the late 18th Century and extending into the 19th Century. The three tribes joined in 1862 at Like-a-Fishhook Village, southeast of the current Reservation along the Missouri River.

The MHA Nation is governed by a Tribal Business Council composed of a chairman, vice-chairman, treasurer, secretary, and three other members. Members of the Council, other than the chairman, are representatives from different communities within the Nation. The communities include White Shield, Parshall/Lucky Mound, New Town, Four Bears, Mandaree, and Twin Buttes.

SOURIS BASIN PLANNING COUNCIL

The Souris Basin Planning Council (SBPC) is a combination of local governments and citizens from Bottineau, Burke, McHenry, Mountrail, Pierce, Renville and Ward Counties. Pierce County is not included in the JLUS, due to the absence of military facilities in the county, and McLean and Sheridan Counties are members of the Lewis and Clark Regional Development Council. SBPC has the responsibility of developing plans and allocating resources within the seven-county area. The Council does not have governing authority, but acts in an advisory and administrative capacity to distribute Community Development Block Grant funds, facilitate economic development in the region, and to provide other services.

Formation of the council stems from Executive Order No. 49, dated September 18, 1969, which established eight regions in North Dakota. The purpose of this order was to improve the efficiency and economy in state and local government through regional grouping of counties for planning and administration of state services.

On February 9, 1972, SBPC was organized, consisting of one county commissioner and one soil conservation district supervisor from each of the seven counties in the region. The Council was initially established to facilitate the development of a Resource Conservation and Development (RC&D) project application. The current mission of the SBPC has grown to include grant application assistance, economic development, grant and other project administration services, and sponsorship for start-up organizations seeking nonprofit status.

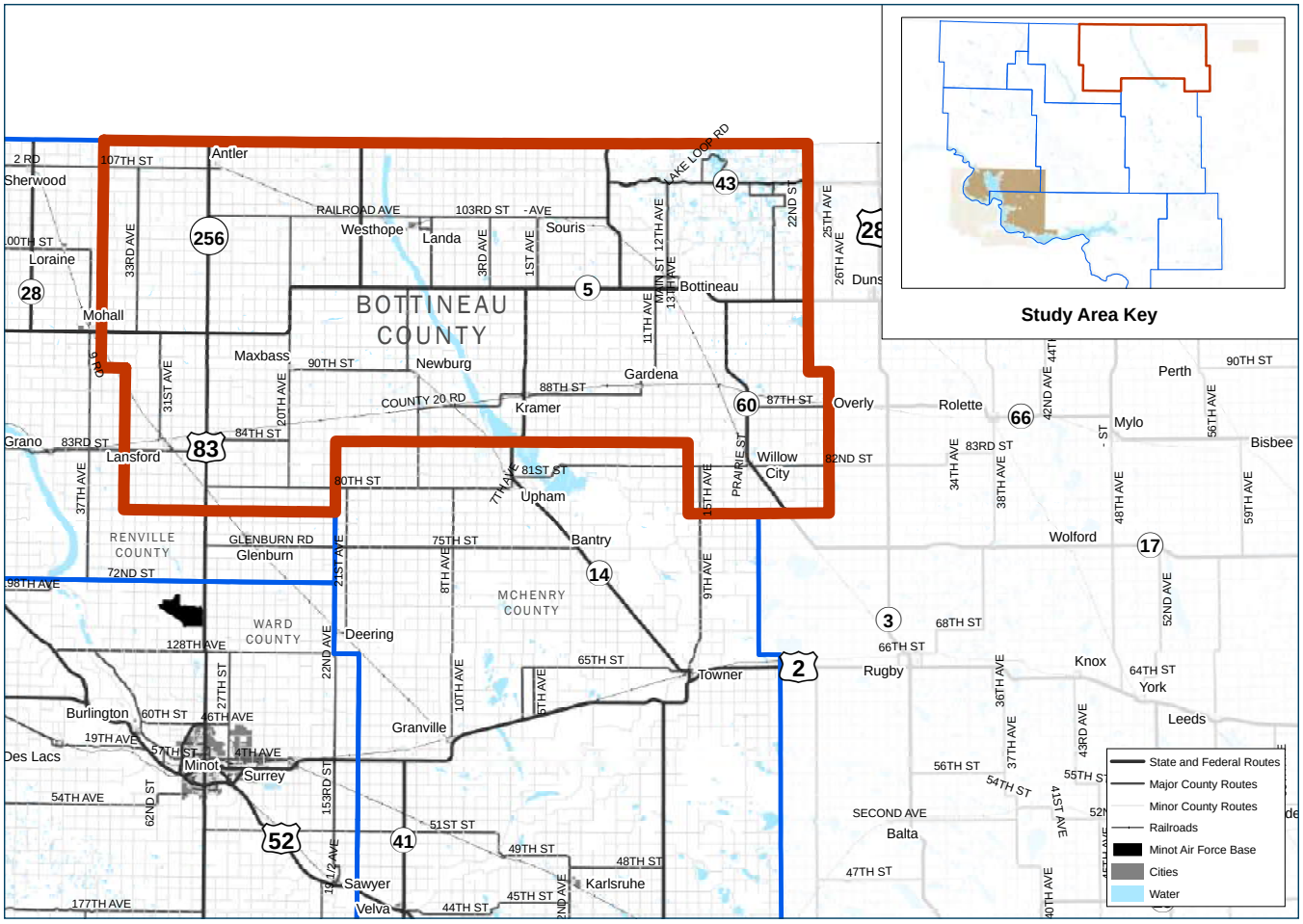
BOTTINEAU COUNTY

Bottineau County is located in the northeastern corner of the study area. The county was created by the Dakota Territory Legislature in 1873 and was named for Pierre Bottineau, a French explorer and fur trader in the region. The County was officially organized in 1884. Serviced by the new Great Northern Railway, the city of Bottineau was formed in 1884 and designated as the County seat. The city and county grew steadily through the 1980s. The county economy is based on agriculture. In the latter half of the 20th Century, recreational activities began to contribute to the economy, with opportunities available for year-round recreation in the Turtle Mountains. Some of the easternmost oil fields of the Bakken formation are located in the county, and have been actively producing since the 1950s.

The county has a total land area of 1,698 square miles, which is dominated by the level agricultural areas of the Mouse River Basin in the west and central areas, giving way to the forested Turtle Mountains in the east. The City of Bottineau is the commercial hub of the county. Other communities in the county include Lake Metigoshe (unincorporated in Roland Township), Westhope, and Lansford. Federally protected areas include the J. Clark Salyer National Wildlife Refuge, which is located in the western part of the county along the Mouse River.

Bottineau County has 12 LFs and one MAF.

Figure 3: Bottineau County Map

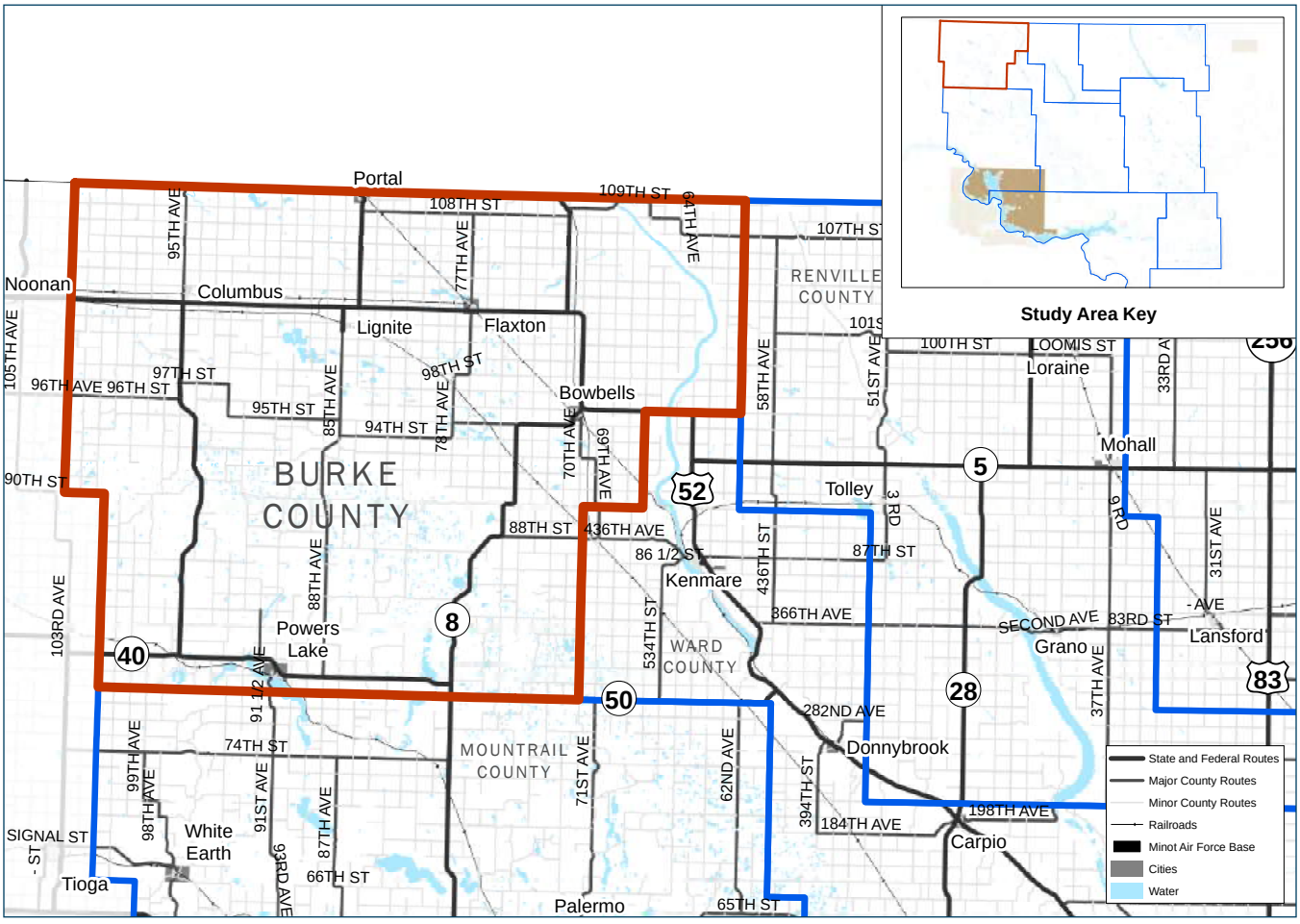


BURKE COUNTY

Burke County is located in the northwestern corner of the study area. The county was formed in 1910 from the former Imperial Ward County of north-central North Dakota. The county is named after John Burke, who served both as governor of North Dakota and treasurer of the United States. The county covers 1,129 square miles and the county seat is Bowbells, which is the largest community. Other communities include Powers Lake, Lignite, and Portal. A significant portion of the county is located over the Bakken formation and experiences oil extraction activities. The main industry is agriculture, which has played a major role in the area since the county's inception. Federally protected areas in the county include the Des Lacs National Wildlife Refuge and the Lostwood National Wildlife Refuge.

Burke County has 10 LFs and one MAF.

Figure 4: Burke County Map

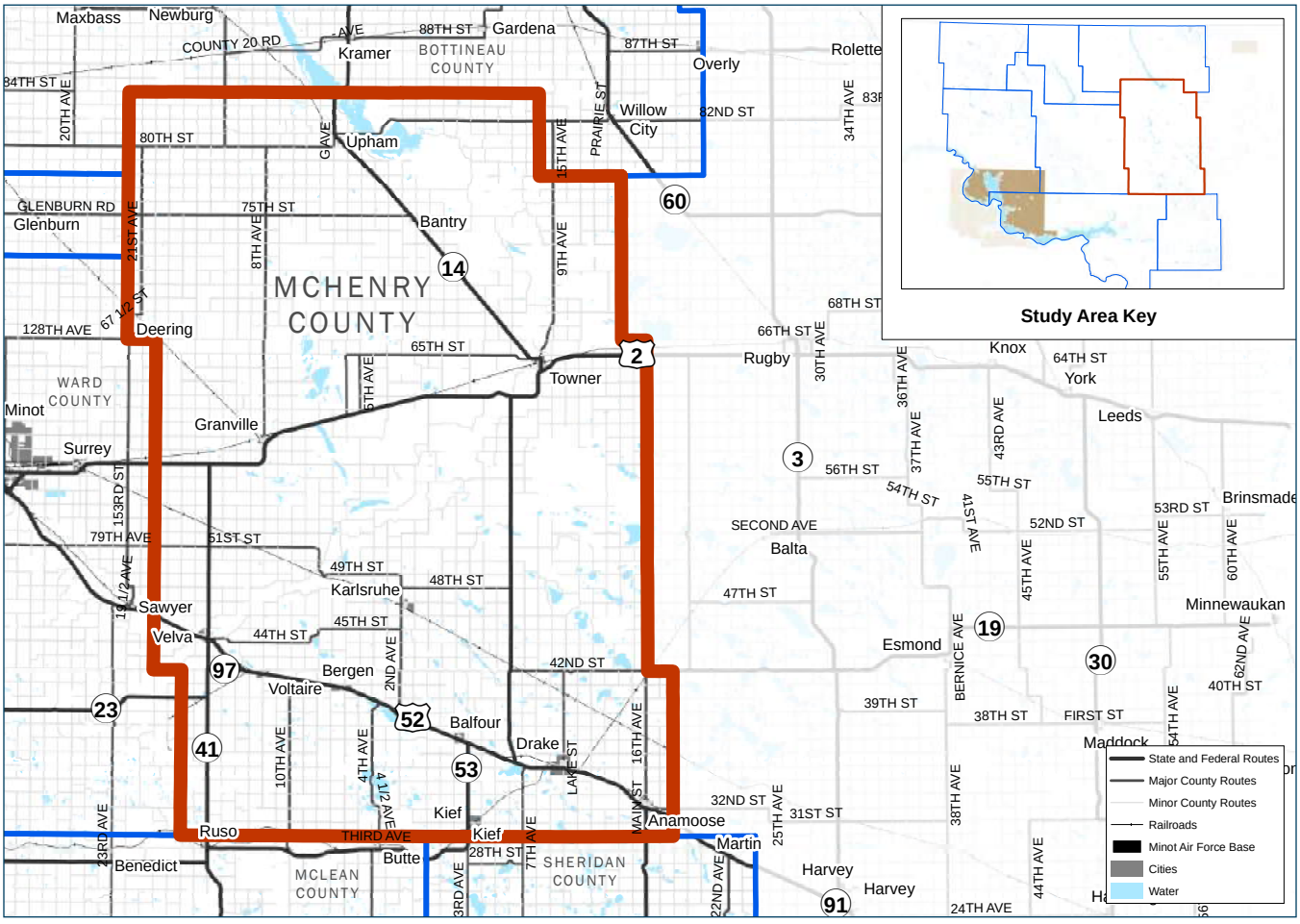


MCHENRY COUNTY

McHenry County is located in the southeast-central portion of the study area. The county was formed by the Dakota Territorial Legislature in 1873 and named after James McHenry, an early settler in South Dakota. The county government was organized in 1884 and the county seat became Towner in 1886. Other communities include Velva, Drake, Granville, and Anamoose. Historically, the economic engine has been agriculture, which continues to dominate. The Mouse River Basin covers the majority of the county, allowing for flat, fertile expanses conducive to agriculture. The county covers 1,912 square miles and includes three National Wildlife Refuges – Cottonwood Lake, J. Clark Salyer, and Wintering River.

McHenry County has 15 LFs and two MAFs.

Figure 5: McHenry County Map



MCLEAN COUNTY

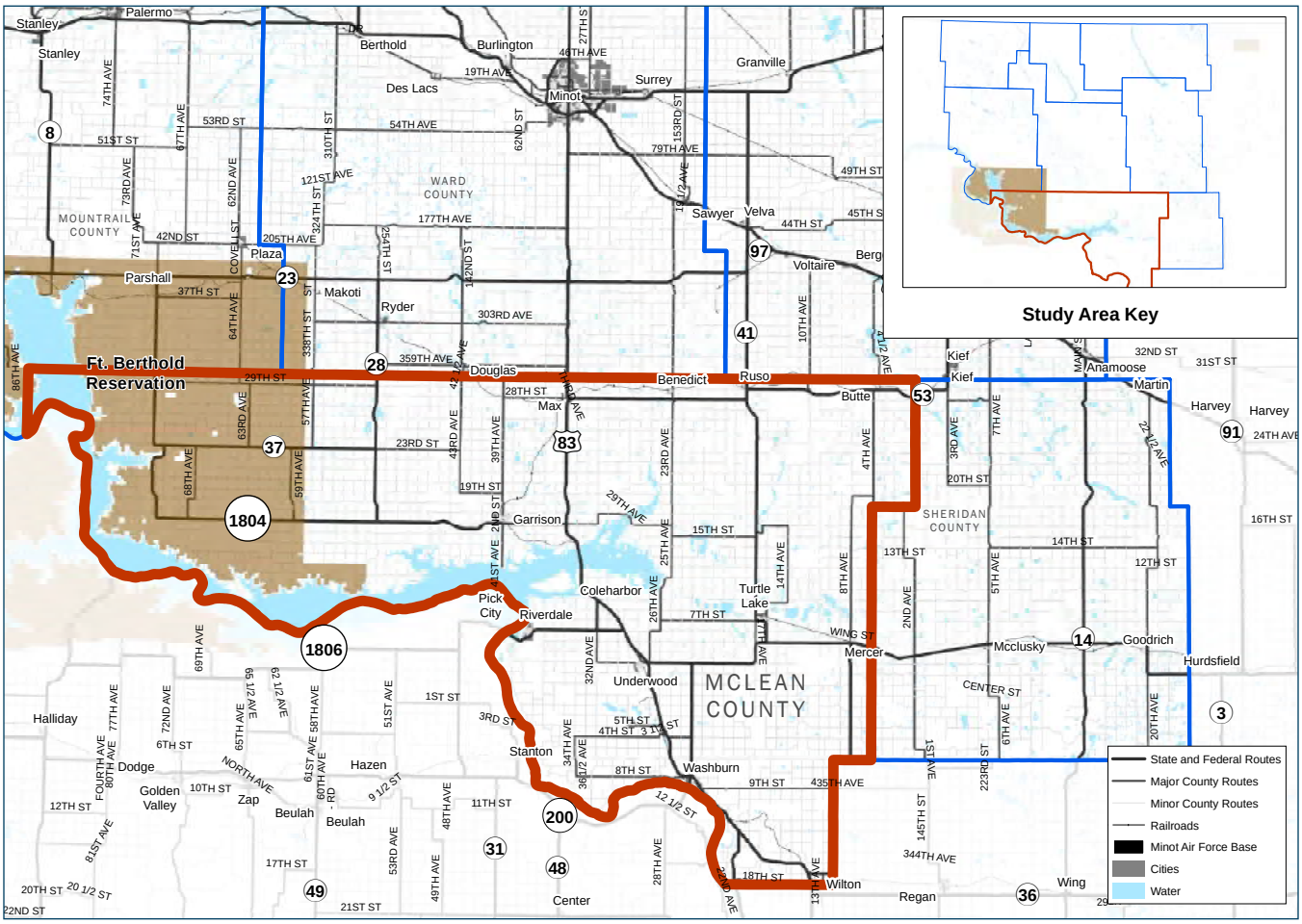
McLean County is located in the south portion of the study area. The county was formed by the Dakota Territorial Legislature in 1883 and named after James A. McLean, the first Mayor of Bismarck, North Dakota. Almost eighty years prior to the organization of the county, the Lewis and Clark expedition wintered along the Missouri River, west of the present location of Washburn. The indigenous Mandan people had been living in the area for hundreds of years prior to Lewis and Clark's brief visit.

Agriculture has dominated historically and continues to play a major role in the county's economy. The Garrison Dam was completed on the Missouri River in 1953, creating Lake Sakakawea, the third largest reservoir in the United States. Creation of the reservoir flooded nearly 165,000 acres of McLean County farmland. The dam now supplies electrical power to the region and the lake provides a major recreational resource for fishing and boating. Coal mining and electric power production has been a significant industry since the 1970s, taking advantage of the vast lignite coal reserves of the county. The far western portion of the county has recently experienced oil and gas development associated with the Bakken formation.

The county seat is Washburn. Other communities include Garrison, Underwood, Wilton, Turtle Lake, and Max. The county covers 2,328 square miles and includes seven National Wildlife Refuges – Audubon, Camp Lake, Hiddenwood, Lake Nettie, Lake Otis, Lost Lake, and McLean.

McLean County has 28 LFs and three MAFs.

Figure 6: McLean County Map



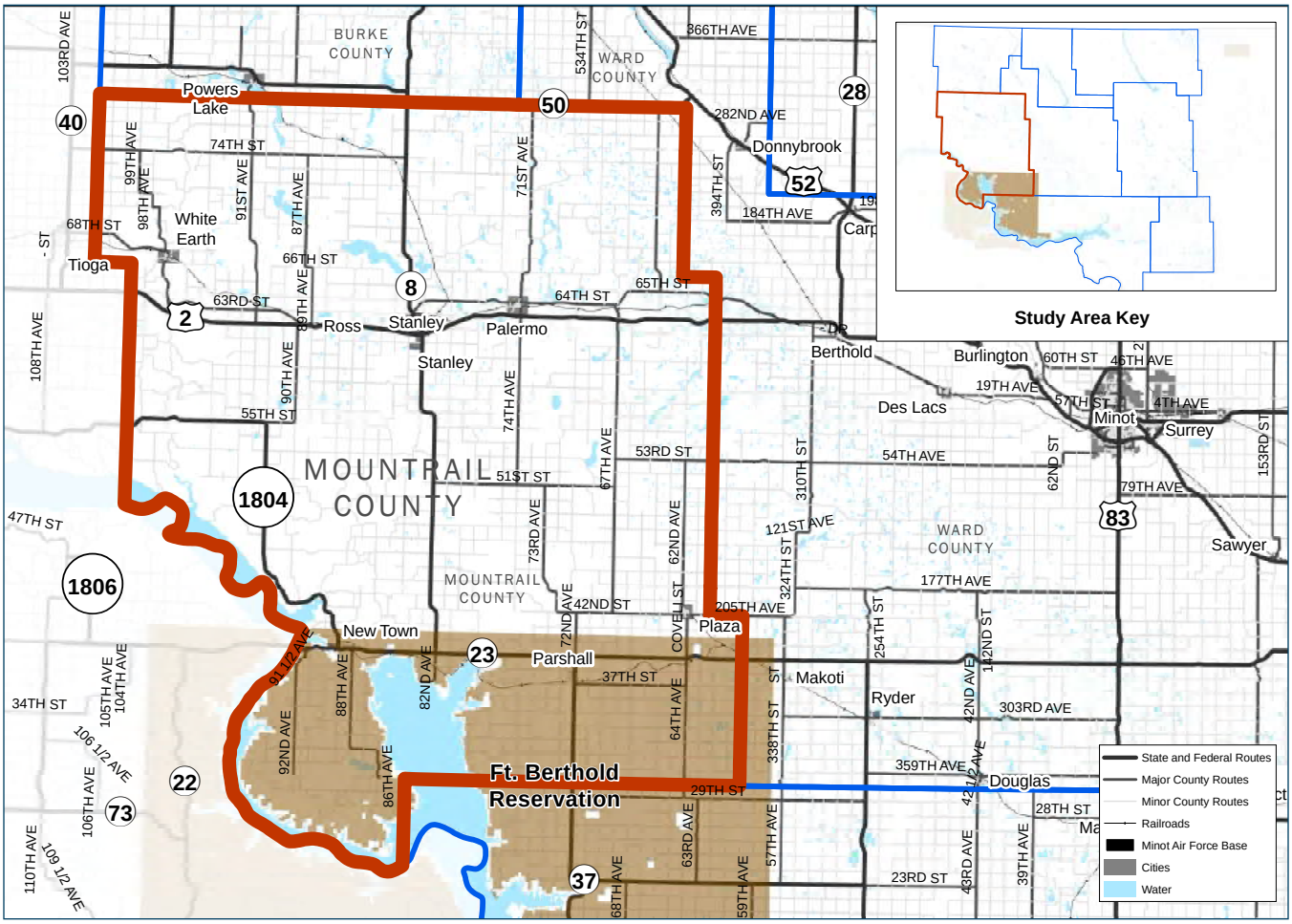
MOUNTRAIL COUNTY

Mountrail County is located in the west-central portion of the JLUS study area. The county was formed by the Dakota Territorial Legislature in 1883. Originally named Mountraille County, it had different boundaries than it does today. The county became part of Ward County in 1892, but was reformed into its present boundaries in 1908. Agriculture has historically been the dominant industry. However, beginning in the 1950s with the discovery of oil in the Bakken formation, the oil and gas industry became a major economic contributor. Most recently, oil and gas development has become ubiquitous, dramatically changing the rural landscape.

The county seat is Stanley. Other communities include New Town and Parshall. The county covers 1,941 square miles and has two National Wildlife Refuge areas, including Lostwood and Shell Lake.

Mountrail County has 39 LFs and three MAFs.

Figure 7: Mountrail County Map

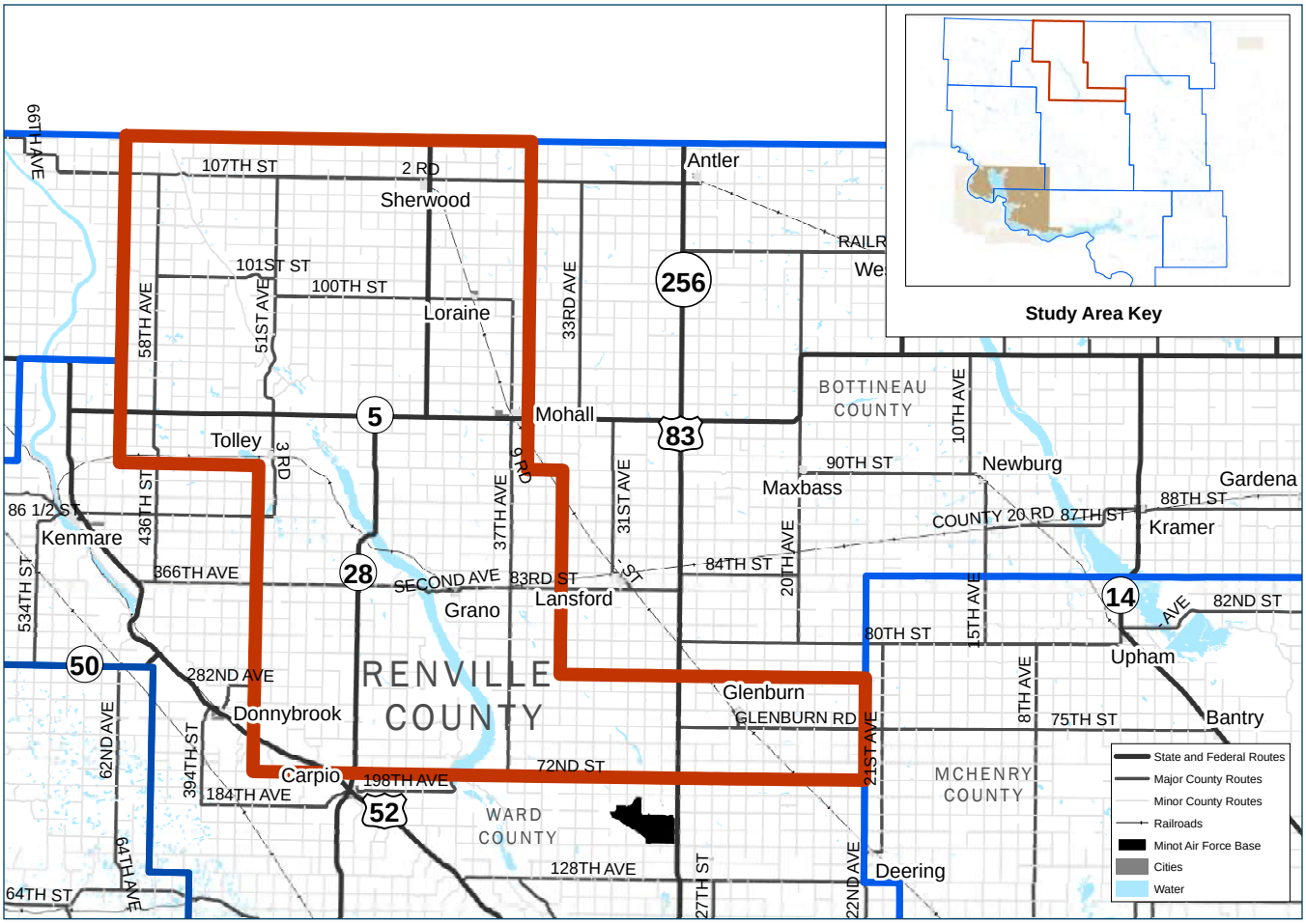


RENVILLE COUNTY

Renville County is located in the north-central portion of the JLUS study area. The county was created in 1873 by the Dakota Territory Legislature, but was later dissolved due to a lack of settlement. The county was formed again in 1910 under a proposal to subdivide a larger Ward County. The county is named after Joseph Renville, an important translator in dealings between the United States Government and the Sioux Indian tribes. Located within the Mouse River Basin, the county benefits from flat, productive agricultural lands. Historically the main industry of the county, agriculture continues to drive the economy. The oil and gas industry also has a growing presence. The county seat and major community is Mohall. Other communities include Glenburn and Sherwood. The county covers 892 square miles and includes one federally protected area, the Upper Souris National Wildlife Refuge.

Renville County has 15 LFs and one MAF.

Figure 8: Renville County Map

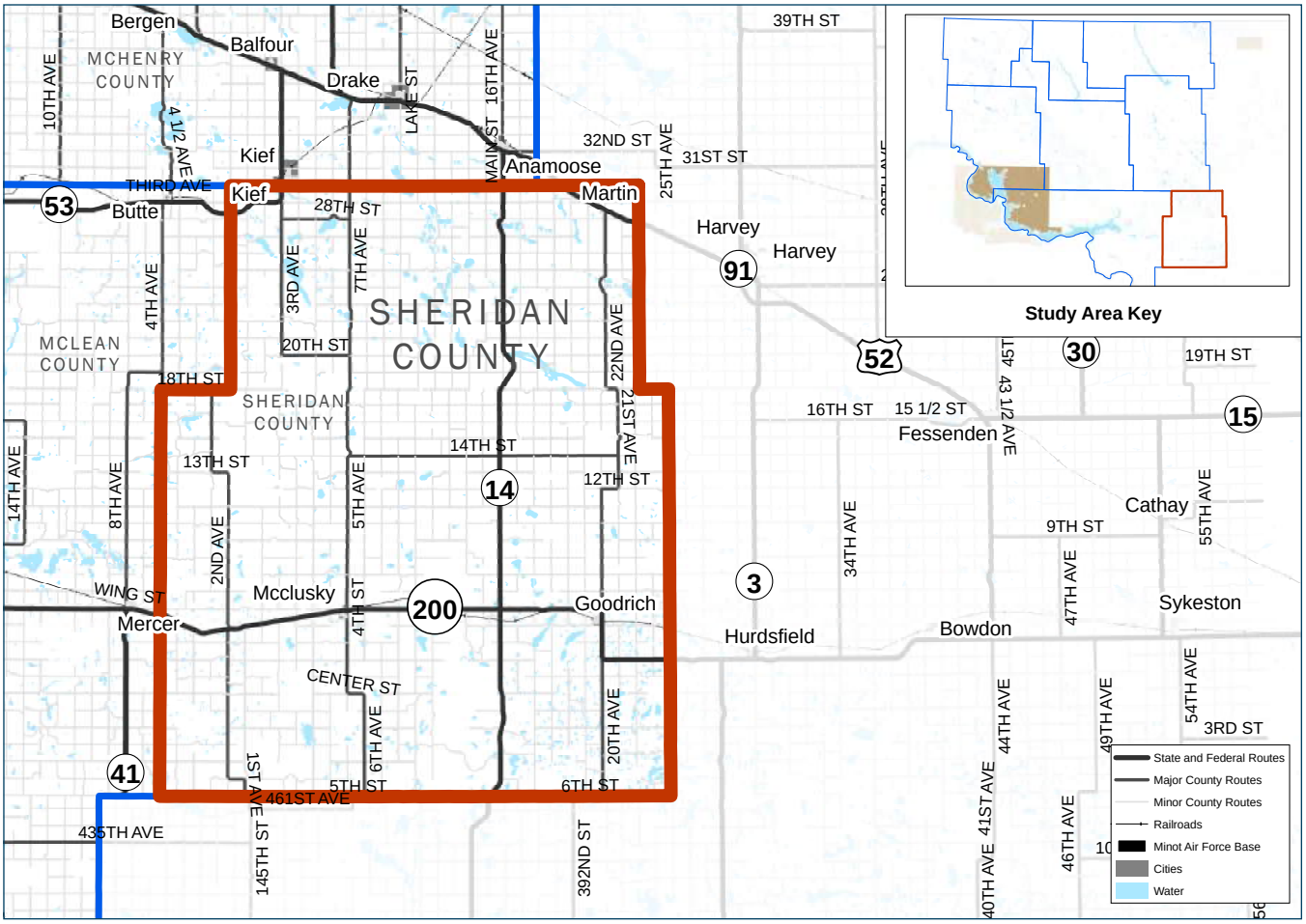


SHERIDAN COUNTY

Sheridan County is located at the southeastern corner of the study area. The county was first created in 1873 by the Dakota Territory Legislature, but was attached to neighboring McLean County until 1908 when it was officially separated in a general election. The county was named after Civil War General Philip Henry Sheridan. Agriculture continues to be the main economic driver in this sparsely populated county of 1,304 people. McClusky is the county seat. The county includes one federally protected area, the Sheyenne Lake National Wildlife Refuge.

Sheridan County has one LF.

Figure 9: Sheridan County Map

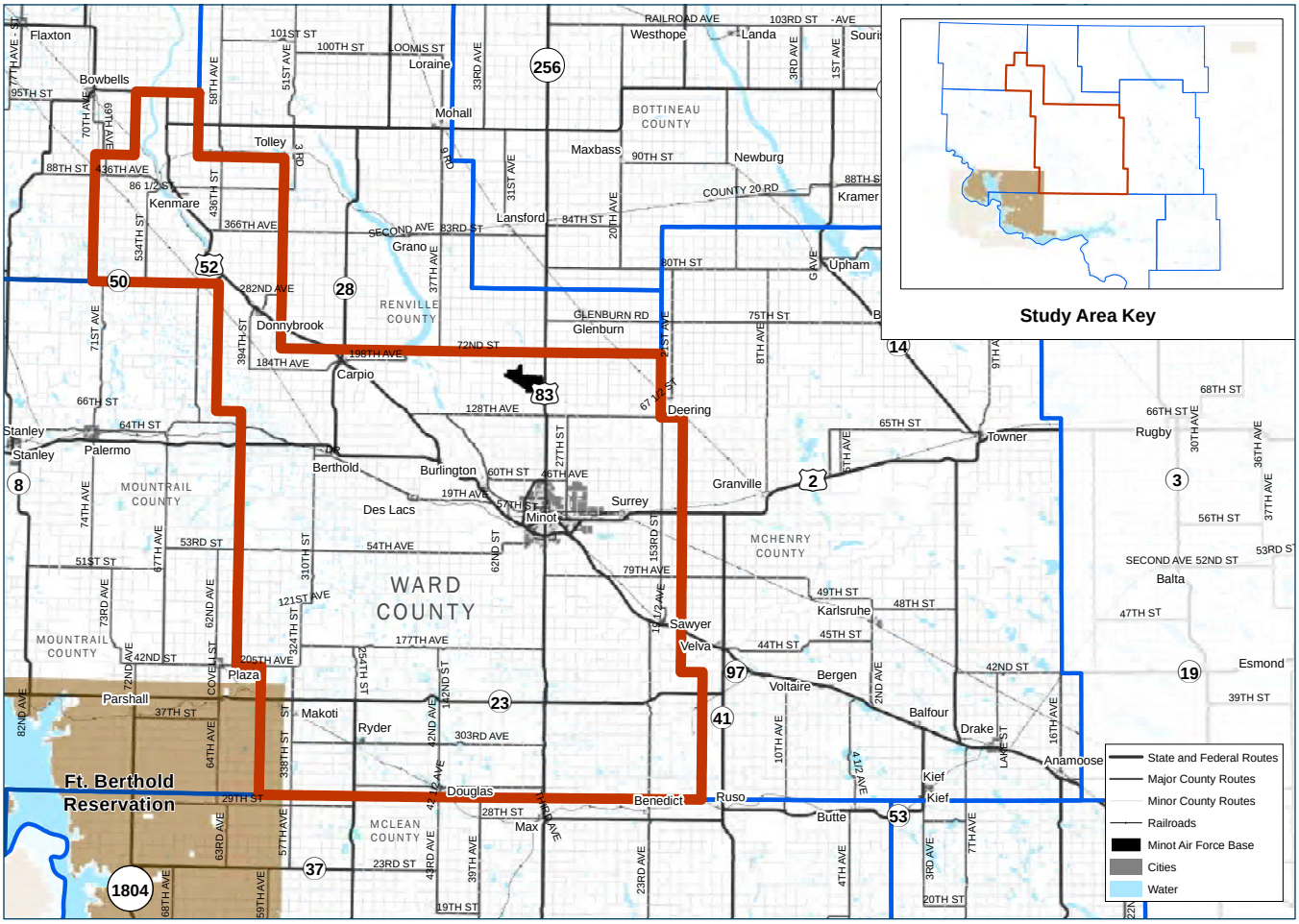


WARD COUNTY

Ward County is home to MAFB and is centrally located within the study area. The county was first created in 1885 by the Dakota Territory Legislature and named for Mark Ward, the chairman of House of Representatives Committee on Counties during the 1885 session. The city of Minot became the county seat in 1888. The county took its present shape in 1910, when Burke, Mountrail, and Renville counties were split off after a general election. Covering 2,056 square miles, the northern portion of the county is dominated by the flat expanse of the Mouse River Basin and the southern portion consists of rolling hills and small lakes. Outside of the City of Minot and MAFB, agriculture continues to be the main industry. The county is the most populous in the study area, with an estimated 67,990 people in 2013. Minot is the county seat and largest community, followed by MAFB, Surrey, Kenmare, and Burlington. Three National Wildlife Refuges are located in the county, including Des Lacs, Hiddenwood, and the Upper Souris.

Ward County has 30 LFs and four MAFs.

Figure 10: Ward County Map



CITY OF MINOT

Minot began where the Great Northern Railway construction ceased for the winter. The community sprung up in 1886 and after five months had over 5,000 residents, leading to incorporation in 1887. This rapid increase gives the city its nickname of the “Magic City”. The city was named after Henry D. Minot who was a railroad investor and friend of the owner of the Great Northern Railway, James J. Hill. A second railroad reached Minot in 1893, the Minneapolis, St. Paul, and Sault Ste. Marie Railroad (Soo Line). Early growth of the city was fueled by the development of the railroads in the region. The development of MAFB in the 1950s led to further growth. Two major floods have impacted the city, including a flood in 1969 and more recently in 2011. The 2011 flood set a record floodwater elevation and led to the evacuation of approximately 12,000 people. In 2002, a train derailment along the Canadian Pacific Railway west of the city released a cloud of anhydrous ammonia that killed one person and severely injured many residents.

The city covers over 27 square miles and is located 13 miles south of MAFB. Major employers in the city include MAFB, Trinity Health, and Minot Public Schools. Minot State University was founded in 1913 and provides post-secondary education for the region and the state. Minot is the economic and transportation hub of north-central North Dakota and is served by Amtrak and the Minot International Airport.

GROWTH AND DEVELOPMENT TRENDS

The evolution of our study area can be more clearly understood through an assessment of population and housing data. Projections of population and housing help forecast future opportunities and challenges.

RECENT POPULATION TRENDS

The year 2000 was used as a baseline to understand the effect of the economic boom that began in the late 2000s. The last census year, 2010, is a reliable marker, and estimates from 2013 are provided to understand more recent trends. All population data was collected from the U.S. Census Bureau.

Ward County and the City of Minot experienced a steady increase in population from 2000 to 2013. As farms become larger, the number of farm families decrease. The long-term migration of rural populations into urban environments may account for a small portion of the population increases in the City of Minot. Other major factors, such as the oil and gas extraction and Minot's role as the economic center of the region, are the major contributors to population growth from 2000 to 2013.

Mountrail County also experienced a significant increase in population from 2000 to 2013. This increase, beginning prior to 2010, may be due to the fact that Mountrail County was one of the first counties in the state to experience the increase in oil and gas development. More new oil wells have been drilled in Mountrail County than in other counties within the JLUS study area.

Although Bottineau, Burke, McHenry, McLean, and Renville Counties all experienced population loss from 2000 to 2010, significant increases were estimated from 2010 to 2013. Located at the outer fringe of the mature Bakken oil formation, these counties did not experience the immediate growth surge brought about by oil exploration and extraction. Recent increases in population are attributed to the economic growth associated with oil and gas development in the region. Sheridan County is the only county in the study area to show a population loss from 2000 to 2013, which is due in part to the county's location at the eastern edge of the Bakken formation.

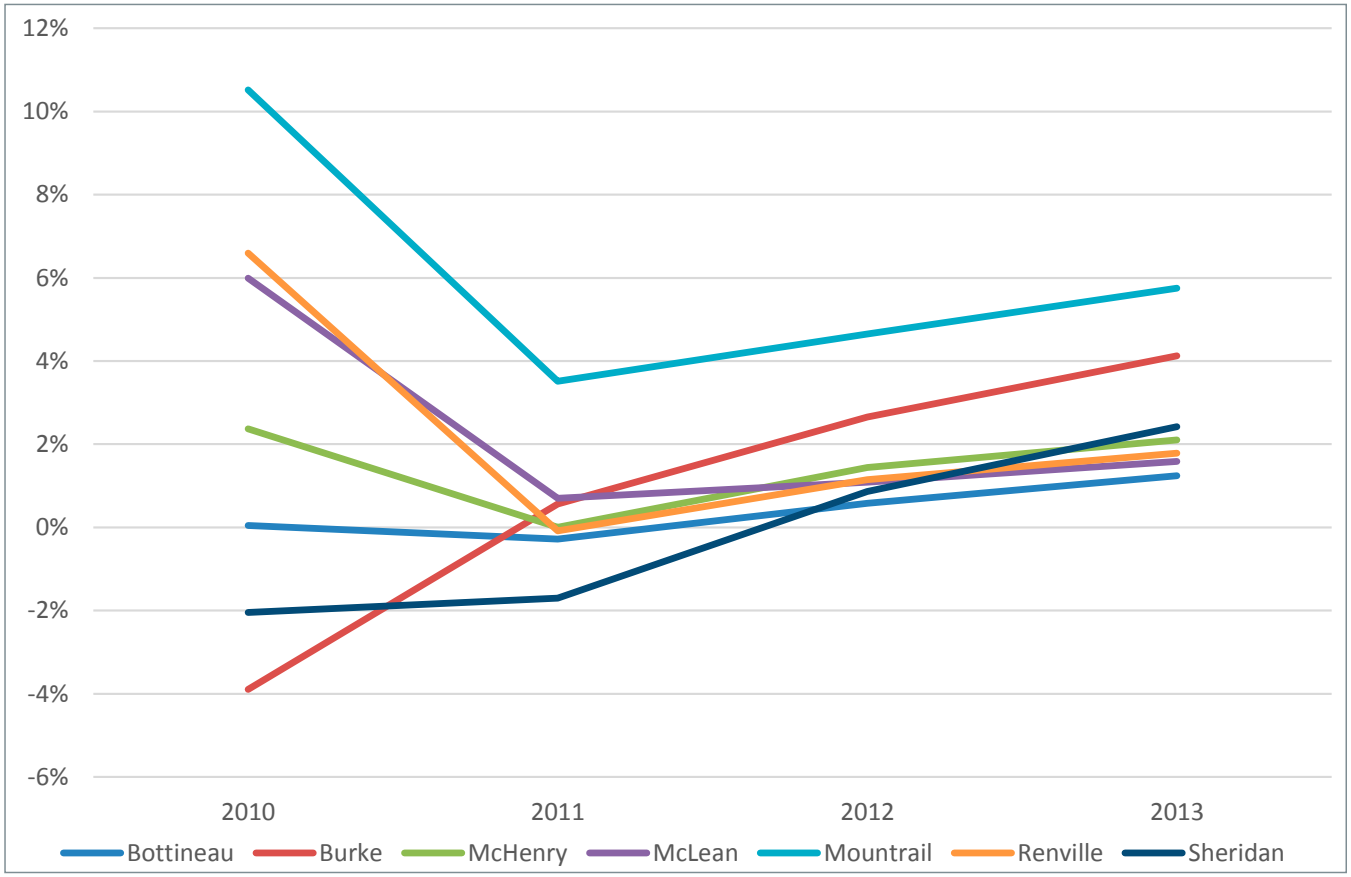
Figure 11 illustrates population trends for the entire JLUS study area, excluding Ward County and the City of Minot. The figure is included to illustrate the common shape of recent growth across all counties in the study area. The graph shows year-over-year population change as a percentage of total population, beginning with percent change from 2009 to 2010. As an example interpretation, the population of Mountrail County increased 10.5 percent from 2009 to 2010. From 2010-2011, the population of Mountrail County continued to increase, but at a slower rate of 3.5 percent. From 2011-2013, growth in all counties was accelerating at approximately the same rate. Raw population data is given in Table 2.

It should be noted that most counties and cities in the study area experienced more population growth over the past 10 years than that which could be documented by the 2010 U.S. Census or estimates made in the years that followed. This is mostly due to the presence of a large temporary workforce in the oil extraction industry. Many of the temporary workers have a residence outside the study area, either elsewhere in North Dakota or in another state. Some communities in western North Dakota have carried out studies to estimate their "service" populations (i.e., the number of people being served by local utilities, roadways, emergency services and healthcare providers) in order to get better estimates of the total populations they are serving.

POPULATION PROJECTIONS

In 2012, the North Dakota Housing Finance Agency produced the North Dakota Statewide Housing Assessment. That report included population projections to 2025 broken down by regions, counties, and major cities. As a region, the study area population is projected to increase over 33% from 2012 to 2025. Sheridan County is the only county in the JLUS area projected to decline in population. The most significant increase is expected in Mountrail County, where the projected increase is nearly 80 percent. Figure 12 shows population projections for each county within the study area and the City of Minot.

Figure 11: Annual Rate of Population Change by County, 2010-2013



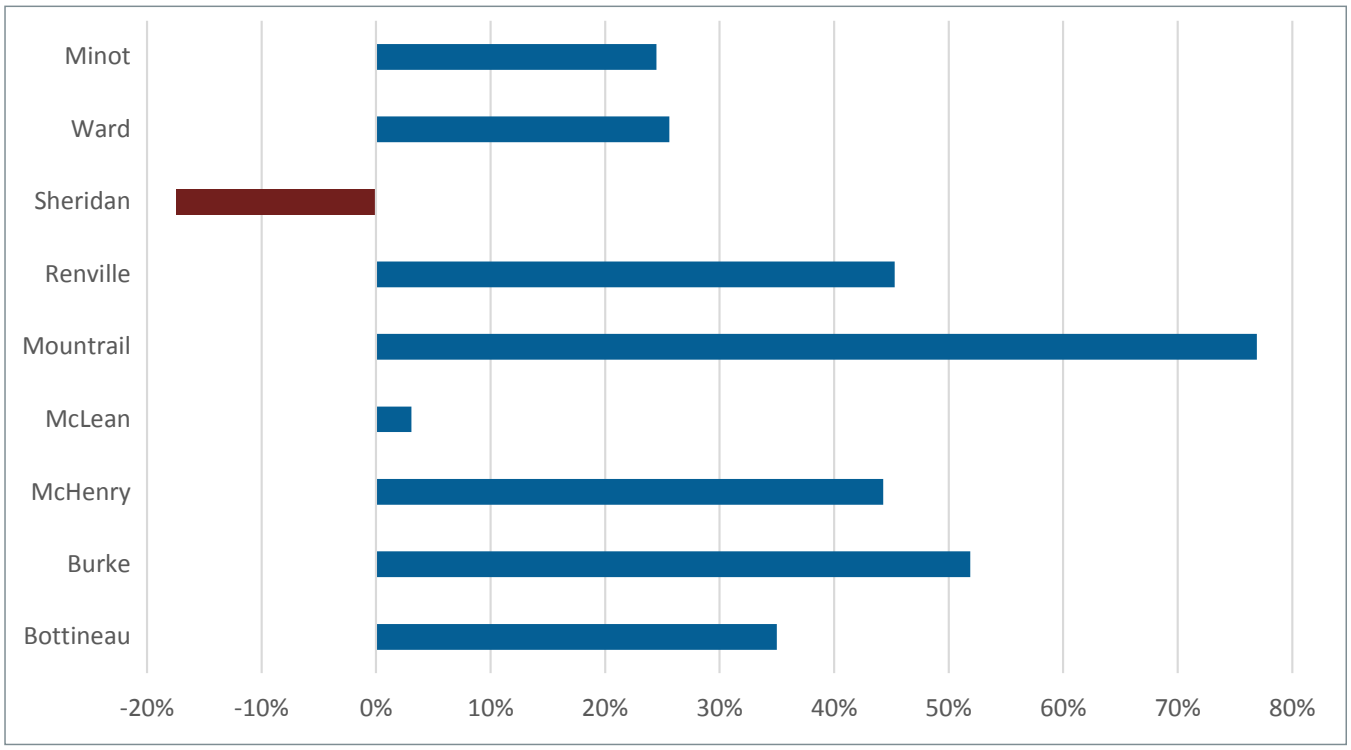
Source: US Census

Table 2: Population by County, 2009-2013

Jurisdiction	2009	2010	2011	2012	2013
Bottineau County	6,427	6,430	6,412	6,449	6,529
Burke County	2,027	1,948	1,959	2,011	2,094
McHenry County	5,275	5,400	5,400	5,478	5,593
McLean County	8,360	8,861	8,923	9,020	9,163
Mountrail County	6,540	7,228	7,482	7,830	8,280
Renville County	2,291	2,442	2,440	2,468	2,512
Sheridan County	1,320	1,293	1,271	1,282	1,313

Source: American Community Survey

Figure 12: Percent Change in County Population, 2025 Forecast



Source: North Dakota Housing Finance Agency, North Dakota State University

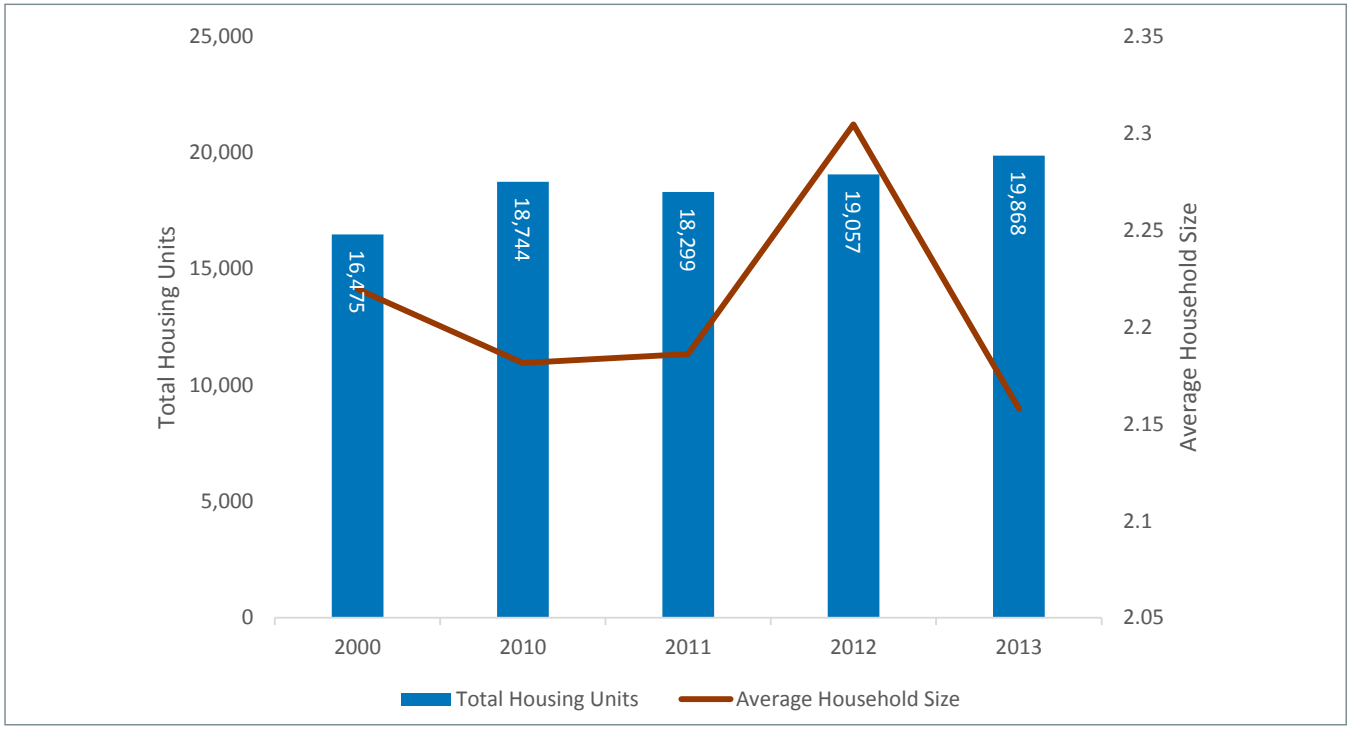
HOUSING CHARACTERISTICS

RECENT HOUSING TRENDS

Housing data was evaluated from 2000 to 2013. Outside of Ward County, the most notable increase in housing units was experienced in Mountrail County, which correlates with their population increases. Housing units in McLean County also increased, which was mirrored by a slight increase in population. In Bottineau, Burke, McHenry, and Renville Counties, the number of available housing units actually declined while the populations increased. In the case of McHenry County, which saw its number of housing units decrease by 2, the observed decline may simply be caused by the margin of error in 2013 survey estimates. However, a real trend could also be attributable to the occupation of vacant units, an increase in people housed within each unit, or a combination of both factors.

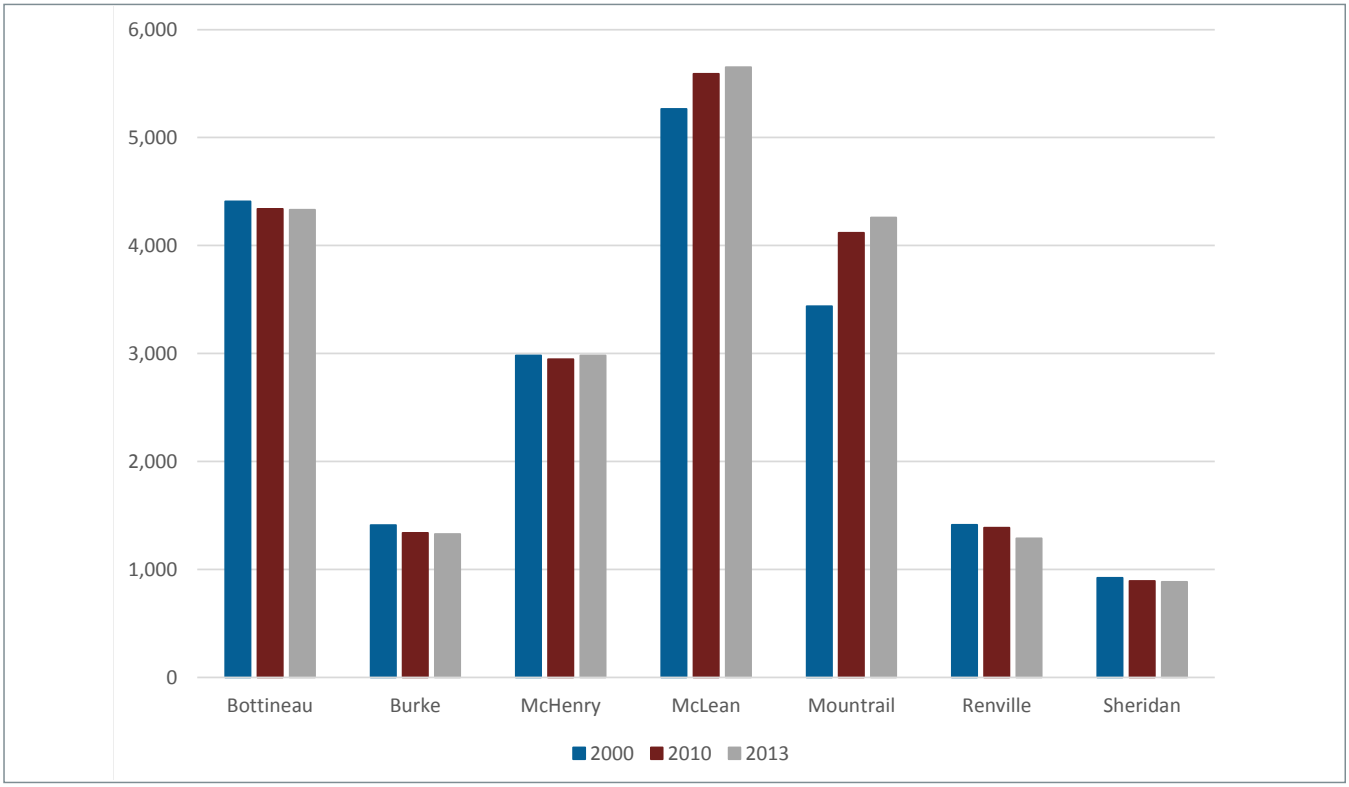
Figure 13 illustrates growth in housing stock in relation to population growth in the City of Minot and Ward County from 2000 to 2013. From 2000 to 2010, the population of the City of Minot increased by an average of 1.2 percent each year, while the population of Ward County increased by an average of 0.5 percent each year. Then, from 2010 to 2013, Minot's population increased by 2.4 percent annually, while the population of Ward County grew by 1.9 percent each year. (Both the City and County estimated populations declined from 2012 to 2013.) From 2010 to 2013, the total number of housing units in the City of Minot grew by 1.9 percent each year on average, while the total number of housing units in Ward County grew by 1.5 percent each year on average. From 2011 to 2012, average household size increased sharply as an influx of workers migrated to the region and flooding damaged thousands

Figure 13: Total Housing Units and Average Household Size for the City of Minot 2000-2013



Source: US Census, American Community Survey

Figure 14: Total Housing Stock by County, 2000-2013



Source: US Census, American Community Survey

of existing homes. Following the construction of many homes in 2013, average household size returned to the 2011 level (Figure 13).

Figure 14 shows total housing units for the remaining counties in the JLUS study area in 2000, 2010, and 2013. It should be noted that many cities within the JLUS area experienced their most significant household growth after 2013. At this point, many cities had made the infrastructure extensions necessary for large-scale housing development.

VALUE TRENDS

Recent trends in assessed housing values illustrate changes in housing affordability. National trends from 2000 to 2013 indicate a significant drop in housing values consistent with the great economic recession. The state of North Dakota, and the study area in particular, provide a drastic contrast to the national trend. Each county in the study area as well as the City of Minot experienced significant and consistent increases in housing values from 2000 to 2013.

AFFORDABILITY THRESHOLD

Housing affordability is commonly measured by the percentage of a household's total income spent on housing costs. The U.S. Department of Housing and Urban Development (HUD) has established that families who pay more than 30 percent of their income for housing are considered cost-burdened and may have difficulty affording necessities such as food, clothing, transportation and medical care. Each county in the study area and the City of Minot were assessed to determine the percentage of households that exceed the HUD threshold.

Figures 15 and 16 show the percentage of households in each jurisdiction that meet the HUD threshold from 2000 to 2013, based on owner-occupied housing and renter-occupied housing.

OWNER-OCCUPIED HOUSING

From 2000 to 2013, the percentage of homeowners spending more than the HUD threshold increased substantially in Burke County, McHenry County, McLean County, and Sheridan County. The percentage of cost-burden homeowners increased by approximately 6 percent in the City of Minot and Ward County, and dropped in Bottineau County and Mountrail County. This may be an indication that the majority of household incomes are now keeping pace with rising housing costs, and that the housing market is settling down after the initial spike in market values that accompanied the onset of oil extraction activity.

RENTER-OCCUPIED HOUSING

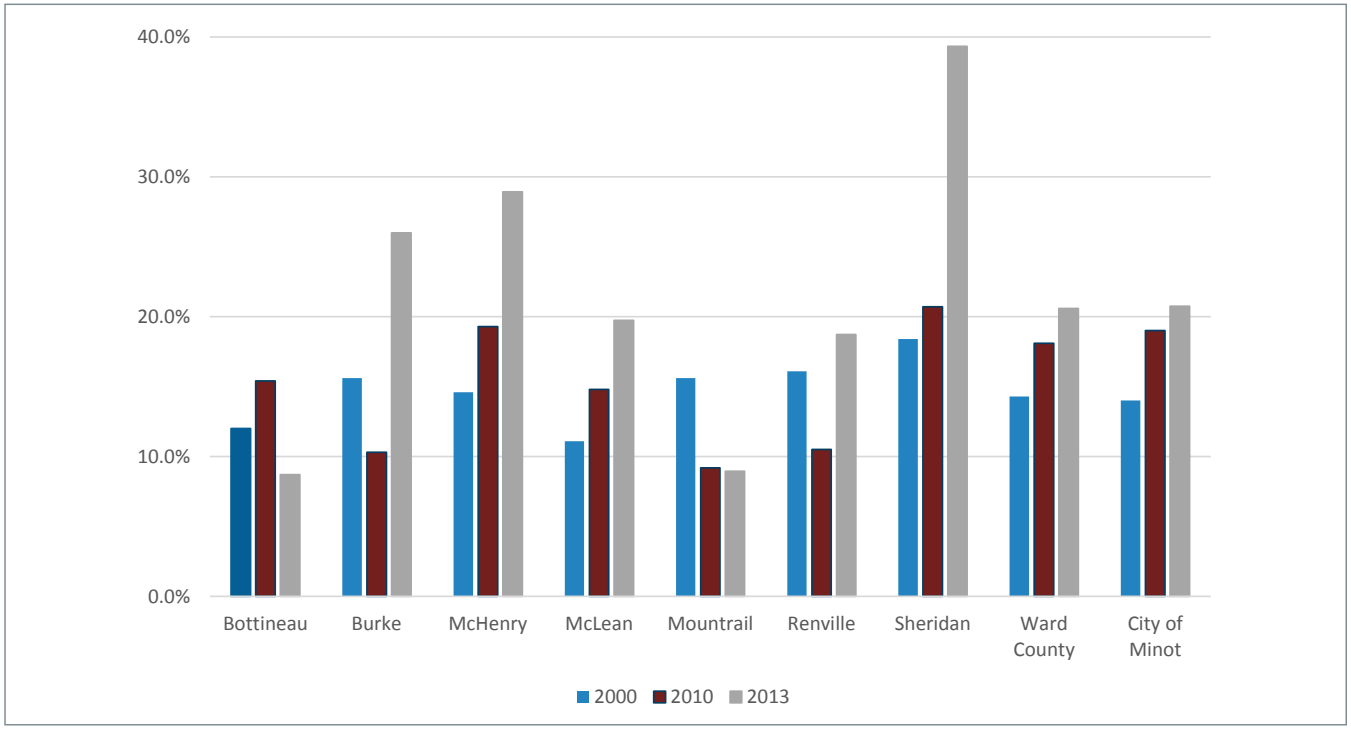
In the majority of counties and the City of Minot, the percentage of cost-burdened renters decreased from 2010 to 2013. In many counties, this statistic decreased by 15-20 percent. Burke County was the only county which

Table 3: Median Assessed Housing Value by County, 2000-2012

Jurisdiction	2000 Median Value	2013 Median Value	% Annual Increase in Value, 2000 -2013
Bottineau County	$43,600	$84,200	7.2%
Burke County	$24,700	$77,900	16.6%
McHenry County	$32,600	$77,300	10.6%
McLean County	$48,400	$117,000	10.9%
Mountrail County	$39,700	$89,400	9.6%
Renville County	$44,500	$95,200	8.8%
Sheridan County	$23,900	$58,300	11.1%
Ward County	$79,500	$155,800	7.4%
City of Minot	$80,400	$153,700	7.0%

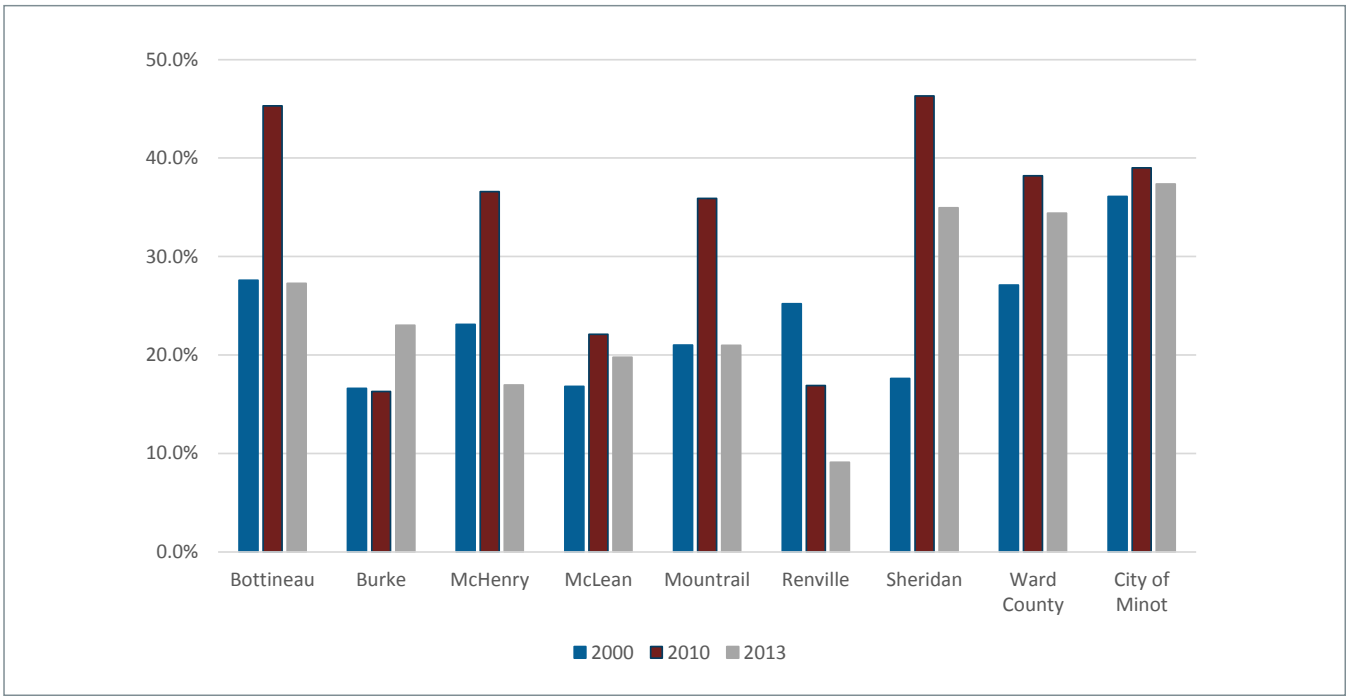
Source: US Census

Figure 15: Percentage of Cost-Burdened Homeowners with a Mortgage by County, 2000-2013



Source: US Census, American Community Survey

Figure 16: Percentage of Cost-burdened Renters by County, 2000-2013



Source: US Census, American Community Survey

experienced an increase in the percentage of cost-burdened renters over this period. Overall, the percentage of cost-burdened renters remained fairly steady in the largest population centers – the City of Minot and Ward County – with much greater fluctuations in counties with smaller populations. While greater variance is expected in smaller samples, it is encouraging that rental affordability has begun to improve in the region's most populous city and county.

Potential factors in the drop in the percentage of families spending more than the HUD threshold may be attributable to:

- an increase in household income as a result of the economic growth and associated well-paying jobs and,
- for owner-occupied housing, the ability of some new homeowners to pay for housing up-front with cash and avoid mortgages.

The increase in the percentage of families spending more than the HUD threshold may be attributable to the inability of incomes to keep pace with rising housing costs. The decrease in rental housing affordability is most significant throughout the region, experienced in the City of Minot and in seven of the eight counties in the JLUS area.

STATE AND LOCAL DEVELOPMENT AUTHORITY

LOCAL JURISDICTION CONTROLS

Local jurisdictions which are allowed to exercise zoning authority include cities, counties, and townships. The North Dakota Century Code (NDCC) contains the enabling legislation which describes the authority and responsibilities associated with regulating land use. In the JLUS area, all of the cities with populations greater than 1,000 and all eight counties have zoning regulations. Most townships are subject to county zoning but some organized townships have adopted their own zoning regulations.

As mandated by the NDCC, any jurisdiction that exercises zoning authority needs to have a comprehensive plan as the basis for making decisions on land use matters. Several of the jurisdictions in the JLUS area that exercise zoning authority do not have a comprehensive plan. This creates vulnerability to potential legal challenges of their decisions on land use.

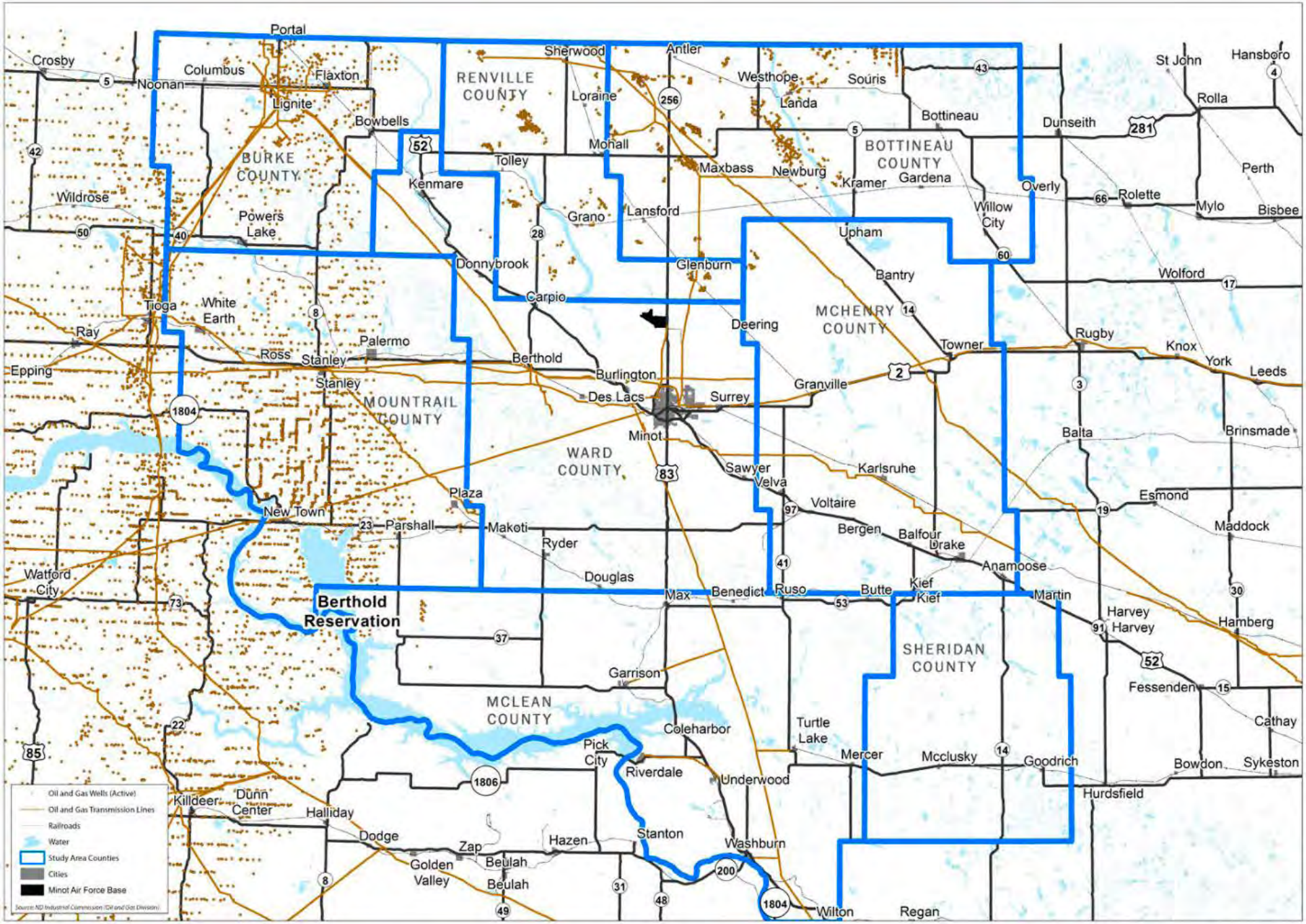
The NDCC also contains rules for subdivision platting. Some jurisdictions have established their own subdivision regulations, while others have not. According to Chapter 11-33.2 of the NDCC, any proposed development that involves the creation of private or public streets, utility easements, or other types of improvements is required to be platted. Locally adopted subdivision regulations are required for counties to process subdivision plats. Approving subdivision plats without adopted subdivision regulations could create exposure to legal challenges.

Building permits are closely linked to the platting and zoning processes. When a building permit is applied for, local government staff can review the zoning of the proposed site for consistency with the proposed use and determine whether the property is platted as a subdivision. Building permits should only be issued for property that is platted. Depending on the interpretation of the NDCC, an exception to the building permit and platting requirements could be inferred by the agricultural protection clause which states "A board of county commissioners may not prohibit or prevent the use of land or buildings for farming or ranching and may not prohibit or prevent any of the normal incidents of farming or ranching."

ENERGY INDUSTRY

The study area has a long history of oil and gas production. Natural gas was first discovered in the state in Bottineau County in the early 1900s. In 1951, oil was discovered just west of the study area near the City of Tioga. Until the beginning of the recent surge of oil extraction, starting in approximately 2005 and reaching significantly higher levels of activity by 2010, Bottineau County had been the leading producer of oil and natural

Figure 17: Study Area Oil and Gas Infrastructure



gas within the study area. Recent technological breakthroughs in horizontal drilling and hydraulic fracturing have led to the level of oil and natural gas extraction that has sparked significant energy-related growth throughout the study area. Mountrail County is currently the leading producer of oil and gas within the study area and in the state, with 7,646,766 barrels of oil and 7.37 billion cubic feet of natural gas produced in August 2014 alone. The state currently produces over one million barrels of crude oil per day, and is second only to Texas in annual oil production.

A complex system of oil and gas gathering pipelines and other major transmission pipelines traverse the study area. Significant transmission pipelines include the following:

- Refined oil products – the Cenex Pipeline LLC line travels east to west through Mountrail County, Ward County, and McHenry County.
- Propane – the Kinder Morgan Cochin line travels southeast to northwest through McHenry County, Bottineau County, and a small portion of Renville County.
- Natural gas – several lines pass through each county in the study area, except Sheridan County. Lines include Alliance, Aux Sable, WBI Energy, and Whiting.
- Oil – several lines pass through each county in the study area, except McLean and Sheridan Counties. Lines include Basin Transload, Enbridge, Plains, and Tesoro.

Unlike other types of development, the permitting and approval of oil wells falls under the sole authority of the ND Industrial Commission's Department of Mineral Resources. There are no provisions for local government (county) decisions on oil wells as there are for wind farms and landfills.

WIND POWER

North Dakota is the leading state in wind power generation. North Dakota Prairie Winds is the only operating wind energy facility in the study area, located in the southern portion of Ward County, straddling US Highway 83. It has a production capacity of nearly 116 megawatts and covers approximately 47 square miles. Located east of North Dakota Prairie Winds and adjacent to State Highway 41 in McHenry County is the New Frontier project which has received permit approvals but has not yet been built. It will have a production capacity of 99 megawatts and will cover approximately 17 square miles. The Hartland Wind Farm is proposed for Mountrail, Ward, and Renville Counties. The Hartland Farm, if built, would be the largest wind farm in the state and have a capacity of 2,000 megawatts, covering approximately 363 square miles.

The development of wind farms requires joint approval by the ND Public Service Commission and the local government. The local government may impose standards such as setback distances between proposed wind turbines and existing structures.

TRANSPORTATION SYSTEMS

HIGHWAYS

Surface transportation throughout the study area is supported by a system of US highways, state highways, county roads, and township roads. Significant interstate routes within the study area include the following:

- US Highway 2, which allows east/west travel from Grand Forks through Minot and on to Williston.
- US Highway 52, which allows travel from Jamestown to the northwest toward Canada.
- US Highway 83, which allows north/south travel from Bismarck through Minot and on toward Canada.

Several state highways provide regional connections, and in some cases, carry higher volumes of traffic than the US highways. Examples of high volume state routes include Highways 8 and 23 in the western portion of the study area.

The North Dakota Department of Transportation's (NDDOT) 2014 Surface Transportation Improvement Plan identifies several rehabilitation, maintenance, overlay, and safety projects to be constructed through 2017. The fluctuations in state revenues from oil extraction tax are difficult to predict and subject to commodity prices. Recently, the price of oil has dropped, resulting in even greater unpredictability of oil tax revenues. The ND legislature, which meets biennially, determines the distribution of oil and gas tax revenues to local governments. This results in additional roadway improvement projects, and sometimes results in short term reprioritization of projects, depending upon funds available.

TRANSPORTER ERECTOR ROUTES

The Federal Highway Administration defines a transporter erector route as "a public road specifically designated for use by the Transporter Erector vehicle for access to missile sites." The United States Air Force utilizes 1,393 miles of Transporter Erector routes and 680 miles of general access routes. Transporter Erector routes are federally designated routes utilized by the Air Force to transfer Minuteman Missiles between military installations. Transporter Erector convoys are limited to the use of Transporter Erector routes. Military vehicles other than Transporter Erectors may utilize other general access routes throughout the JLUS area.

The routes include state, county, township and city maintained roads, both paved and gravel-surfaced. Gravel roads receive federal funds for maintenance. The Air Force advocates for Defense Access Road Program (DAR) funding through Military Surface Deployment and Distribution Command (SDDC). MAFB inspects the routes on an annual basis; subsequent funding is distributed to the counties or to the state for maintenance of eligible roadways. (AFGSC AFI 32-1005)

AIR TRANSPORTATION

Regional Civilian System Overview

Minot International is the third busiest airport in North Dakota and is the only primary, commercial service airport located in the JLUS region. Smaller airports in the region include the 11 general aviation airports listed below:

- Towner
- Bottineau
- Westhope
- Mohall
- Bowbells
- Kenmare
- Stanley
- Plaza
- Parshall
- Newtown
- Garrison

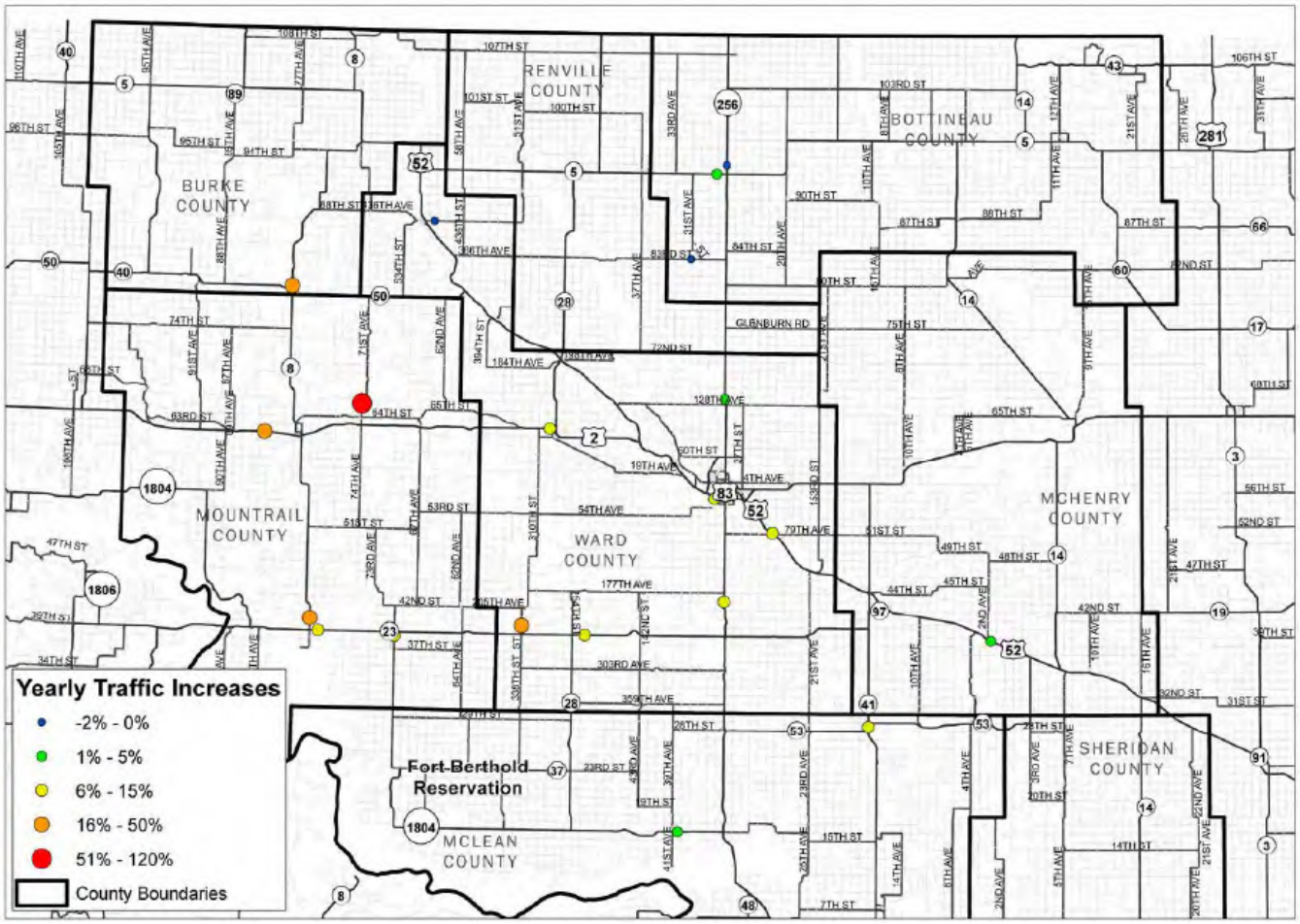
General aviation airports do not provide scheduled commercial airline service, but serve the needs of local pilots who own their own planes. Several crop spraying services base their operations at general aviation airports and charter flight services are sometimes available.

Minot International Airport

Although the passenger airlines serving Minot International Airport do not offer any international flights, the term "international" is the designation given to airports that have the capability to provide US Customs services.

Minot International Airport is located about a mile north of Minot's central business district and nine miles south

Figure 18: Percent Change in Traffic Volume, 2005-2013[1]



1 - Start and end years for available data vary throughout the study area. 2005-2013 represents the average period for which data was available.

of Minot Air Force Base. Minot International is a municipal airport, owned and operated by the City of Minot.

Several regional carriers serve Minot International. The main three are Delta Air Lines, United Airlines, and Allegiant Air. These airlines provide connections to Minneapolis, Denver, Las Vegas, and Phoenix.

The Minot International Airport has experienced significant growth in passenger boardings and numbers of flights over the past several years. Table 4 shows a significant increase in passenger boardings beginning in 2011.

RAILROADS

Rail service is utilized extensively throughout the study area for the transportation of freight supplies, most of which are connected to the oil and gas industry and the agricultural industry. The National Surface Transportation Board (STB) classifies railroads as Class I, II, or III based on annual revenue.

The Association of American Railroads' (AARs') classification system considers both annual revenue and miles of rail. AAR classifies railroads as Class I, Regional Railroad and Local Railroad. The Canadian Pacific Railway and the Burlington Northern Santa Fe Railway both operate mainline routes through the study

area and are both Class I railways as defined by the STB and AAR. Other railroads which operate branch line routes in portions of the study area include Dakota, Missouri Valley & Western (DMVW), and Northern Plains Railroad (NPR). Both DVMW and NPR are classified as regional railroads by AAR. Amtrak operates the state's only passenger rail service, which travels through the study area on a BNSF line, with two stops in the JLUS area at Minot and Stanley. The Rugby, ND station is just east of the study area in Pierce County, and the Williston, ND station is west of the study area in Williams County. Boardings and alightings at these four stations are shown in Table 5.

Table 4: Total Passenger Boardings at Minot International Airport, 2006-2014

2006	2007	2008	2009	2010	2011	2012	2013	2014
36,575	33,163	35,126	32,728	34,526	65,635	106,863	106,853	109,075

Source: North Dakota Aeronautics Commission

Table 5: Boardings and Alightings at Amtrak Stations in and near the JLUS Study Area

City	Fiscal Year Boardings + Alightings				
	2003	2005	2008	2013	2014
Rugby	4,940	6,272	7,048	5,637	4,053
Minot	27,439	33,314	42,801	41,615	35,521
Stanley	2,678	2,694	3,694	9,411	7,036
Williston	16,196	19,504	23,619	51,076	44,013

Source: Amtrak Fact Sheets, State of North Dakota

ENVIRONMENTAL RESOURCES

GEOGRAPHIC OVERVIEW

The study area is within the Northern Great Plains region, which is predominantly a short grass prairie environment. The Missouri River forms the southwest boundary of McLean and Mountrail Counties. The Mouse River Basin is located in the central, eastern, and northern portions of the study area. The Des Lacs River flows through Burke, Ward, and Renville Counties. The study area is characterized by rolling terrain with small lakes and wetlands which are the result of glacial activity. The majority of land in the region is in agricultural production, either in the form of crops or cattle grazing.

PUBLIC LANDS

State Park

Within the JLUS area there is one state park, Fort Stevenson State Park. It is located at the east end of Lake Sakakawea, south of the City of Garrison. Fort Stevenson has a large marina with paved boat ramps, primitive and modern campgrounds, sleeping cabins, visitor center, and interpretive trails.

Waterfowl Rest Areas

Waterfowl Rest Areas, managed by the ND Game and Fish Department, are closed to waterfowl hunting during the fall and early winter migration period. Within the JLUS area, there is only one waterfowl rest area which is located in Sheridan County south of Anamoose.

Wildlife Management Areas

Wildlife Management Areas (WMAs), managed by the ND Game and Fish Department are habitat areas for hunting, fishing, and trapping. WMAs are also great locations for bird watching, hiking, and tent camping. There are 31 WMAs distributed throughout the study area. All counties, except Renville, have at least one WMA.

Bureau of Land Management Land

The Bureau of Land Management (BLM) oversees approximately 780 acres of land in the study area, most of which is located within McHenry, McLean, Mountrail, and Renville Counties. The primary uses of these lands include outdoor recreation, livestock grazing, mineral development, and energy production.

Bureau of Reclamation Lands

In the southeast portion of the study area, there are three Bureau of Reclamation areas, the Lonetree Wildlife Management Area, the McClusky Canal, and Lake Brekken-Holmes. These areas collectively offer biking, boating, camping, designated wildlife viewing, education/interpretation programs, fishing, hiking, horseback riding, hunting, picnic areas, a visitor center, water sports, and winter sports.

USDA Forest Service Lands

The Denbigh Experimental Forest, managed by the Sheyenne Ranger District, has two units totaling 755 acres. Both are in McHenry County near Towner. From 1931 to 1942, thousands of trees and shrubs were planted to determine which species would flourish in the ND climate. These areas are open for public recreation such as bird watching, hunting, hiking, cross-country skiing, and horseback riding.

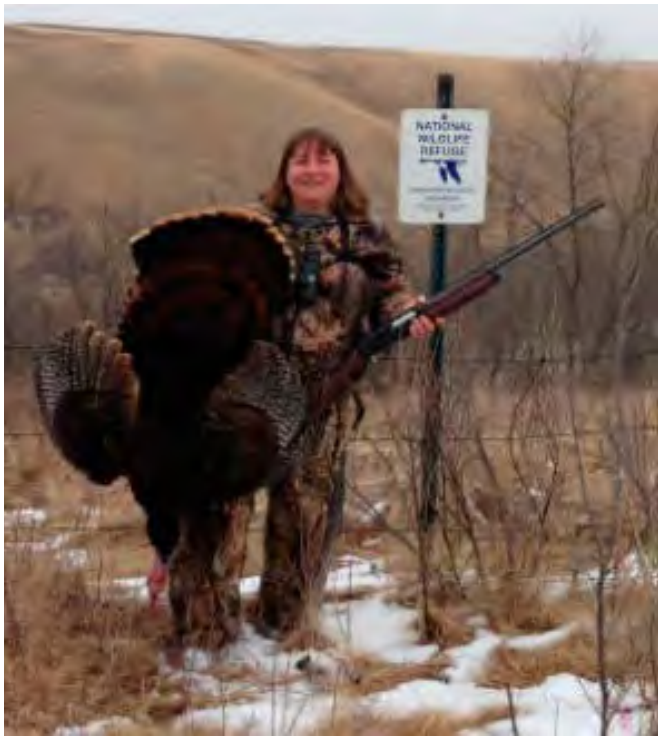
National Wildlife Refuges

National Wildlife Refuge (NWR) is a designation for protected areas which are managed by the United States Fish and Wildlife Service. The purpose of this system is to administer a national network of lands and waters for the conservation, management, and when needed, the restoration of fish, wildlife, and plant resources and their habitats for the benefit of present and future generations. National Wildlife Refuges are scattered throughout most of the study area.

Des Lacs NWR – Burke and Ward Counties

Located along the shorelines of Des Lacs Lake, extending northward from southeast of Kenmare to the Canadian Border, this refuge contains over 30 square miles of natural habitat. In addition to other recreational opportunities, specified areas of the Des Lacs NWR are open to public hunting for deer, upland birds, and turkeys.

Figure 19: National Wildlife Refuges Support Outdoor Recreation Activities



Source: US Fish and Wildlife Service

Upper Souris NWR – Renville and Ward Counties

Located about 15 miles northwest of Minot (5 miles west of MAFB) along the shorelines of Lake Darling and the Mouse River, the Upper Souris NWR contains over 50 square miles of wildlife habitat and nesting areas for migratory waterfowl. The Upper Souris NWR offers recreational opportunities such as hiking, canoeing, and fishing. Although some areas are closed to public access, other areas are open for hunting of deer and upland game birds. (Note: In Canada, the Mouse River is known as the Souris River. Although the names are often used interchangeably, in the US it is officially designated as the Mouse River.)

Lostwood NWR – Mountrail and Burke Counties

Located 22 miles north of Stanley in Mountrail County, the Lostwood NWR contains over 42 square miles. Because the piping plover and other declining bird species nest there, the Lostwood NWR has been designated as a "Globally Important Bird Area" by the Audubon Society and the American Bird Conservancy. Approximately 70 percent of the refuge land area is virgin prairie. In the northern portion of this NWR is the Lostwood Wilderness, a special area of nearly 9 square miles which is closed to motorized vehicles.

The Lostwood Wildlife Management District Complex provides oversight of five refuges that have a similar ecology. They include the North Dakota NWRs of Lostwood, Lake Zahl, Shell Lake, Des Lacs, and the Medicine Lake NWR which is in northeastern Montana.

Shell Lake NWR – Mountrail County

Of less than three square miles in land area and with 450 acres of open water, this NWR restricts public use and recreational activities to create an environment conducive to waterfowl breeding and provides a safe haven during migrations. Wildlife viewing is allowed but hunting and fishing are not.

McLean NWR – McLean County/Ft. Berthold Reservation

This small refuge was formerly known as the Lake Susie NWR. The name was changed to McLean NWR in the 1990s. This is the smallest refuge in the study region with only 1.2 square miles of land surrounding Lake Susie. Located 13 miles southeast of Parshall, wildlife viewing is allowed but hunting and fishing are not. The McLean NWR is under the oversight of the Audubon Refuge Complex.

J. Clark Salyer NWR - Bottineau and McHenry Counties

In contrast to the tiny McLean NWR, the J. Clark Salyer NWR is the largest refuge in North Dakota offering the greatest diversity of habitats. Of nearly 92 square miles in area, the south boundary of this refuge is 12 miles north of Towner. It extends along the shorelines of Mouse River for over 44 miles to the Canadian border. As with Lostwood NWR, the Salyer NWR is also a "Globally Important Bird Area" with some 270 species being identified at this NWR. Hunting is allowed but only within one of the nine designated hunting areas. Other

recreational activities offered are canoeing, fishing, hiking and birding.

Lake Nettie NWR – McLean County

The Lake Nettie Refuge is part of the Audubon NWR Complex in McLean County. It is located about 19 miles east of Garrison. This refuge contains a total of 4.8 square miles (one square mile of which is an easement on private land). Deer hunting is allowed in designated areas but all other hunting is prohibited. Camping is also prohibited. Abundant waterfowl find sanctuary and nesting habitat on the many islands within the wetland areas. In addition, the native prairie portions, cattails and bulrushes, provide habitat for a total of approximately 200 species of birds.

U.S. Army Corps of Engineers Land

Within the JLUS study region, the US Army Corps of Engineers (USACE) provides a variety of functions. They oversee the management of Garrison Dam, Lake Sakakawea areas, and provide expertise in flood management and flood response in the Mouse River Basin. The USACE was heavily involved during the flood that impacted the study area in 2011. The Corps also issues permits for altering wetlands and has programs for restoration of fish and wildlife habitat.

Lake Sakakawea is a reservoir on the Missouri River created by the construction of Garrison Dam. It is the third largest reservoir in America. Shoreline lands around the perimeter of Lake Sakakawea are either owned by the federal government or subject to USACE flowage easements. The land is managed by the USACE. The lake is a significant recreational asset to the region. Of the 37 designated public access points around the lake, 20 of them are within the JLUS study area along the southern boundaries of McLean and Mountrail Counties.

Waterfowl Production Areas

Waterfowl production areas (WPAs) are either acquired as public land or protected through conservation easements as part of the United States Fish and Wildlife Service's National Wildlife Refuge System. The purpose of WPAs is to conserve and protect wetland and grassland habitat which is crucial for maintaining wildlife and waterfowl. Hunting, fishing, and trapping are allowed by law on WPAs and are deemed to be wildlife-dependent recreations. The $15 federal duck stamp, which is required for hunting waterfowl, provides funding for the WPA program. These lands provide a variety of ecosystem functions, such as mitigation of soil erosion, ground water filtration and protection, aquifer recharge, and flood mitigation. WPAs also provide opportunities for hiking, wildlife watching, and photography. Hundreds of Waterfowl Production Areas are distributed throughout the JLUS study area.

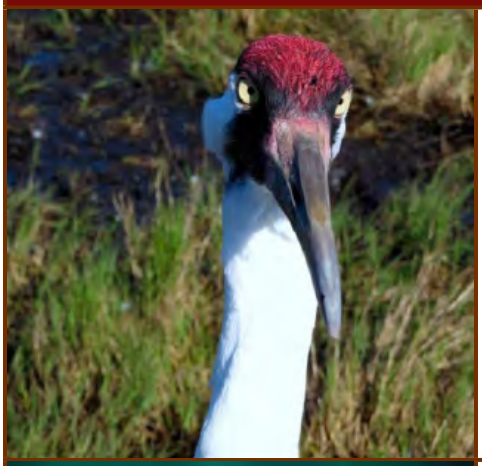
Threatened and Endangered Species

The terms "threatened" and "endangered" have specific meanings as defined in the Federal Endangered Species Act of 1937. The US Fish and Wildlife service is given the responsibility of determining which species fall into which category. The USFW determinations are flexible, depending on how a species' population is recovering or declining.

An endangered species is determined to be at the brink of extinction. A threatened species is likely to be at the brink of extinction in the future. Restoration efforts, funding resources, regulatory tools, and protections are proportional to the designations of threatened and endangered.

There are currently several species within the JLUS study area that are designated as threatened and endangered.

ENDANGERED SPECIES



NORTH DAKOTA WHOOPING CRANE

Whooping Cranes are protected by state and federal laws. The federal penalty for shooting a whooping crane is $100,000 and one year in prison. These special birds migrate through the JLUS Study Area. As of February 2015, there were fewer than 450 of these birds remaining in the wild. The Whooping Crane is the tallest North American bird, approaching a height of 5 feet. Adults are snowy-white except for black primary feathers on the wings and face.

Source: US Fish and Wildlife

PALLID STURGEON

Pallid Sturgeon can weigh up to 80 pounds, reach lengths of 6 feet, and live up to 50 years. Their primary habitat is at the bottom of large, silty rivers, where braided channels, sand bars, and sand flats create a diversity of river depths and water flows. Pallid Sturgeon have a unique appearance due to their flattened snout, long slender tail, and lateral rows of bony plates instead of scales. Their mouth is toothless and positioned under the snout for sucking small fishes and invertebrates from the river bottom.

Source: US Fish and Wildlife

GRAY WOLF

Mature Gray Wolves generally weigh from 70-115 pounds and stand about 30 inches high at the shoulder. They are predominantly gray but can range in color from white to black. The average lifespan for Gray Wolves is approximately 5 to 6 years; however, they can live up to 13 years in the wild. Gray Wolves typically hunt large animals such as moose and deer, although beaver, mice, gophers, and other smaller animals supplement their diet.

Source: US Fish and Wildlife

THREATENED SPECIES

PIPING PLOVER

Piping Plovers are shorebirds which generally weigh 2 ounces, have a body length of about 7.25 inches, and live an average of less than five years. They are gray and brown with a white underside. Adult Piping Plovers have orange legs, a black band running across the forehead, a single narrow black band around the breast, and a black-tipped orange bill. Too much water in the spring will flood Plover nests. Too little water over a long period of time allows grasses and other vegetation to grow on the prime nesting beaches, making these sites unsuitable for successful nesting.

Source: US Fish and Wildlife

DAKOTA SKIPPER

Dakota Skippers have a wingspan of 1 to 1.25 inches and an adult life span of about three weeks. They have hooked antennae, short stout bodies, and a characteristic, rapid, skipping flight. Male Dakota Skippers are bright tawny-orange while females are quite variable. Dakota Skippers are found in high quality native prairie containing a diversity of wildflowers and grasses.

Source: US Fish and Wildlife

PROTECTED SPECIES

NORTHERN LONG-EARED BAT

The Northern Long-eared Bat is a medium-sized bat with a body length of three to four-inches and a wingspan of 9 to 10 inches. Its fur color can be medium to dark brown on the back and tawny to pale-brown on the underside. During the winter, they hibernate in caves and mines. In the summer, they roost underneath bark, in cavities, or in crevices of trees.

Source: US Fish and Wildlife

RUFA RED KNOT

The Rufa Red Knot is a medium-sized shorebird, ranging from 9 to 11 inches in length. They have relatively small heads and short necks with small dark eyes. Their black bill is about the same length as their head and they have a thick base which tapers to a narrow tip. Rufa Red Knots also have red or white breasts and a dark russet back. Their typical habitats are drier tundra areas, inlets, and bays.

Source: US Fish and Wildlife

SPRAGUE'S PIPIT

Sprague's Pipits are sparrow-sized birds with a body length of about six-inches. They are brown and striped, have a thin bill, and have white outer tail feathers. Sprague's Pipits are songbirds of the northern prairie, and can be generally found in open grassland with good drainage and no shrubs or trees.

Source: US Fish and Wildlife

WATER RESOURCES

Lakes

There are many lakes in the study area. The most prominent include Lake Audubon, Lake Sakakawea, Lake Darling, and the Des Lacs Lakes. Lake Audubon is incorporated into the Audubon National Wildlife Refuge which is located in Mclean County, west of highway 83 and adjacent to Lake Sakakawea on the western side. Lake Sakakawea is located in the Missouri River Basin. It is the largest manmade lake in North Dakota and the third largest reservoir in the United States. Lake Darling is included in a national wildlife refuge and was created to provide water downstream via the Mouse River to another national wildlife refuge, the J. Clark Salyer Refuge. Lake Darling is located just west of MAFB and north of Highway 2. Located northwest of Lake Darling, the Des Lacs Lakes are also designated as national wildlife refuges and expand northward into Canada.

Rivers

Within the local jurisdictions, there are three notable rivers including the Missouri River, the Mouse River, and the Des Lacs River. The Missouri River is the largest river in the study area and the longest river in North America. It incorporates Lake Sakakawea and is a major water resource in the region. The Mouse River is another significant regional water resource. The Des Lacs River merges into the Mouse River from its headwaters in the Des Lacs Lakes watershed.

Prairie Potholes

Prairie potholes are depressional wetlands found most often in the Upper Midwest. This formerly glaciated landscape is pockmarked with an immense number of potholes, which fill with snowmelt and rain in the spring. More than half of all prairie potholes have been drained or altered for agricultural use. Preservation of remaining wetlands is important as they absorb surges of rain and snowmelt, thereby reducing the risk and severity of downstream flooding. Since flooding can hinder access to Transporter Erector Routes, regional prairie potholes are of economic value to MAFB and surrounding areas.

CHAPTER SUMMARY

This chapter has established a frame of reference for the Joint Land Use Study by providing an overview of existing conditions in the region. Features of the study area environment and the recent changes which have prompted the need for the study have been presented. A description of Minot Air Force Base operations and facilities reveals the magnitude of military strength here on the northern plains. In a purely economic sense, MAFB provides an economic engine of equal magnitude, one that is not susceptible to boom and bust cycles. Maintaining the viability of the air base and missile complex will continue to benefit the people of the region while supporting the military's mission and readiness.

CHAPTER 2

COMMITTEE, STAKEHOLDER AND PUBLIC INVOLVEMENT PROCESS

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Chapter 2: Committee, Stakeholder and Public Involvement Process

The most informative and critical component of the JLUS process was the input from the Technical Committee, Policy Committee, stakeholders, and the public. MAFB personnel were highly involved in the JLUS process, and provided a high level of insight and information about issues and concerns relating to Air Force operations and facilities and their relationship to land uses and development activities in the study area. Local planning and zoning officials were instrumental in providing their insight into their development review processes and their level of communication and coordination with MAFB. This chapter explains the committee, stakeholder, and public input process that was used to identify the initial 30 compatibility issues, and how further input was gathered to screen the issues and refine them down to 16 core issues.

POLICY COMMITTEE

The Policy Committee is composed of a blend of MAFB leadership as well as local and regional leaders who represent their communities and/or have a stake in sustaining MAFB and its facilities. Since many of the Policy Committee members hold elected or appointed positions, this group is at the heart of the public participation program. Committee members are the faces of the Study in their respective jurisdictions or organizations. Review and input from the Policy Committee provided a litmus test for all Study proposals in gauging political practicality.

Policy Committee meetings were held on the following dates for the purposes indicated. The meeting location is indicated in parenthesis.

- April 23, 2014 (Minot) – A combined meeting with the Technical Committee to refine the project work plan.
- September 15, 2014 (Minot) – Discovery Meeting. This was a combined meeting with the Technical Committee to explore data collected by the consultant team and review committee input on compatibility issues.
- January 27, 2015 (Minot) – A combined meeting with the Technical Committee to review public input received, report back to the committee on feedback from stakeholder interviews, and findings made relating to compatibility.
- March 24, 2015 (Stanley) – Planning and Strategy Meeting. This was a combined meeting with the Technical Committee to receive committee input on compatibility prioritization, and to receive input on proposed issue resolution strategies.
- September 11, 2015 (Minot) – JLUS document review and acceptance/adoption.

Table 1: Policy Committee Composition and Responsibilities

Participants	Responsibilities
• Bottineau County • Burke County • City of Minot • Mandan, Hidatsa, & Arikara Nation • McHenry County • McLean County • Minot Area Chamber of Commerce • Minot Air Force Base • Mountrail County • North Dakota Department of Commerce • Renville County • Sheridan County • Souris Basin Planning Council • Ward County	• Scope of Work Acceptance • Organization Representation at Public Meetings • Issue and Strategy Acceptance • JLUS Acceptance/ Adoption

TECHNICAL COMMITTEE

The Technical Committee functions as an advisory board to the Policy Committee by considering the technical information and making recommendations on Study proposals. Composed of local planners and other local and regional agency personnel, this Committee gauges whether or not Study proposals relate to the current regulatory environment and are realistic given present local and regional conditions.

Table 2: Technical Committee Composition and Responsibilities

Participants	Responsibilities
• Bottineau County • Burke County • City of Minot • McHenry County • McLean County • Minot Air Force Base • Minot International Airport • Mountrail County • North Dakota Petroleum Council • Renville County • Sheridan County • Souris Basin Planning Council • Ward County	• Project Scope Recommendations • Data Collection Review and Recommendations • Issue Identification • Issue and Strategy Review and Recommendation • Report Review and Recommendation

Technical Committee meetings were held on the following dates for the purposes indicated. The meeting location is indicated in parenthesis.

- April 23, 2014 (Minot) – A combined meeting with the Policy Committee to refine the project work plan.
- August 18, 2014 (GoToMeeting) – In preparation for the Discovery Meeting, an early review and input opportunity regarding data collection efforts and issues contributing to compatibility.
- September 15, 2014 (Minot) – Discovery Meeting. This was a combined meeting with the Policy Committee to explore data collected by the consultant team and review committee input on compatibility issues.
- January 27, 2015 (Minot) – A combined meeting with the Policy Committee to review public input received, report back to the committee on feedback from stakeholder interviews, and findings made relating to compatibility.
- March 12, 2015 (GoToMeeting) – In preparation for the Planning and Strategy Meeting, an early review and input opportunity regarding draft compatibility issues and strategies.
- March 24, 2015 (Stanley) – Planning and Strategy Meeting. This was a combined meeting with the Policy Committee to receive committee input on compatibility prioritization, and to receive input on proposed issue resolution strategies.
- September 11, 2015 (Minot) – JLUS document review (combined meeting with Policy Committee).

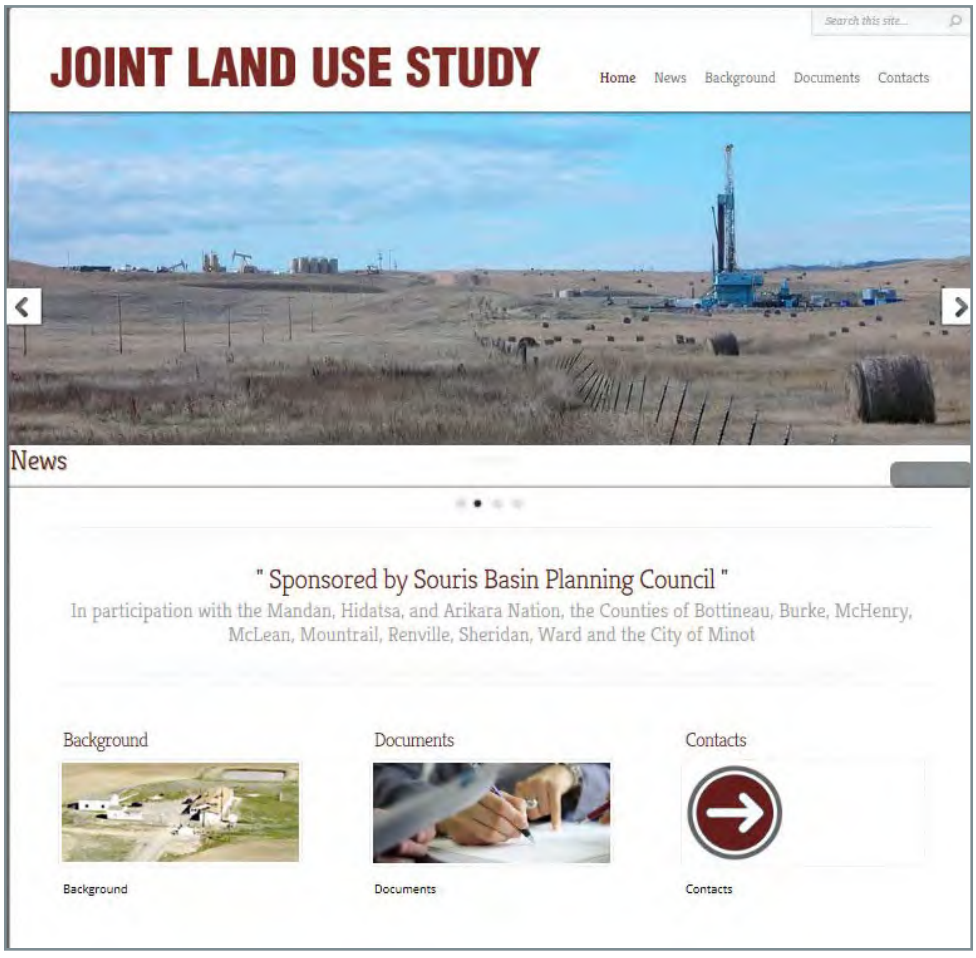
Technical Committee meetings consisted of a combination of in-person meetings and web-based meetings using GoToMeeting. Web-based meetings allowed for a higher level of participation by local planning and zoning officials given the size of the study area.

PROJECT WEBSITE - HTTP://MINOTAFBJLUS.COM/

Throughout the development of the JLUS, a project website provided readily available project information. The website provided the following benefits:

- **Updated news** regarding committee and public meetings and other events, such as the base tour.
- **Background** information to help those interested understand the impetus for the project, committee membership, and a general description of a JLUS.
- **Documents** related to the project progress from committee and public meetings.
- **Contact information** of the project administrator (Souris Basin Planning Council) and the consultant team.

Figure 1: Project Website Snapshot



JOINT TECHNICAL AND POLICY COMMITTEE INSTALLATION TOUR

On June 12, 2014, Policy Committee and Technical Committee members, along with the Executive Director of the Souris Basin Planning Council (SBPC), and the consultant teams toured MAFB. Air Force Tech. Sgt. Ballard, who conducted the tour, stated "This tour of Minot Air Force Base will give you [Committees, SBPC, and Consultants] a clear idea of what MAFB is and what the project [Joint Land Use Study] is intended to protect." The tour provided the participants with a better understanding of the scope of MAFB from the residential neighborhoods on base to the 5th Bomb Wing (B-52s) and the 150 Missile Launch Facilities located throughout the eight-county region. It also helped to emphasize the importance of MAFB installations to national security and the local economy.

Participants first visited with personnel of the 5th Bomb Wing and were introduced to a B-52 bomber and various munitions. Later, participants met with personnel from the 91st Missile Wing to tour a Missile Launch Facility and learn about the missile complex operations. At the end of the tour, participants had lunch with officers of the 5th Bomb Wing and 91st Missile Wing. The officers gave a presentation on the MAFB mission which was followed by a group discussion.

The tour was invaluable in gaining a better understanding of MAFB, and in understanding and anticipating potential incompatibilities with civilian developments near military facilities.

Figure 2: Installation Tour - Missile Launch Facility Training Site

PUBLIC INPUT MEETINGS AND ONLINE SURVEY

Throughout the course of the project, public meetings were conducted at key points in order to update the general public with new project information and most importantly to answer questions and receive input. Input was also received through a simple online survey that made public input convenient.

EARLY PUBLIC INVOLVEMENT – DATA COLLECTION PHASE

Three public meetings were held throughout the study area in September of 2014 to highlight the consultant team's data collection efforts and to gain input on areas of existing and potential incompatibility between MAFB and civilian systems. Meetings were held in Mohall, Stanley, and Minot to ensure that the public had ample opportunity to attend a public input meeting without extensive travel. Meeting notices, meeting summaries, comments, and presentation materials are shown in the Appendix.

Outreach efforts for the September, 2014 public meetings involved the following means:

- Public notice in all official JLUS study area County newspapers and the MHA Times (official newspaper of the Mandan, Hidatsa, and Arikara Nation) (see Appendix)
- Press release to all JLUS study area newspapers (see Appendix)
- Website news post

Throughout each meeting, participants were encouraged to ask questions and provide their unique insight on conflict issues they perceived between the military and civilian operations or development. The graph in Figure 3 identifies the frequency with which different conflict issues were raised by the public in the form of comments.

ONLINE SURVEY

After the initial round of public meetings, an online survey was provided to collect additional input. The survey was designed for respondents to quickly and easily provide helpful information about their perception of what constitutes existing or potential conflicts between the military and civilian activities. A list of 25 different issues were provided (based on the data collection) and the opportunity was provided to list additional issues. Feedback on these issues is shown in Figure 4. A total of 38 responses were received. A complete summary of the survey results is provided in the Appendix.

PUBLIC INVOLVEMENT - CONFLICT/COMPATIBILITY ANALYSIS AND DRAFT STRATEGIES

A second round of public input meetings was held in April of 2015, after the development of the draft Issues and Strategies Table (discussed in Chapter 4). Public input meetings were held in Mohall, Minot, and Stanley to ensure that the public had ample opportunity to attend a public meeting in close proximity to their home or jurisdiction. Meeting notices, meeting summaries, comments, and presentation materials are shown in the Appendix.

In addition to the same methods of outreach used for the early round of public meetings, the following additional efforts were made to encourage greater participation at such a critical juncture in the progress of the JLUS:

- Technical and policy committee members were asked to email a notification (an "eblast") to their constituents and various contacts, organizations, property owners, developers, contractors, etc. who may have an interest in the issues and recommended strategies.
- Extra effort was made to notify property owners who have a Missile Launch Facility or alert facility easement on their property. A list of names and partial addresses was received from MAFB. Since many of the names did not have complete address information, assistance was sought from the Recorder's Office in each county. Of the eight counties in the study area, six counties were able to provide assistance by providing up-to-date ownership and address information. A meeting notification was sent to each property owner, resulting in the mailing of approximately 195 meeting notices.

PUBLIC INVOLVEMENT – FINAL MEETING

The final public meeting was held on September 11, 2015 in Minot. The meeting notice, meeting summary, comments, and presentation materials are shown in the Appendix.

Figure 3: Summary of September 2014 Public Input

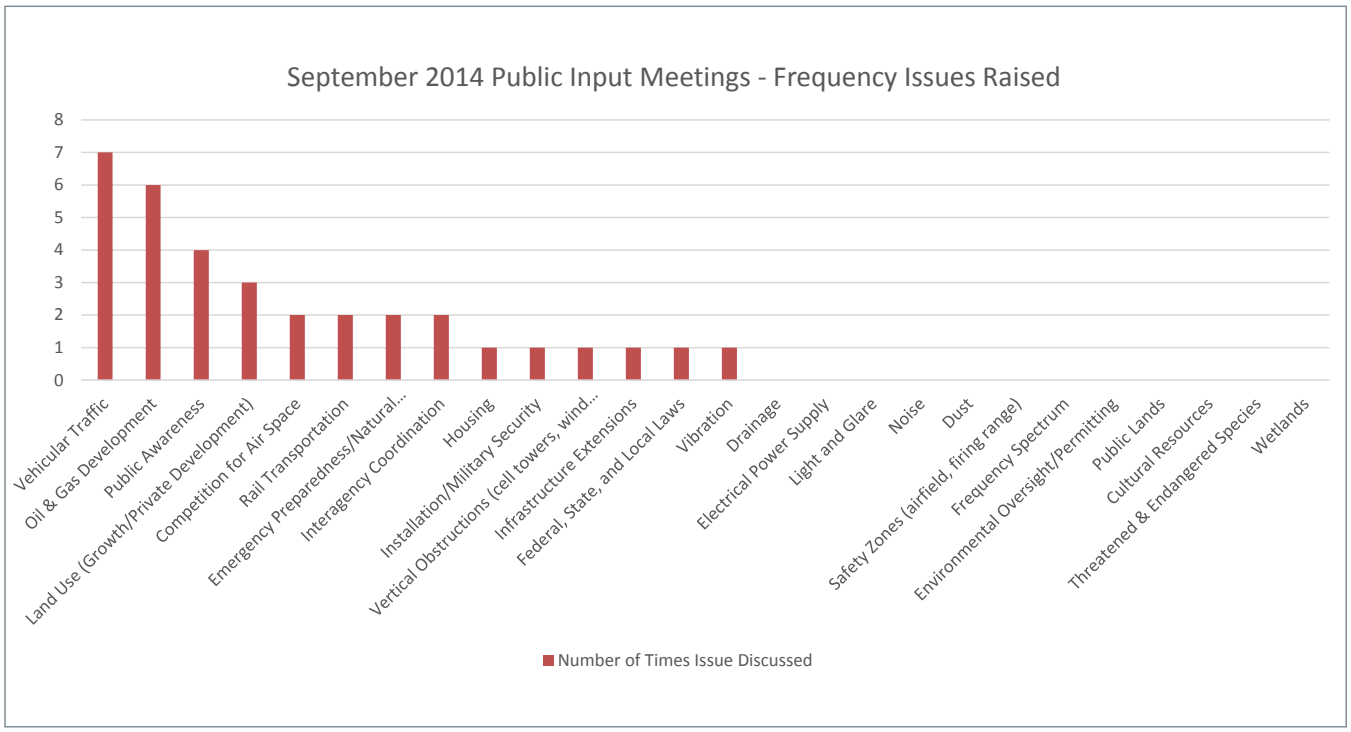
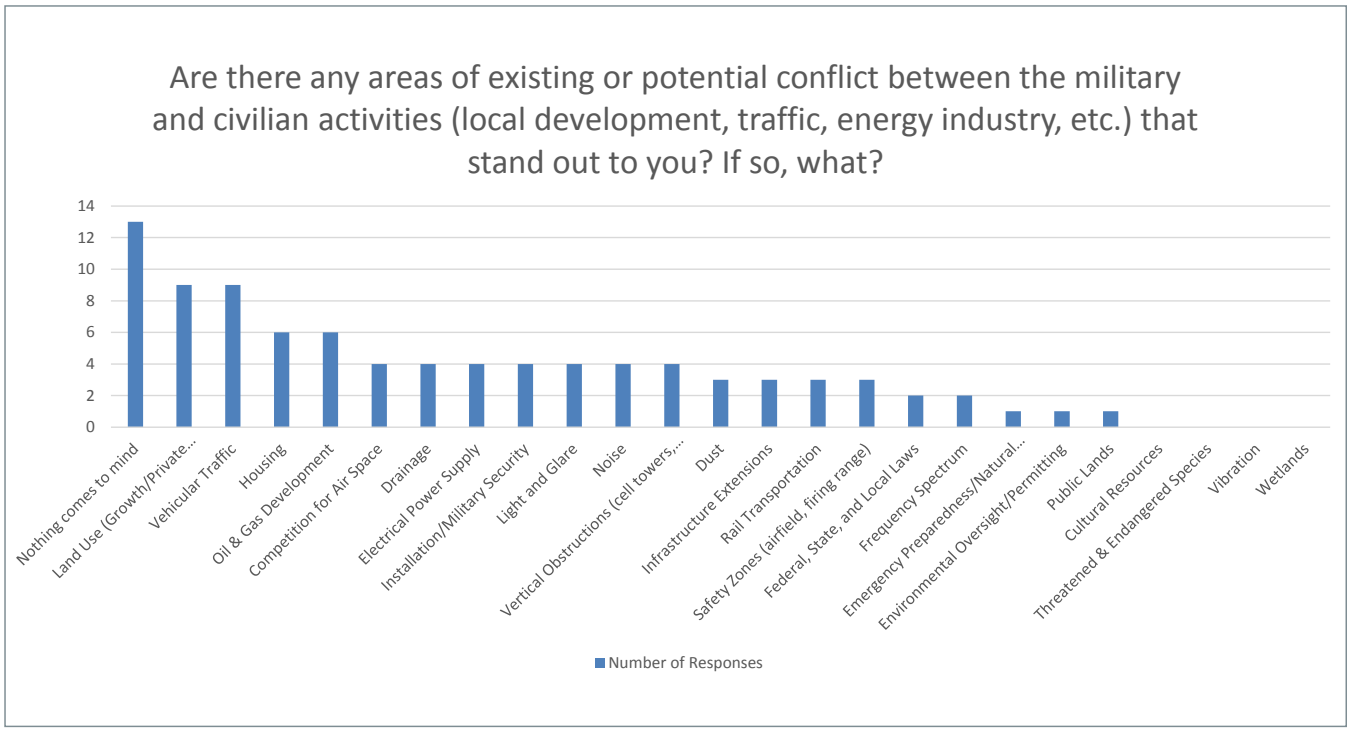


Figure 4: Summary of Online Survey Input



STAKEHOLDER INTERVIEWS

Through the fall of 2014 and into the winter, stakeholder interviews were conducted with organization representatives who would be a critical part of the Study. Representatives of local government officials, state government, MAFB, and the private development industry (oil/gas and urban development) were interviewed in person and over the telephone. As a follow up to the interviews, stakeholders were also sent online surveys to provide written comments. The interviews provided unique insight on issues documented earlier in the process, but also revealed additional issues. The stakeholder interview minutes and surveys are located in the Appendix.

ISSUE REFINEMENT

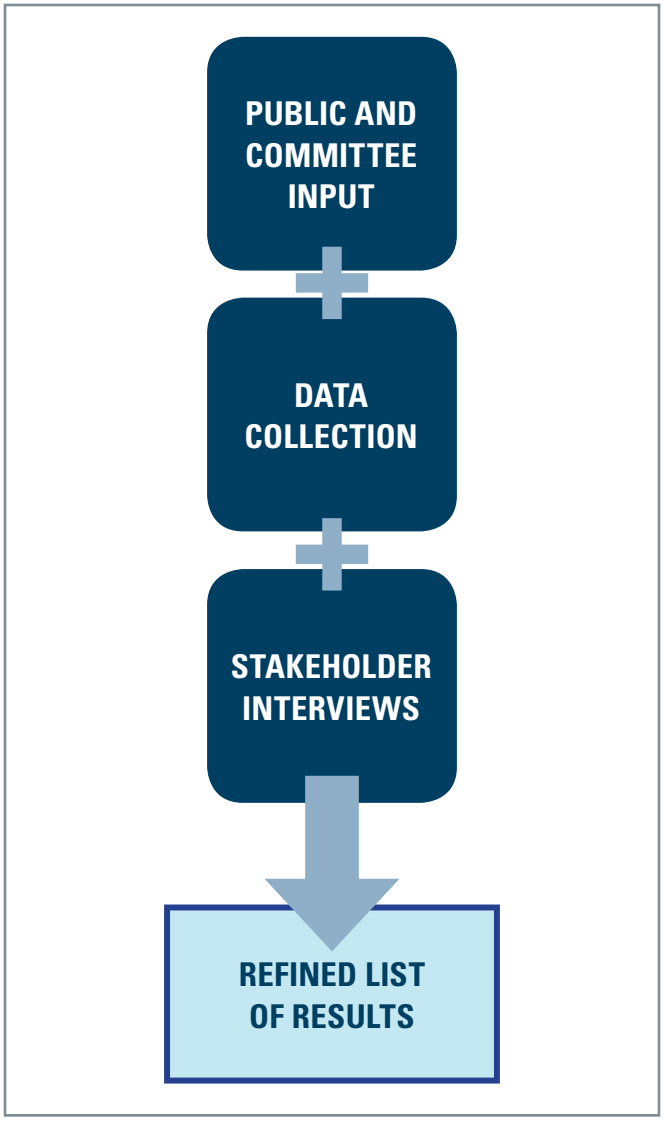
After a complete list of all issues were identified through data collection, public input, and stakeholder interviews, the issues were further analyzed and refined prior to preparing strategies that could address the issues. The following methodology was utilized to refine the list of issues:

Lack of Comment – These matters were initially thought to be issues, based on information discovered during data collection. However, they garnered minimal comment through public input from the September 2014 public input meetings and the online survey. Follow up Technical Committee and Policy Committee meetings confirmed that these issues were not of enough significance to carry forward through the conflict analysis phase of the Study.

- Cultural Resources
- Threatened and Endangered Species
- Wetlands
- Dust

Overlapping Issues – These were issues that received input through the September 2014 public input meetings, the online survey, and stakeholder interviews, but in isolation from other issues garnered limited input and were considered to be related to a more widespread root issue. For example, 'Installation Security' received input from MAFB (especially Security Forces), but almost no comment from the public. Since much of the comment

Figure 5: Issue Refinement Methodology



relating to installation security involved encroachment from incompatible land use, it was grouped with land use, which was identified as the root issue. The related, or root issue is shown in parenthesis.

- Electrical Power Supply (Local Infrastructure Extensions)
- Environmental Oversight (Interagency Coordination)
- Farming and Ranching Practices/Agitated Cattle (Noise)
- Federal, State, and Local Laws (Land Use, Interagency Coordination)
- Frequency Spectrum (Vertical Obstructions)
- Installation Security (Land Use)
- Light and Glare (Oil/Gas Development)
- Public Lands (Land Use)
- Vibration (Land Use)

REFINED ISSUE IDENTIFICATION BASED ON PUBLIC AND STAKEHOLDER INPUT PROCESS

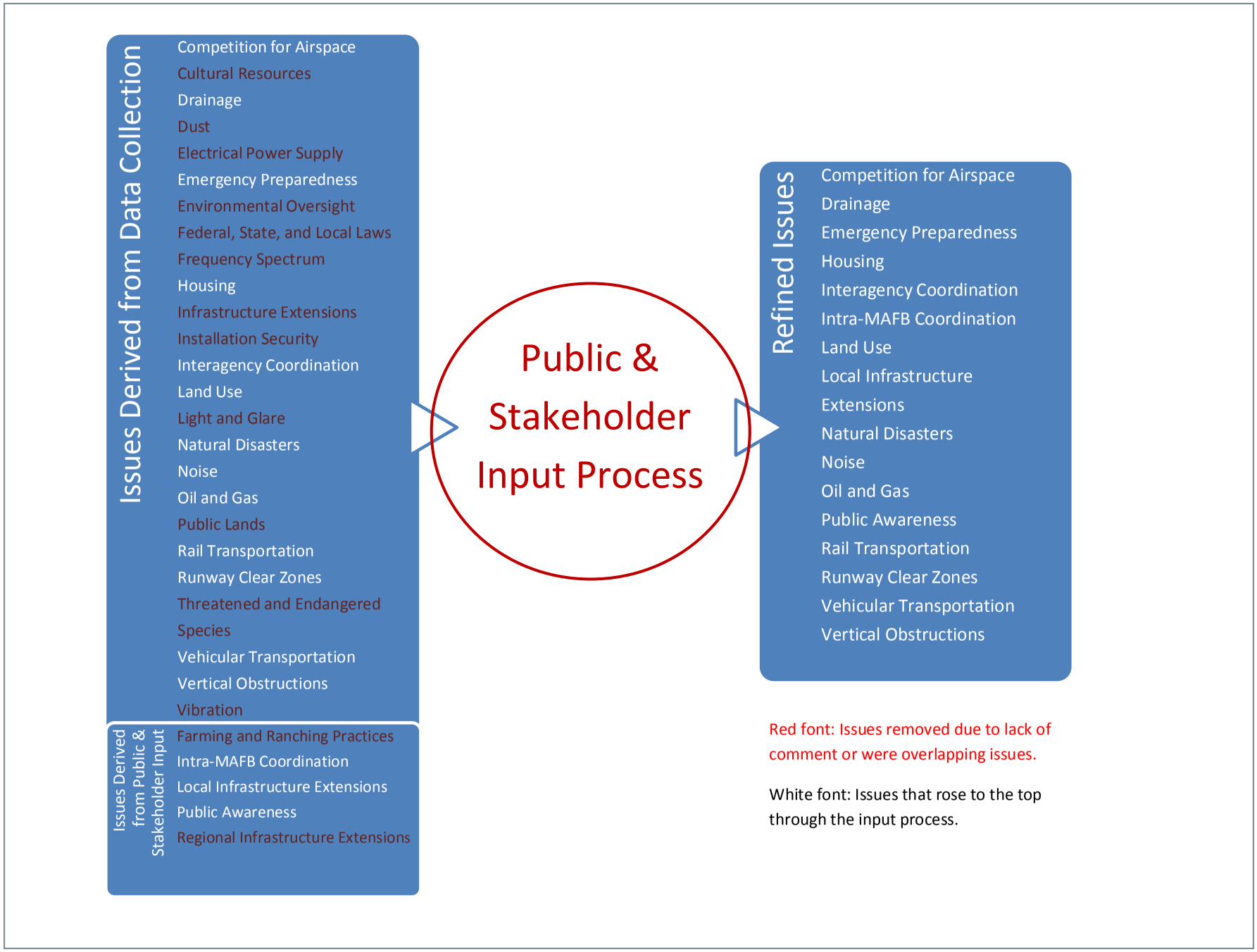
Key issues warranting further review were the result of input received from JLUS Policy Committee Members, Technical Committee members, public meetings, online surveys, and interviews of key stakeholders that are involved either directly or indirectly with Minot Air Force Base and its mission throughout the study area. These issues are labeled as "conflict/compatibility" issues because they relate to direct or indirect conflict or compatibility between the following:

A. Military Factors - includes Minot Air Force Base installations and operations within the airbase itself and throughout the surrounding eight county study area.

B. Civilian Factors – includes all civilian and non-military elements within the eight county study area. This oftentimes involves local laws, developments, or traffic, such as local zoning regulations, oil and gas development, or vehicular traffic.

For convenience, each issue title was reduced to one word or a short phrase. Each of the major issues identified as part of the public and stakeholder input process is described in more detail and discussed in Chapter 3. The issues identification and refinement process is shown on the following page:

Figure 6: Compatibility Issues Refined through Public Stakeholder Involvement



CHAPTER 3

DESCRIPTION AND ANALYSIS OF ISSUES

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Chapter 3: Description and Analysis of Issues

INTRODUCTION

This chapter details the issues identified by the process described in previous chapters. Through data collection, input from the public and stakeholders, 24 issues were identified. Further evaluation of these issues by the Technical Committee and the Policy Committee resulted in a two-tier categorical prioritization. The first tier contains issues that were identified as more significant, while the second tier contains less significant issues.

The more significant issues, or those issues carried forward in the Study, will be examined in the first part of this chapter followed by discussions of the less significant issues, or those issues not carried forward. These issues are addressed by illustrating the nature and effects of the problems and exploring some initial potential solutions.

Identifying the problem is the first step in developing solutions. The section below examines existing and potential problems between military facilities or operations and the public. The impacts go both ways. Military facilities and operations can impact the public; public activities can impact the military. There is an array of issues, with some more serious than others.

Military facilities and operations include several elements (this list is not exhaustive):

- Missile Launch Facilities (LFs)
- Missile Alert Facilities (MAFs)
- Minot AFB
- The Hardened Intersite Cable System (HICS)
- The Missile Complex Routes and operations
- Routine maintenance and security operations

Civilian activities such as farming and ranching do not raise serious concerns, but the intensity of activities related to the development of oil wells and oil gathering and transport infrastructure has sometimes conflicted with the military mission and creates public safety issues. The scale and extent of development has intensified throughout the region and is expected to continue at a rapid rate for several years into the future. Acknowledging the problems now will allow solutions to be identified and implemented. The following incompatibilities have been closely examined to determine the specifics of each issue.

ISSUES CARRIED FORWARD

LAND DEVELOPMENT AND AGENCY COORDINATION

Achieving and maintaining a long-term compatibility between military facilities and the surrounding land is one of the primary objectives of this study. Maintaining land use compatibility requires the prevention of future encroachments on military facilities. Below is a discussion of the current issues associated with land use compatibility. Some cursory recommendations are touched on to illustrate possible solutions. More in-depth recommendations and implementation strategies will be provided in Chapters Four and Five.

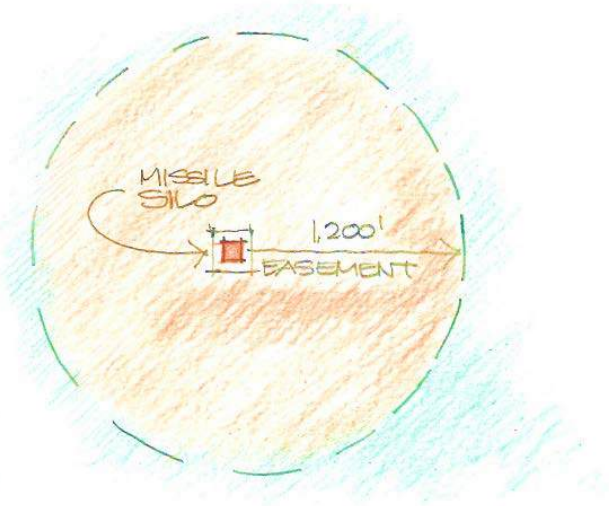
EXISTING MILITARY EASEMENTS

The areas around missile launch facilities need to remain open and undeveloped. The missile silos are active and contain Minuteman III missiles. The missiles are on perpetual standby and ready to launch 24 hours a day, 365 days a year. If structures are built too close to the facility, they may be destroyed in the event of a launch. If the nearby structures are inhabited by people, the occupants are at risk. In addition to protecting public safety and private property, military readiness must be maintained. Open, undeveloped land around the launch sites is essential for security purposes and to allow unimpaired military access and operations at each of the 150 launch facilities and at each of the 15 missile alert facilities of the missile complex.

All missile launch facilities are currently located in the center of a circular no-build easement having a radius of 1,200-feet (diameter of 2,400-feet). Prior to construction, these easements were purchased from the property owners by the government. The property owners were paid for their agreement to comply with certain specific measures needed to protect people and to protect the installation. The easement language contains several stipulations. The military's rights within easement areas include:

- Prohibiting human habitation;
- Removing existing or future buildings used for human habitation;
- Limiting the use of land to agricultural operations;
- Posting of warning signs

Figure 3.1: Sketch of Launch Facility with 1,200' easement.



LAUNCH FACILITY EASEMENTS

When the easements were purchased and the launch facilities were built, the landowners were more aware of the easement restrictions and the presence of the facilities. That was over 50 years ago and since then, many of the properties on which the easements exist are no longer owned by the original landowners. However, the original easements and restrictions still exist. New property owners are often unaware of the limitations placed on the property by the easements or the reasons for those limitations.

Issue: Most title company searches only extend twenty years into site history. These searches will almost always miss military easement information, since the easements were established over 50 years ago.

Before a tract of land is bought and sold, a title company will routinely research the property records. The same title company that does the research will handle the closing process; therefore, a buyer's awareness of any existing easements will depend on the extent to which the title company carried out a search. Changes in property ownership have increased sharply in the past five to ten years, further complicating title searches and property records.

Issue: The North Dakota Recorders Information Network (NDRIN) has not been supplied with recorded documents that are older than the 1990s and 2000s in many cases. The burden to upload those documents is upon each county recorder's office. Air Force Real Property Interests are commonly not being found in preliminary title searches done by developers.

Following the transfer of land ownership, subsequent plans and layouts for development are sometimes prepared without the knowledge of existing military easements and development restrictions.

Property records are easily accessible online through the NDRIN. Because the information posted on NDRIN has a date range limitation, older documents may not be revealed. Since the launch facility easements were created and recorded in the 1950s and 1960s, these easements may not be posted on NDRIN. If researchers rely upon the NDRIN as their sole source of information, the LF and MAF easements could be missed.

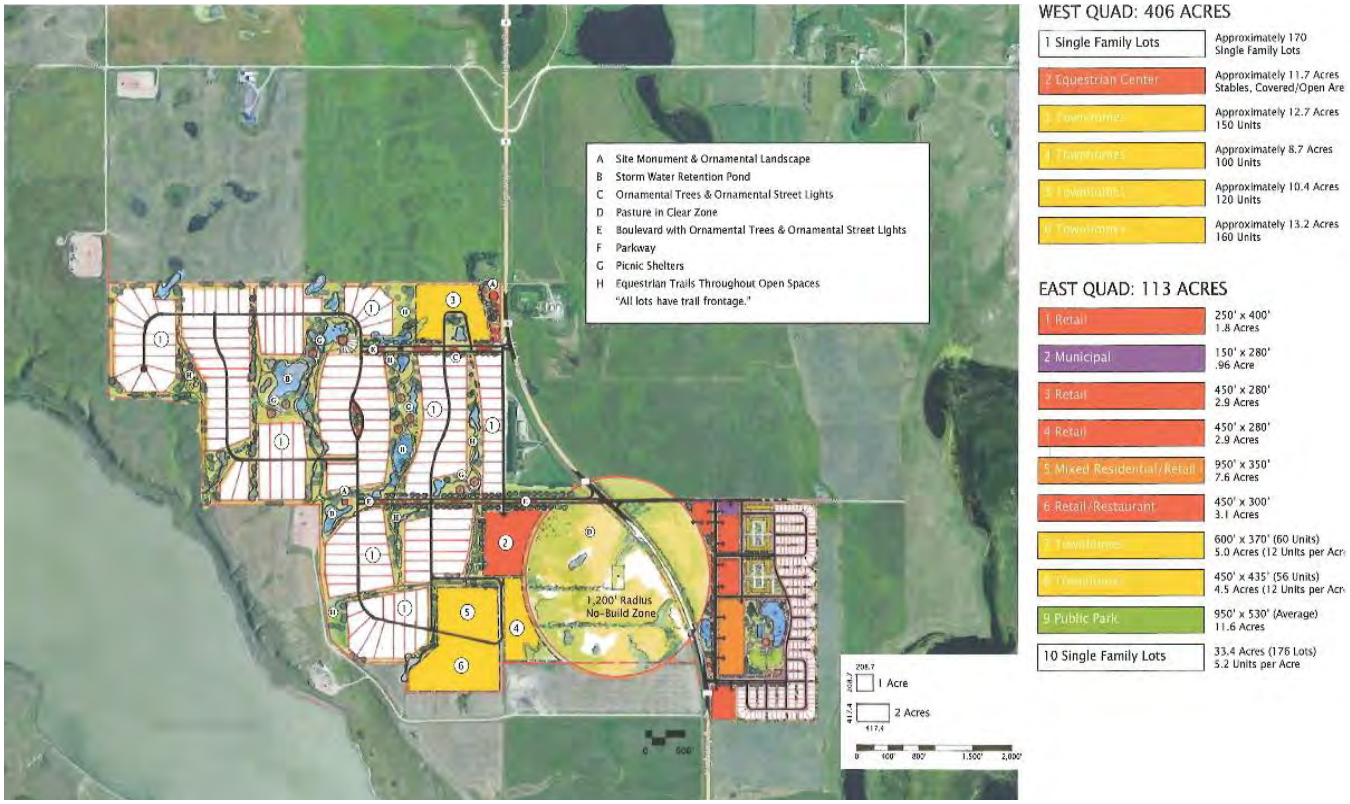
One way to assure that all property records have been examined is for the researcher to conduct a physical, hands-on inspection of the record books on file in all County Recorders' offices.

Another alternative would be for the military to file a "notice of easement" for existing LF and MAF easements. As recent entries, these easement notices would show up on a NDRIN search.

Issue: Industrial and residential development is situated within 1,200-foot, no-build easements of various launch facilities within the Bakken Region.

The huge influx of workers in the oil industry, as well as in every other employment sector, has resulted in a huge demand for housing units. The development community has attempted to meet this need by building thousands of dwelling units, primarily in the west part of the study area. This increase in regional development activity, combined with a faded awareness of military facilities and easements, has resulted in some easement encroachments.

Figure 3.2: Example of a proposed development conflict with a launch facility, Mountrail County



Source: Mountrail County, ND.

BEYOND THE EASEMENT

Issue: For public safety, the military has indicated that a building setback distance of 2,500-feet (almost one-half mile) is desirable for habitable buildings.

The existing easements only restrict development for a distance of 1,200-feet beyond the missile site. There is currently no mechanism in place to regulate habitable buildings within the desired additional 1,300-feet beyond the current easement boundaries. In the event of an emergency, the US Government will enforce evacuation of the area within 2,500 feet of the launch facility.

Local zoning could establish a building setback or buffer zone distance of 2,500-feet from all launch facilities, but such a requirement would be subject to the political will of each jurisdiction's elected leaders. Another alternative would have the military acquire additional easement areas, but it has not budgeted for such additional land purchases.

Yet another option would allow the current practice of building from 1,200-feet to 2,500-feet beyond the missile installation to be subject to regulation on the types and usage of structures in that buffer zone area, preferably prohibiting the construction of habitable structures. Such a measure would serve to protect the public and reduce the concern for emergency evacuations of these areas.

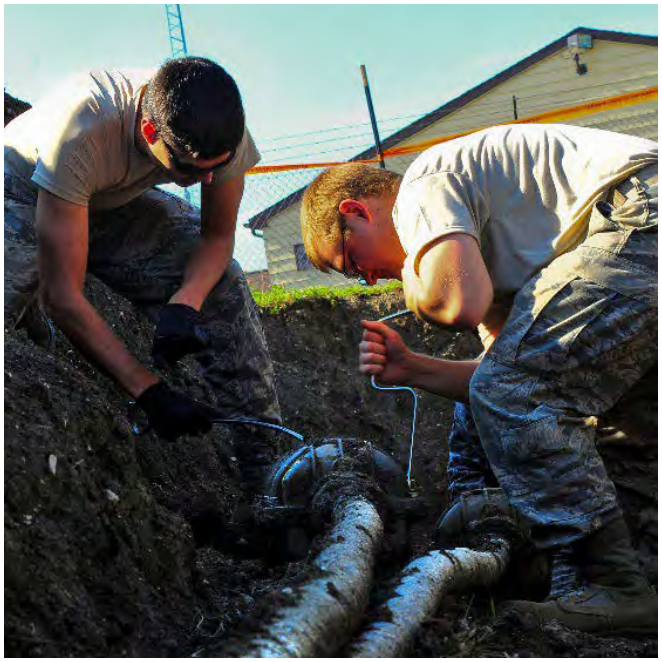
UNDERGROUND MILITARY CABLES

As discussed earlier in this document, the hardened intersite cable system (HICS) is a network of underground communication cables connecting the manned missile alert facilities with the launch facilities. Each cable is buried within an easement of 16.5 feet in width. Like the circular launch facility easements, the cable easements are also no-build easements.

Unlike the launch facility easements, there is generally no visible surface feature indicating where an underground cable might be located. For obvious security reasons, most HICS cable locations are not marked; cable locations are not made available to the public.

Issue: Water line and fiber optic line planning and construction may not be coordinated with MAFB, thus resulting in potential impacts upon the HICS.

Figure 3.3: The 91st Missile Maintenance Squadron at a hardened intersite cable system site.



Source: Minot Air Force Base.

With the regional surge in oil activity and rapid population increases comes an increased demand for utility services and transmission facilities such as water, power, and fiber optic lines. Installations of underground water lines and fiber optic cables create concerns for maintaining the integrity of the HICS.

The North Dakota One Call (NDOC) system was established to protect all underground utilities from being damaged by excavation activities. Contractors are mandated to "call before they dig". When a contractor calls the NDOC with the location of a proposed excavation site, that information is distributed to all utility providers so they can clearly mark the locations of their underground lines. MAFB is also notified by the NDOC and, if the proposed excavation is located in an area near a Hardened Intersite Cable, Minot AFB personnel will be on site to monitor the excavation.

Any excavation has the potential to damage the military's underground communications network. Because the HICS locations are not public knowledge, maintaining a functional HICS network depends on whether a contractor is conscientious. Reckless or careless digging or trenching without notification of NDOC can result in damage to the HICS and sever communications between a Missile Alert Facility and a Launch Facility.

Issue: The North Dakota One Call system was developed to locate utilities prior to digging but is not always utilized in the missile complex. The HICS is spread extensively throughout the missile complex; it is important that the One Call system is utilized to ensure cables are avoided.

The existing system seems to work well but only if all contractors observe the requirement to call before they dig. Given the level of development activity, the urgency to get things built, the influx of contractors from out of state, and perhaps a lack of awareness, some contractors may excavate without first locating underground utilities. During the past two years, the ND Public Service Commission has more actively enforced their pre-excavation notification requirement. Violators will pay substantial fines. Information about large fines seems to circulate quickly among contractors, making this penalty an effective way to increase contractor awareness and to deter digging without first contacting NDOC.

PUBLIC AWARENESS

Issue: Many jurisdictions do not know about existing regulations and easement requirements around military installations.

Over the years, many staff and leadership changes have occurred in local jurisdictions throughout the JLUS area. Given the very low profile, unobtrusive appearance of the LFs and MAFs, they appear, to many people, to be an infrastructure feature like many others. Public officials and citizens are frequently unaware of their responsibility to protect these facilities from encroachment as they carry out their land use, zoning, and subdivision review responsibilities. As a result, there is increased risk of zoning changes, subdivision of lots, and issuance of building permits within or adjacent to the 1,200-foot easements. Periodic opportunities to coordinate with a military official who can answer questions and provide updated contact information are important. These contacts will help emphasize the on-going concern of the military for these facilities, and will assure local government leaders that their efforts to protect land use on and around the easements is an important role on which the Air Force depends. This is similar to periodic coordination that many local governments have with utility providers. The coordination can consist of an annual meeting of the staff and the military liaison, or attendance of a MAFB missile wing representative at a regularly scheduled City Council/Commission or County Commission meeting.

Issue: The public, in general, is not aware of the components of the missile complex, including all facilities, infrastructure, recorded easements, and recommended setback distances.

Generally speaking, the need for widespread public awareness of LFs, MAFs, and HICS does not exist. However, there are entities for whom knowledge of the components that make up the missile complex are critical. For example, property owners, utility companies, emergency service providers, state and county highway officials, railroad officials, contractors, oil drilling companies, pipeline companies, and local government officials and leaders should have an awareness of the importance of protecting these facilities, and should also have knowledge of how to access information about the facilities or individuals on MAFB who can provide assistance.

The passage of time and the heightened frequency with which property ownership changes has dramatically reduced the extent to which property owners and lessees are aware of the history of property within the JLUS area. Frequent updates to the records of the MAFB regarding ownership of land on which the LFs, MAFs and HICS easements are located would facilitate the base's efforts to contact property owners when necessary. Annual or biennial updates of the property owner lists, followed by mailing of informational material and military base contact information, would remind long-standing property owners and inform new owners of the presence of the LFs, MAFs, and HICS. A database of individuals or companies to whom farmland is

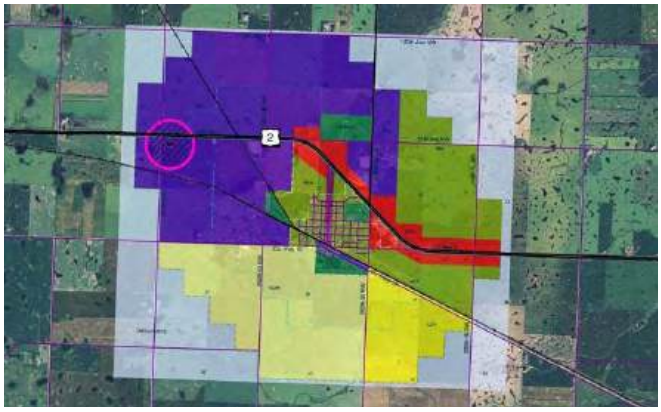
rented would also be beneficial since these individuals are more likely to be present in the area as a point of contact about any problematic or emergency situations.

ZONING PROTECTIONS

Issue: Most existing local government planning and zoning documents do not recognize Air Force installations within the respective jurisdictions.

One exception is Ward County, which has established regulatory provisions for development around Minot Air Force Base, particularly within the runway approach/departure clearance zones (see Figures 3.5 and 3.6). Only agricultural uses are allowed in this zoning district, and if a new farm residence is constructed, the old one must be removed. This assures against a net gain in the population density around Minot AFB. The Ward County zoning provisions protect the current mission capabilities of Minot AFB and allow options for future missions. Ward zoning also protects the public by keeping people out of harm's way. Ward County has zoning jurisdiction over the majority of the area impacted by Minot AFB.

Figure 3.4: The Berthold Land Use Plan indicates industrial future land use over launch facility.



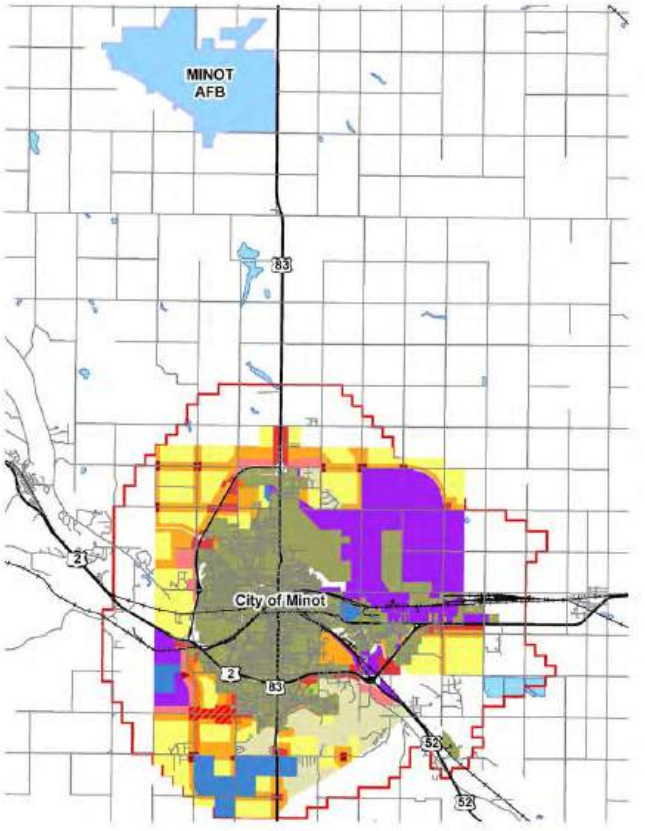
Issue: Development proposals near MAFB, if approved, pose a safety concern to potential occupants and may impact the viability of the airfield and the military mission.

Issue: A portion of the MAFB approach zone within Renville County is not protected by land use regulations.

Airfield Approach/Departure Clearance Zones and Land Use Regulations

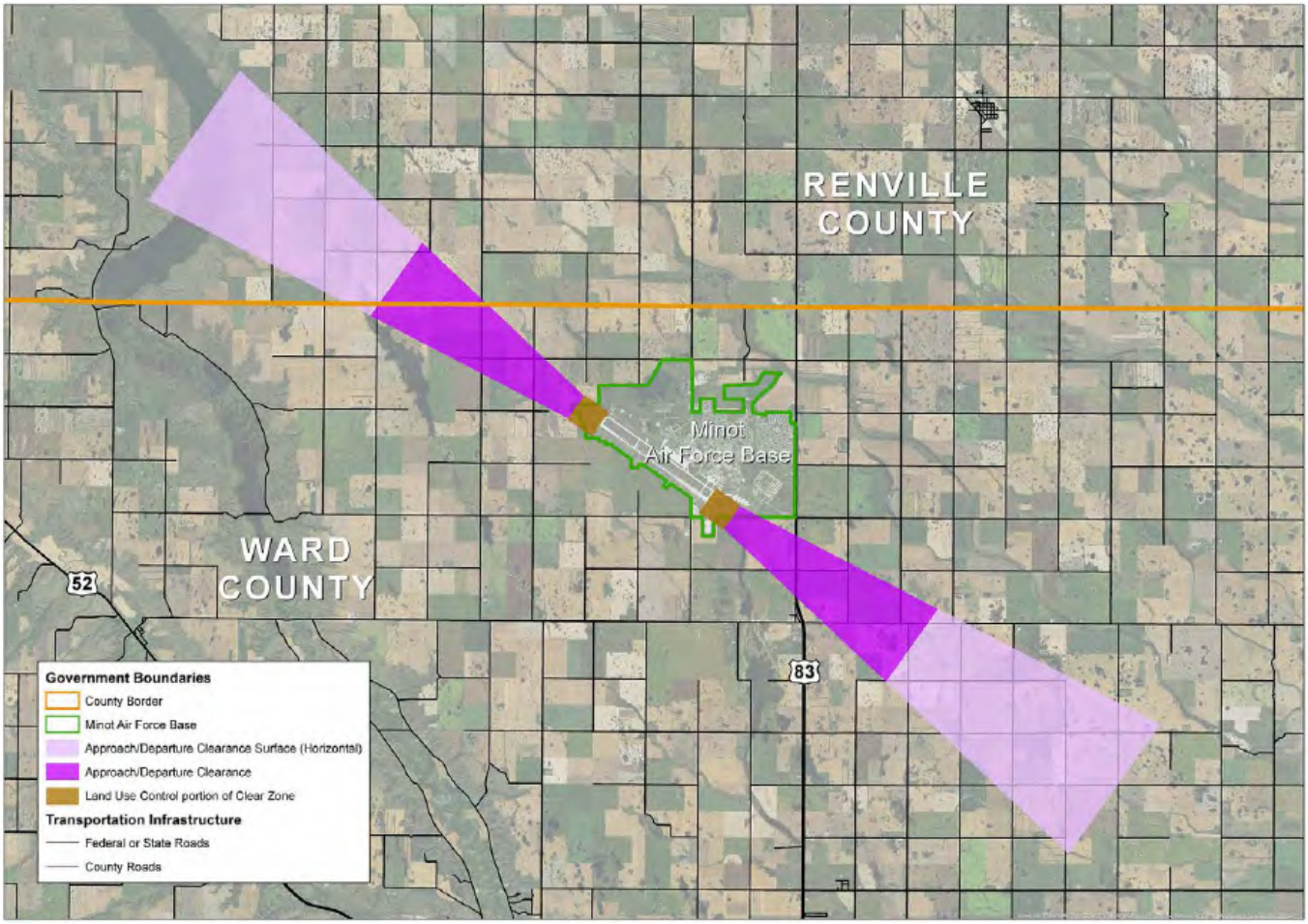
There are two jurisdictions near Minot AFB that do not apply similar land use regulations to Ward County. Eureka Township and Renville County do not acknowledge Minot AFB in their current zoning ordinances. Without a mechanism to scrutinize proposed developments, a risk currently exists for the possibility of residential development in potentially sensitive areas near Minot AFB in the airfield's approach/departure clearance zones.

Figure 3.5: The City of Minot and planned growth in reference to MAFB.



As Ward County has established zoning protections for Minot AFB, similar protections for the launch facilities throughout the missile complex could be established by other jurisdictions throughout the study area.

Figure 3.6 : MAFB airfield approach/departure and clear zones



THE COMPREHENSIVE PLAN

The local governments (cities, counties, and townships) having the authority to exercise zoning regulations present another opportunity for avoiding encroachments and recognizing military easements during the development review and approval process. In addition to providing measures for screening development proposals prior to zoning changes, subdivision plats are also required prior to construction. Local jurisdictions in the study area often do not have the resources to effectively evaluate and regulate development. The comprehensive plan is the foundation policy document which provides the basis for regulating land use.

Issue: Many jurisdictions within the JLUS study area exercise zoning authority but do not have a comprehensive plan.

A Comprehensive Plan is required by state law in order to legally exercise zoning and land use regulations. If challenged, local jurisdictions without comprehensive plans may be unable to defend zoning decisions or enforcement actions needed to protect residents and military facilities.

- For cities, the requirement for a comprehensive plan is located in NDCC 40-47-03
- For counties, the requirement for a comprehensive plan is located in NDCC 11-33-03
- For townships, the requirement for a comprehensive plan is located in NDCC 58-03-12

Of the eight counties in the study area, all have zoning regulations but only five were able to produce a comprehensive plan document upon request. Of the 12 townships in the study area which exercise zoning authority, only three were able to produce a comprehensive plan. Numerous cities in the study area have zoning but the existence of comprehensive plans is varied. Some communities have an up-to-date plan, others have a somewhat outdated plan, and others have no plan. All jurisdictions containing a military installation were contacted and requested to provide a copy of their comprehensive plan and zoning, but for various reasons several were unable to provide the requested documents, particularly comprehensive plan documents.

In addition to providing policies for future growth and development, a comprehensive plan will generally document existing land use and development and contain a standard element known as the future growth plan or future land use map. The future land use map will illustrate the community's vision of the location and character of future development. For the few communities that have adopted a future land use map, they do not always acknowledge the presence of existing military facilities. A properly prepared plan for future growth should direct development away from sensitive areas and, in doing so, effectively promote compatible and sustainable land use.

LIMITED RESOURCES, LIMITED FUNDING

Issue: Funding is limited for local governments to create regulations that will protect military facilities from encroachments and to establish enforcement programs to ensure that the regulations are carried out.

Local governments are responsible for zoning administration, including the work needed to keep zoning ordinances updated. These responsibilities require staff or outside assistance, both of which require funding. Although additional funds have been made available to local governments from oil extraction tax revenues, resources are still stretched thin. Because full-time professional planners, zoning administrators, and building officials are not always regarded as essential staff in the same way as law enforcement, public works or tax officials, it is not uncommon for a jurisdiction's Auditor or Tax Director to be charged with multiple administrative tasks, including the handling of zoning and building permits.

In the current rapid growth situation, the immediate needs for infrastructure expansion and replacement for the purpose of accommodating proposed development seem to frequently get ahead of long-range planning, or are even carried out without long range planning. Road improvement projects will receive funding because they are tangible projects. Road deterioration and subsequent improvements can be visualized. Planning and zoning documents have historically been less popular funding options because the benefits are not immediate

and, in general, the local culture has historically been somewhat unenthusiastic about creating more new regulations. The fast pace of growth in the oil industry and spin-off development has changed the attitudes of many individuals and jurisdictions about the importance of planning and zoning.

Additional funding for planning, zoning updates and enforcement could be obtained by raising permit fees. Ideally, in a rapid-growth area, the building permit revenues and development application fees could cover a significant portion of the local government's cost for staffing. However, this approach to fees is rarely taken for a variety of reasons.

DISPROPORTIONATE VULNERABILITY

Issue: Due to local growth trends and adjacent energy infrastructure, the proximity of some military facilities subject them to a higher likelihood of encroachment.

Because the most easily extracted shale oil is located in the western portions of the study area, that is where the most intensive growth, development, and oil-related activity is currently occurring. However, the development of shale oil is still in its early stages and will be expanding eastward, making military facilities in all portions of the missile complex vulnerable to encroachment in the future. Military facilities have been evaluated for their current exposure to encroachment. The most currently susceptible locations have been identified and mapped (see Figure 3.7).

Regarding the timing of implementation efforts, measures to improve long-term land use compatibility should initially occur in the western jurisdictions of the study area to address immediate concerns. To prepare for the future eastward expansion of shale oil development, regulatory protections in all jurisdictions are needed. It is important that any resources and funding from federal, state, regional and local sources be applied evenly to all jurisdictions in the region to achieve a uniform and consistent regulatory environment throughout the missile complex.

OIL/GAS DEVELOPMENT

The oil and gas industry presents a special set of concerns. Unlike other private sector development, oil activities are not subject to local government zoning. Jurisdictions which will typically regulate all other land development activities have no regulatory authority when it comes to oil wells. Two ND Attorney General Opinions have established that counties cannot require special use permits or impose building setback distances for oil wells. The oil industry is regulated by the ND Industrial Commission, Department of Mineral Resources (DMR). On the Fort Berthold Reservation, the MHA tribal government regulates the development of oil and gas resources. North Dakota DMR requirements aimed at protecting MAFB facilities from oil and gas development are outlined below (derived from North Dakota Industrial Commission Permit Review Policy 1.01):

- MAFB Cable Affairs office must be notified if a well is proposed within ¼ mile (1,320 feet) of a military facility.
- Entities proposing wells within ¼ mile of a military facility are required to provide documentation that the applicant has notified MAFB.
- The ND DMR may utilize "any provision deemed necessary" to mitigate potential impacts to military facilities.
- Oil/gas companies are required to submit mapping layers of all their activities to the ND DMR.
- If mapping information shows proposed development within ¼ mile of a MAFB facility, the oil/gas company must notify Cable Affairs.

This list does not consider any changes made during the 2015 North Dakota Legislative Session. The ND DMR requirements listed above apply to new oil and gas development and the reuse/rehabilitation of existing wells.

Issue: Oil and gas company field development plans do not recognize the missile complex (LF, MAF, and HICS). This results in a reactive approach rather than a proactive approach in avoiding conflict between oil and gas company plans and all components of the missile complex.

Figure 3.7: Community Development - Potential Future Land Use Incompatibilities

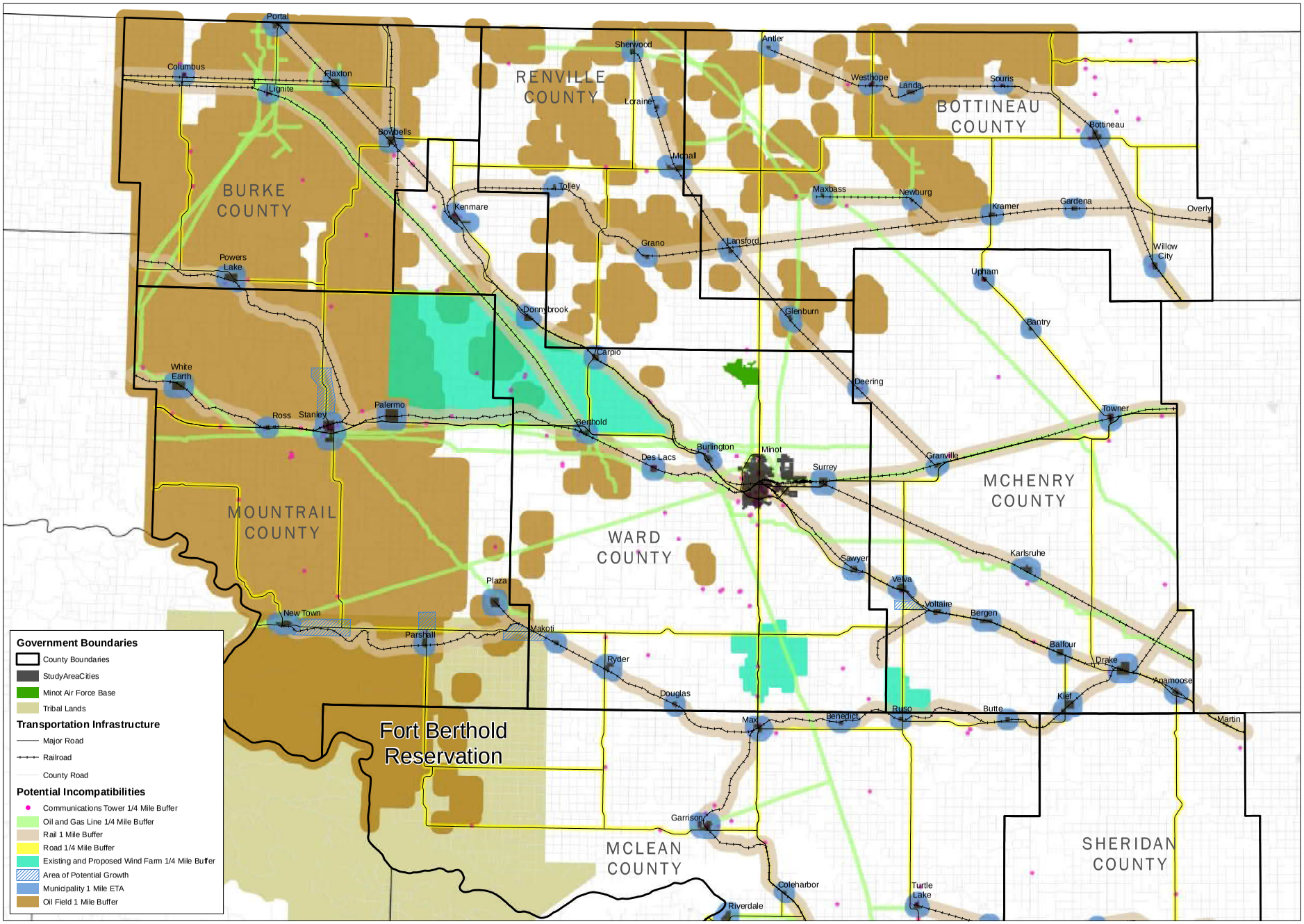
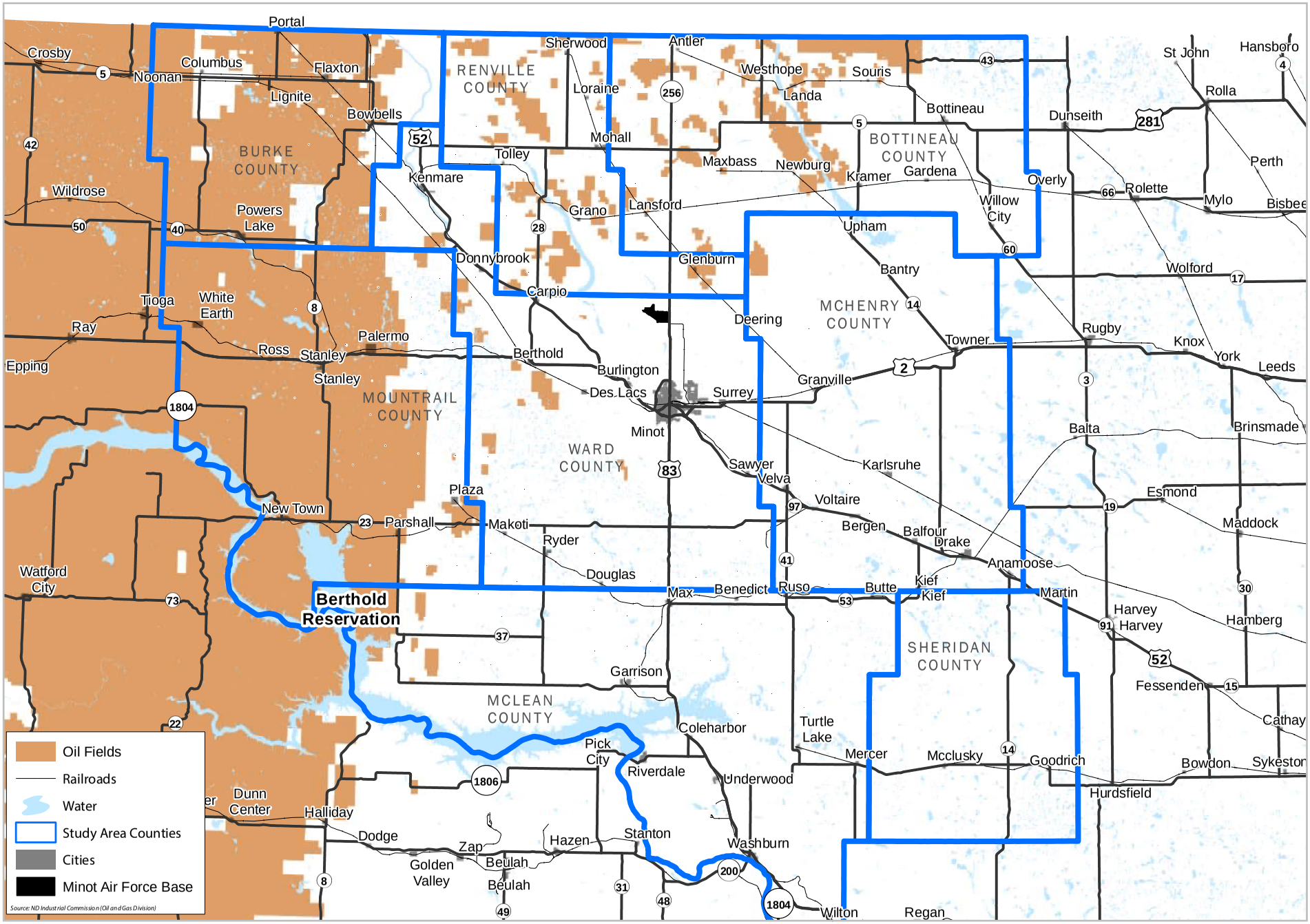


Figure 3.8: Oil and Gas Fields within Study Area



Currently, MAFB is advised of oil and gas development at the oil and gas development permitting stage. For oil and gas facilities, such as gathering lines, that do not require permits, MAFB is advised of these projects much closer to the construction phase. MAFB receives notification of oil and gas facilities that do not require permits through the North Dakota One Call system (when hardened intersite cable easements are discovered) or through the North Dakota DMR, which requires that oil and gas facility locations are provided (and are thus compared with MAFB facility locations on a mapping database).

The current practices for MAFB notification of oil and gas development can be characterized as more reactive to oil and gas development, rather than a proactive approach. By the time MAFB is notified of new oil and gas development in proximity to a missile complex facility, the oil and gas companies have already made the determination of what portion of an oil and gas field will be developed. When land use conflicts arise after the fact, the nature of the conflict may be intensified. Any potential conflicts between MAFB facilities and oil and gas company plans then must be mitigated to satisfy MAFB concerns or, at a minimum, meet DMR requirements.

Regarding existing and potential conflicts between oil and gas development and MAFB facilities, recent comments from stakeholder interviews revealed the following:

1) The importance of oil and gas field development plans in understanding future oil and gas development in the missile complex, and
2) The lack of consideration that oil and gas field development plans have for existing and future MAFB facilities and operations in the missile complex.

Oil and gas companies each create their own plans for the development of oil and gas fields. Generally, oil and gas fields increase in density approaching the central and western portions of the study area, located predominately within Mountrail County. A number of companies remain active in Mountrail County, despite the downturn in oil prices at the end of 2014. For these companies, planning for the future development of the area's proven and future oil and gas fields will continue into the foreseeable future.

A more proactive approach to avoiding potential conflicts between oil and gas companies and MAFB facilities is needed to involve consideration of oil and gas development during the planning stage. MAFB will benefit from being able to better anticipate and guide future oil and gas development to areas within the missile complex where no conflicts, or minimal conflicts, will be experienced with MAFB facilities and operations. Oil and gas companies will benefit by avoiding potential conflicts with military facilities—time, labor and funds will be utilized more efficiently, rather than being wasted in revising plans and holding up crews to relocate development locations in order to avoid MAFB facilities.

Issue: Seismic exploration for oil and gas resources in close proximity to launch facilities is detected by launch facility vibration detection systems.

This issue is prominent for facilities of the missile complex that are within or near the Bakken formation where oil and gas development continues to expand. In particular, exploration for new oil and gas wells may include the use of seismic shot holes during geophysical exploration for oil and gas resources. These activities have the potential to set off LF vibration detection systems. It remains unclear if ND DMR requirements disallow geophysical exploration activities with ¼ mile of an LF. This issue may be especially critical for exploration activities near a LF. As a first step, increased dialogue between MAFB, ND DMR, and DMR counterparts with the MHA Nation regarding the effects geophysical exploration might have upon vibration systems needs to be further explored. Further understanding of the potential impacts will provide a basis for reasonable regulatory controls, if necessary.

Issue: Oil and gas gathering pipelines and well effluent pipelines are not regulated and pose a risk to the Missile Complex.

Currently, the ND DMR requires that oil and gas well flow lines (also called gathering lines) be mapped with the Department. It is unknown if the MHA Nation has the same requirement or more stringent requirements.

The relatively simple requirement to provide maps of pipeline locations seems to imply that the ND DMR has very little control if any, as to the location and construction of pipelines. However, as allowed through ND Industrial Commission Policy, the ND DMR may utilize "any provision necessary" to mitigate potential impacts on military facilities, which may include impacts imposed by flow lines. Unfortunately, by the time oil and gas companies have mapped the location of oil and gas lines, easement agreements with property owners have been secured, and considerable resources have likely been invested. More specific regulations may be necessary to ensure that flow lines do not encroach upon missile complex facilities and so that oil and gas companies can plan ahead to avoid impacts upon military facilities.

Issue: Oil and gas infrastructure is currently situated within the 1,200 foot no-build easements around several missile launch facilities.

As documented previously, regulations currently in place ensure that most if not all new oil and gas infrastructure avoids missile complex facilities. However, in some areas oil and gas infrastructure existed prior to the development of the missile complex installations. In addition, some oil and gas infrastructure was developed adjacent to missile complex installations before the ND DMR began working with MAFB to ensure that oil and gas activity avoided MAFB facilities. The following subsections outline different areas of concern related to oil and gas infrastructure currently within the 1,200-foot no build easement around missile launch facilities.

Launch Facility Security

The presence of oil and gas infrastructure requires the periodic presence of civilians (non-military) to develop or maintain a well. Sensitive military operations and equipment are therefore witnessed by civilians often, and are in jeopardy of becoming public knowledge. Often overlooked, oil and gas infrastructure involves hazardous and explosive materials. The use of such materials adjacent to a launch facility may pose a security and safety risk.

Unknown Effects of Hydraulic Fracturing

Scientific uncertainty surrounds the risks associated with hydraulic fracturing. In particular, the potential for risks to military facilities have not been explored. Current well drilling practices include boring a well to depths of approximately 8,500 feet (1.6 miles) and from that point boring horizontally for distances up to 12,000 feet (2.3 miles). Fracking then occurs on the lateral reach. It is conceivable that a drilling rig located over two miles away could bore and frack a lateral located directly beneath a military facility. Empirical study specific to fracking and military installations could reduce some but not all of this risk uncertainty. However, the acknowledgment of this issue provides an initial step toward mitigating potential effects of hydraulic fracturing on MAFB facilities.

Existing Situations

The rehabilitation/reuse of older wells located adjacent to a launch facility is regulated by the ND DMR and by the MHA Nation within the Fort Berthold Reservation. Notification and permit requirements stipulated by the ND DMR are found with North Dakota Administrative Code section 43-02-03-16. MAFB is currently not notified of rehabilitation/reuse activities where a well is located within 1,200 feet of a launch facility. Legal research by the state or MAFB involving the 1,200-foot easement around missile launch facilities has yet to determine if existing oil and gas infrastructure within the easement is a legally 'grandfathered' use within the easement. More research would be needed on this topic to make a determination.

Issue: Flares created at oil well sites impact night vision capabilities of helicopter pilots in the missile complex.

Air Force helicopter pilots rely on night vision technology when conducting nighttime flights. The light-sensitive optics magnify what little light is available to provide a bright view even when it is extremely dark. Due to the extreme photosensitivity of the equipment, problems emerge from exposure to sources of bright light such as a gas flare and affect the image a pilot sees. Lower resolution images can compromise safety and mission effectiveness.

Issue: Oil and gas regional transmission lines located adjacent to missile launch facilities pose a risk from explosions and leaks.

The missile complex lies in the path of oil and gas regional transmission lines, which transport oil and gas from wells in the Bakken formation north to Canada and to states bordering the study area to the east and south. According to the US Department of Transportation, Pipeline and Hazardous Materials Safety Administration, from 1994 through 2013, there were 110 serious incidents nationwide involving gas transmission. Many of these serious incidents involved explosions that resulted in injuries and fatalities. In a January 2014 article of the Wall Street Journal, 1,400 oil and gas pipeline spills and other accidents were documented from 2010 to 2013 nationwide. While numerous state and federal regulatory agencies and energy companies work to minimize the potential for accidents, the threat will not simply go away. Many missile complex facilities are already located adjacent to oil and gas transmission lines. However, there is an opportunity for energy companies and regulatory agencies to plan their pipeline alignments and excavations to avoid missile complex facilities to the maximum extent practicable.

THE "AG EXEMPTION"

Issue: Farming and ranching activities and buildings are protected from county regulation by the North Dakota Century Code. Therefore, it is difficult to monitor agricultural development and ensure that new agricultural buildings avoid military facilities.

The North Dakota Century Code (NDCC) 11-33-02.1(3) protects agriculture from being impaired by county land use regulations as follows:

"A board of county commissioners may not prohibit or prevent the use of land or buildings for farming or ranching and may not prohibit or prevent any of the normal incidents of farming or ranching."

This is known as the "farming exemption" and in some jurisdictions this clause is broadly interpreted as a hands-off policy. Building permits are often not required for farm buildings. Because of this policy, farm and ranch buildings have sometimes been constructed within the no-build easements surrounding missile installations.

Typically a nearby agricultural structure such as a grain bin does not represent a serious risk to the installation but agricultural storage buildings could, at times, contain hazardous materials such as fertilizer and diesel fuel. Agricultural structures are typically uninhabited and function as storage buildings only, but in the event of a launch, the building could be destroyed, depending on its proximity to the missile silo.

Other issues may arise when agricultural buildings are free from regulation and building permit reviews. For example, a farmer can build a large machine shop suitable for storage of farming equipment and later sell it to an oil company or some other commercial or industrial business. When such conversions occur, there can be unforeseen increases in traffic and activity at the location. If materials stored within industrial buildings are hazardous, they may pose a risk for MAFB personnel, facilities, and the surrounding area. Conversion of an agricultural building to a commercial or industrial use should require approval of a zoning change, but in a rapid growth environment, sometimes such formalities are overlooked. When zoning enforcement resources are limited, violations may not be noticed until they are well established, making it more challenging to regulate.

Construction of agricultural buildings does not pose a severe threat to military facilities, but advance knowledge and screening of planned buildings could certainly help avoid encroachment problems. And without a building permit requirement, only the farmer knows about the proposed building. Some jurisdictions respect the "farming exemption" and offer a courtesy building permit for agriculture structures. This allows staff to review the proposed building's footprint and setback distances.

Regardless of whether the construction of an agricultural building requires a building permit, notification of the ND One Call System is still required. Some farmers may not be aware of the requirements for obtaining building permits and locating underground utilities prior to construction. Other farmers may be somewhat aware of the requirements but may assume that the requirements do not apply to them because of the farming exemption.

Construction of new agricultural buildings in the study area is not as prevalent as commercial/industrial devel-

opment in the region. But because the vast majority of launch facilities are surrounded by agricultural land and with the regulatory exemption of agricultural activities, this issue can be significant.

ZONING JURISDICTIONS – WHO'S IN CHARGE?

Issue: It is difficult for MAFB and developers to know which jurisdiction has zoning authority on properties adjacent to and near missile launch facilities.

Within the study area, all eight counties, cities with 1,000 or more residents, and several townships exercise zoning authority. Based on data collected for this study, there are approximately 50 jurisdictions including 27 cities, 8 counties, and 12 townships, each with autonomous zoning authority. Over the course of the project, there was also at least one instance of a township reestablishing its zoning authority, namely Pratt Township in the northwest corner of McHenry County. Military installations are located in all three types of jurisdictions. Determining which jurisdiction has zoning authority around a particular launch facility can sometimes be a challenge.

The NDCC allows cities to plan and manage growth in the fringe areas surrounding the community. A city's zoning authority extends beyond city limits if they choose to exercise their authority. These fringe areas are known as extraterritorial areas or ETAs. The maximum size of a city's ETA is proportional to its population. For smaller cities with populations under 5,000 people, the ETA may extend up to one-mile beyond the corporate boundary. For medium cities with populations between 5,000 and 25,000, the ETA may extend up to two-miles beyond the corporate boundary. For larger cities with populations over 25,000, the ETA may extend up to four-miles beyond the corporate boundary. A growing city will periodically annex land on the edge of town and extend the corporate boundary to contain the new area. When annexations occur, the ETA boundary may be extended by the same distance. However, in many communities, this action is not taken immediately upon annexation. It may occur on the heels of annexation, or cities may take months or years before deciding to complete an ETA extension.

Prior to 2007, cities had sole zoning jurisdiction over the entire ETA. In 2007, the State Legislature split all ETAs into an inner half and an outer half. Now only the inner half of the ETA is under the sole jurisdiction of the city. A city will exercise its zoning authority, issue building permits, and regulate development in this immediate area surrounding the city. The outer half of the ETA is the area of joint jurisdiction where development is regulated by the both the city and the county or the city and a township, in cases where a township has zoning authority. When a township which is adjacent to a city exercises its own zoning authority, the outer half of the ETA is jointly regulated by the township and the city. If the township does not exercise zoning authority, the outer half of the ETA is jointly regulated by the county and the city. In most cases, the NDCC establishes that the county or township is the lead jurisdiction in the outer half of the ETA. In other words, applications for zoning changes and building permits must be submitted to the county or township. The county or township then forwards their decision to the city, and the city has 30 days to respond as to their level of agreement with the county or township's decision. However, there are exceptions to the designation of the lead jurisdiction.

Determining which local government functions as the lead jurisdiction depends on the regulatory history of the area surrounding the subject property. If the subject property is located within a one-square-mile section of land where a city acted on a pre-2007 development proposal, the city will be the lead jurisdiction for that property. The city will be the lead jurisdiction for all subsequent development proposals in that entire section. If the city had never been involved in any zoning-related action in that one-mile section of land, the other jurisdiction, either the county or township, will function as the lead jurisdiction.

Sometimes, to avoid confusion and streamline the process, agreements are made between the two jurisdictions to establish a hard boundary and eliminate the joint jurisdiction procedures. Agreements may allow the jurisdictions to return to the pre-2007 boundaries or establish new jurisdictional boundaries.

A 2015 Legislative action streamlined the process for townships to establish their own zoning authority.

Township concerns about county regulations could result in an emergence of townships choosing to exercise their own zoning in the study area.

Given the current checkerboard pattern of multiple zoning jurisdictions in the study area, it is not always a simple task to identify the local government which has regulatory authority on a parcel of land. The issue can be particularly challenging in the ETA areas around cities where there is joint jurisdictional authority and where the ETAs will expand with annexations. In the rural areas, it may be a township or it may be a county which has regulatory authority.

AGENCY COORDINATION

Monitoring development in the 8,500 square-mile missile complex is a daunting task for MAFB personnel. In order to assess the potential impacts of development proposals, information-sharing is essential. In addition to the local governments, there is a multitude of agencies which are involved in various aspects of the development process. The level of awareness of MAFB personnel depends on the level of communication with, or notifications from, these entities.

LOCAL GOVERNMENT INFORMATION SHARING

Most development proposals require approvals by local governments (cities, counties, or townships). Major projects may require zoning changes, subdivision approvals, or special use permits. Minor projects should, at a minimum, require a building permit. In most cases, a local government is one of the first entities to learn about proposed projects.

Issue: Some local governments do not consistently coordinate with MAFB regarding planning and zoning proposals potentially impacting Air Force installations.

The local government staff may be well aware of launch facilities in their jurisdiction but local government staff does not know the locations of the hardened intersite cables and may not be aware of aspects of the proposed development that could impact military installations or operations such as the military routes. For these reasons, all local governments in the eight-county region should routinely inform MAFB of all development proposals.

Knowing the location and character of proposed developments will allow MAFB staff to better evaluate the potential for impacts, not only to military interests, but potential impacts to public safety.

WIND FARMS

Wind power facilities (wind farms) are of special interest to MAFB personnel because wind turbine arrays can impact aircraft operations and military radar facilities. A wind turbine is a vertical obstruction for low-level helicopter operations, which are routine. A wind turbine facility can create a shadow on a radar monitor, masking the area behind the wind facility. Wind turbines also generate an electromagnetic field which can interfere with electronic equipment.

Issue: Study area counties and the State Public Service Commission do not share project proposals for wind energy systems with MAFB at the earliest point possible during the development review process.

Some local governments have standards for wind farms and require developers to obtain approval of a special use permit before beginning construction. Criteria for obtaining a special use permit may or may not include a requirement for distributing information on the proposed wind power facility and requesting input from stakeholder agencies. The notification and

Figure 3.9: Example of a wind farm in North Dakota.

input process is not uniform or consistent across the region. Furthermore, MAFB is not notified at the initial stage of project application with the ND Public Service Commission (PSC).

Regardless of whether a local government has its own regulations for wind power facilities, approval of a permit by the PSC is mandatory for all major wind facilities in the state. The PSC distributes information on proposed facilities and has a process in place for public input and comment.

MAFB was not initially aware of Denali Energy's Hartland Wind Farm proposal. The Hartland Wind Farm is a proposed 50,000-acre facility located along a ridge approximately eight to ten miles west of MAFB. It was initially proposed in July of 2008, and MAFB only became aware of the proposal in 2014 during the JLUS process. As part of the approval process for wind facilities, the PSC will hold hearings to receive comment and obtain input on proposed projects.

When it comes to development projects in the eight-county area, MAFB should be included on the notification lists of all local governments and state agencies. It should become routine practice for these agencies to distribute information to MAFB on any proposed development.

DRAINAGE

Issue: Increased precipitation inundates missile complex routes, launch facilities, and missile alert facilities adjacent to wetlands and other water bodies, posing threats to the viability of some missile launch facilities and missile alert facility sites.

According to the Federal Emergency Management Agency (FEMA), the state of North Dakota has been declared a disaster area 10 times since 2000 due to storms and flooding that cost millions of dollars in damages. The Environmental Protection Agency (EPA) projects that the State of North Dakota, and especially the northern portion of the state, will have increased spring precipitation as a result of climate change in the future. This precipitation may come in the form of snow or rain. This indicates an increased potential for spring precipitation and flooding. Increased precipitation may result in ponding water, washed out roads, and blocked ditches, significantly impacting MAFB facilities and military routes.

Issue: Drainage and erosion from grading for development adjacent to Air Force installations is not regulated if the project is less than one acre in size. Grading less than one acre or the cumulative effect of projects less than one acre can cause drainage and erosion that may impact Air Force installations.

Wetlands are located in drainage basins. If a military facility is located near the wetland it may become vulnerable to flooding as the water elevation rises. Flooding can be minimized by limiting manmade storm water runoff into the wetland. If a development is proposed in the same drainage basin, runoff will increase due to the creation of impermeable surfaces in the development. Rooftops, roadways, parking lots, and all paved areas shed water and increase runoff. For this type of scenario, proposed developments should be monitored and on-site detention facilities may be needed. The cumulative impacts of multiple, but separate private sector development projects also should be taken into account when considering drainage impacts within a basin. Air Force installations, such as LFs, MAFs, and their respective access roads are particularly vulnerable when located downstream from a private sector development area or in a drainage basin with no available drainage outlets.

AVAILABILITY OF CLEAN POWER

Issue: Lack of "clean power" to missile launch facilities and missile alert facilities requires missile reliance upon back-up power (diesel generators), often increasing operational costs and maintenance.

MAFB personnel reported frequent electrical power outages to missile launch facilities and missile alert facilities from 2010 through 2013. Regional electrical power demands of the oil industry create an overburdened electrical transmission network resulting in fluctuating voltage levels. The electrical systems at military installations were built over 50 years ago. When power levels fluctuate, the systems fail. The lack of "clean" power from the grid results in a higher reliance upon the diesel generator back-up systems. Routine reliance on diesel generators creates higher maintenance and operational costs.

A regional study of existing and future electrical demands and infrastructure needs was prepared by Kadrmas Lee and Jackson (KLJ). The "Williston Basin Oil and Gas Related Electrical Load Growth Forecast Report" acknowledges that electricity demands have exceeded the capacity of transmission infrastructure (http://www.nd.gov/ndic/ic-press/Power2012.pdf). Utility companies and local electrical cooperatives are well aware of the needs and have been building infrastructure to meet demands. They will continue to do so.

Oil drilling rigs have also experienced fluctuations in electrical power and some are converting to natural-gas-fueled generators to supply power on site. The KLJ report forecasts a continued increase in demand for electrical power with the anticipated peak in year 2032. Meanwhile, utility companies will continue to build and expand electrical transmission infrastructure.

MAFB personnel have reported that the frequency of outages has already decreased. This could be due to a combination of improvements to the carrying capacity of electrical transmission infrastructure and, in 2015, a decrease in oil industry demands.

Figure 3.10: Example of electrical substation in the study area.

HOUSING

Issue: Housing affordability has decreased during the energy boom in Minot and cities surrounding MAFB.

Rapid increases in population have created a housing shortage in the region. The influx of oil workers has resulted in a demand for housing that exceeds the supply. Housing costs have increased to reflect the supply shortage. Increased costs and decreased availability have created a challenge for MAFB personnel who do not live on the base.

Military personnel who live off-base receive a COLA, or Cost of Living Adjustment, to help cover the cost of off-base housing. The COLA is a uniform federal allowance and is not negotiable. The convenience of adequate, affordable housing that is also in close proximity to MAFB is not the same as it was ten years ago. Military personnel have the option to choose housing farther away from Minot where housing costs may be lower due to lower oil industry demand. This increased distance translates to a longer commute.

In the short-term, more attractive housing options may become available with the slow-down in oil activity. In March of 2015, the number of oil drilling rigs in the state dropped below 100 for the first time in five years. For comparison, in May of 2012, there were 218 active oil drilling rigs in North Dakota. When oil prices rebound and the intensity of oil activity resumes, a resurgence of oil workers can be expected. Meanwhile, new housing opportunities will continue to emerge with completion of development already underway. New dwelling units combined with vacancies resulting from a somewhat reduced workforce in the oil industry are expected to result in somewhat lower housing prices, although only very minor price reductions have been observed over the past few months.

Figure 3.12: Example of housing in the City of Minot.

Source: City of Minot Comprehensive Plan.

Figure 3.11: Example of new housing within Mountrail County (missile complex area).

VEHICULAR TRAFFIC

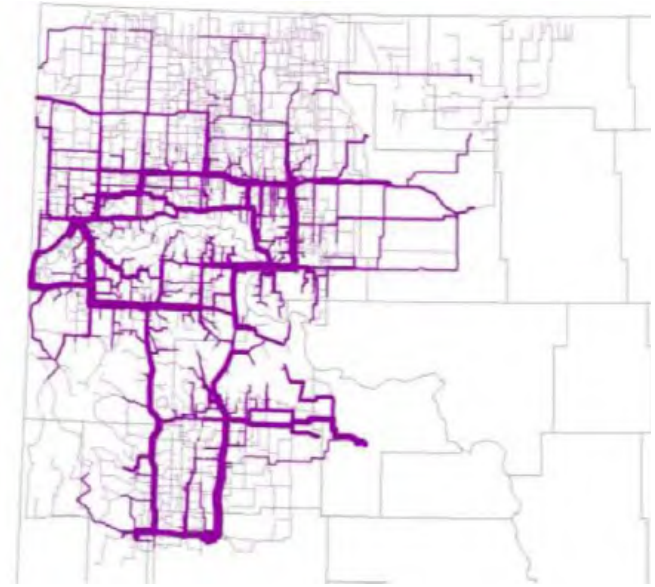
Issue: Increased traffic in the missile complex area has led to increased traffic incidents with military operations.

Traffic growth throughout the study area has varied over the past five years and the degree to which traffic levels have increased depends on the location within the study area. In general, traffic growth has been most precipitous in the western portion of the study area (such as Mountrail and Burke Counties). Traffic growth on highways within rural portions of the study area (outside of the City of Minot) is shown below.

A significant component of the increased traffic levels includes semi-truck traffic, especially in the rural areas that make up the missile complex. As part of the March 2015 North Dakota State Freight Plan, the North Dakota Department of Transportation's eight district engineers indicated that a volume of 500 trucks per day is the threshold at which significant roadway impact, congestion, and maintenance costs arise. The following graphic illustrates two lane roadways within the study area.

The urban areas, including Minot, have also experienced traffic growth in recent years. For example, traffic growth in Minot over the past five years along US Highway 2 (east of US Highway 83) has increased annually at an average rate of 6 – 15%. Along with the increase in traffic levels, the operational efficiency of the city's major routes has declined as a result. A few of the city's major routes are also utilized as military routes, so the increased congestion and decline in operational efficiency directly impacts military traffic. Figure 3.15 indicates operational issues within the City of Minot as of 2015.

Figure 3.13: Oil Exploration Traffic Projections, Western North Dakota



Source: North Dakota State University Upper Great Plains Transportation Institute.

Table 3.1: Average annual traffic increase throughout the study area.

Route	Location	Average Annual Traffic Increase (past five years)
ND Hwy 5	Bottineau County, East of ND Hwy 56	1 - 5%
ND Hwy 8	Burke County, North of ND Hwy 40	16 - 50%
US Hwy 52	McHenry County, East of 2nd Ave	1 - 5%
ND Hwy 37/1804	McLean County, City of Garrison	1 - 5%
US Hwy 2	Mountrail County, East of Stanley	16 - 50%
ND Hwy 23	Mountrail County, East of ND Hwy 8	6 - 15%
US Hwy 2	Ward County, West of ND Hwy 28	6 – 15%
US Hwy 83	Ward County, North of 128th Ave	1 – 5%

Source: NDDOT Interactive Transportation Information Map.

Figure 3.14: Two lane segments within the study area with over 500 trucks per day

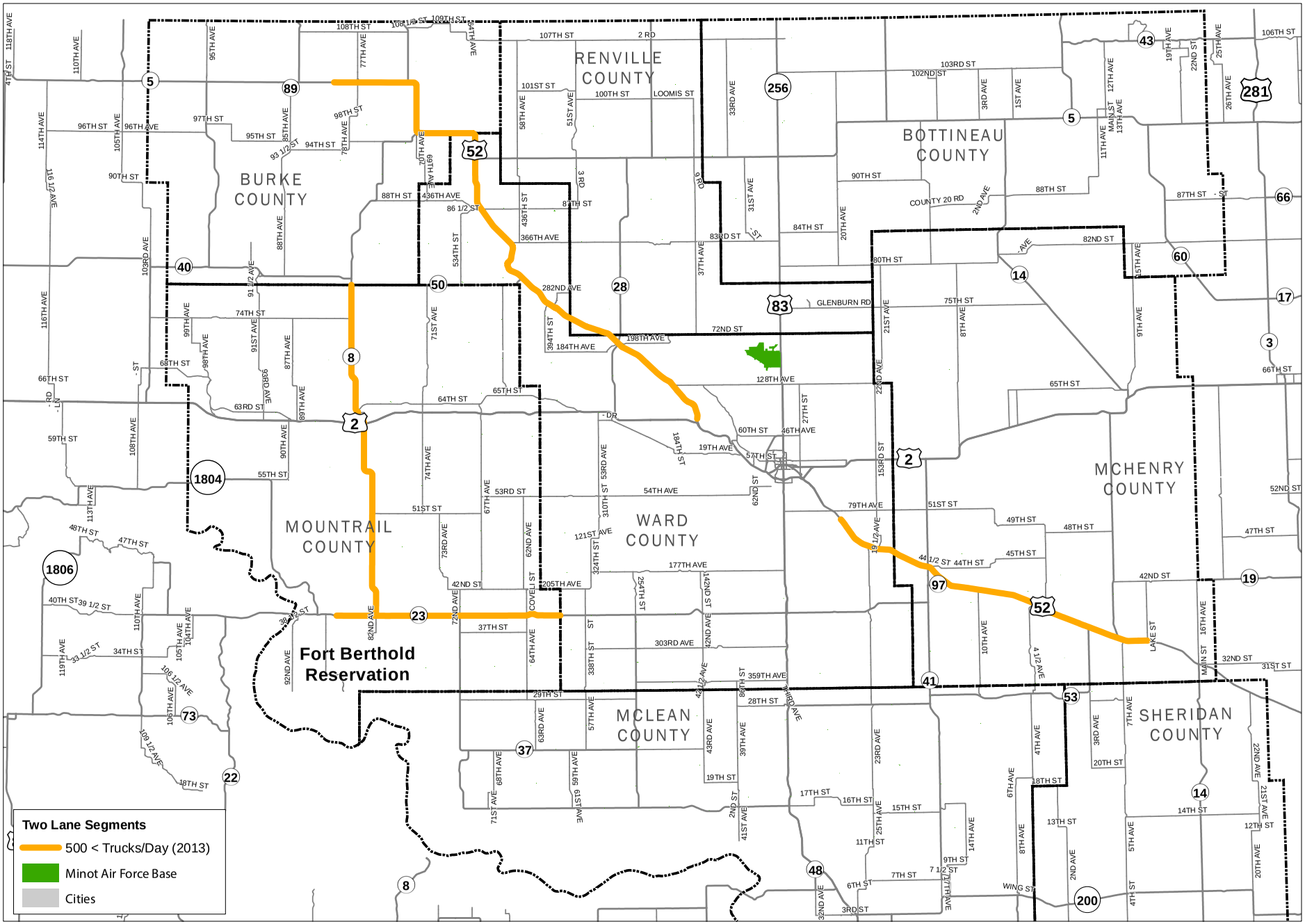
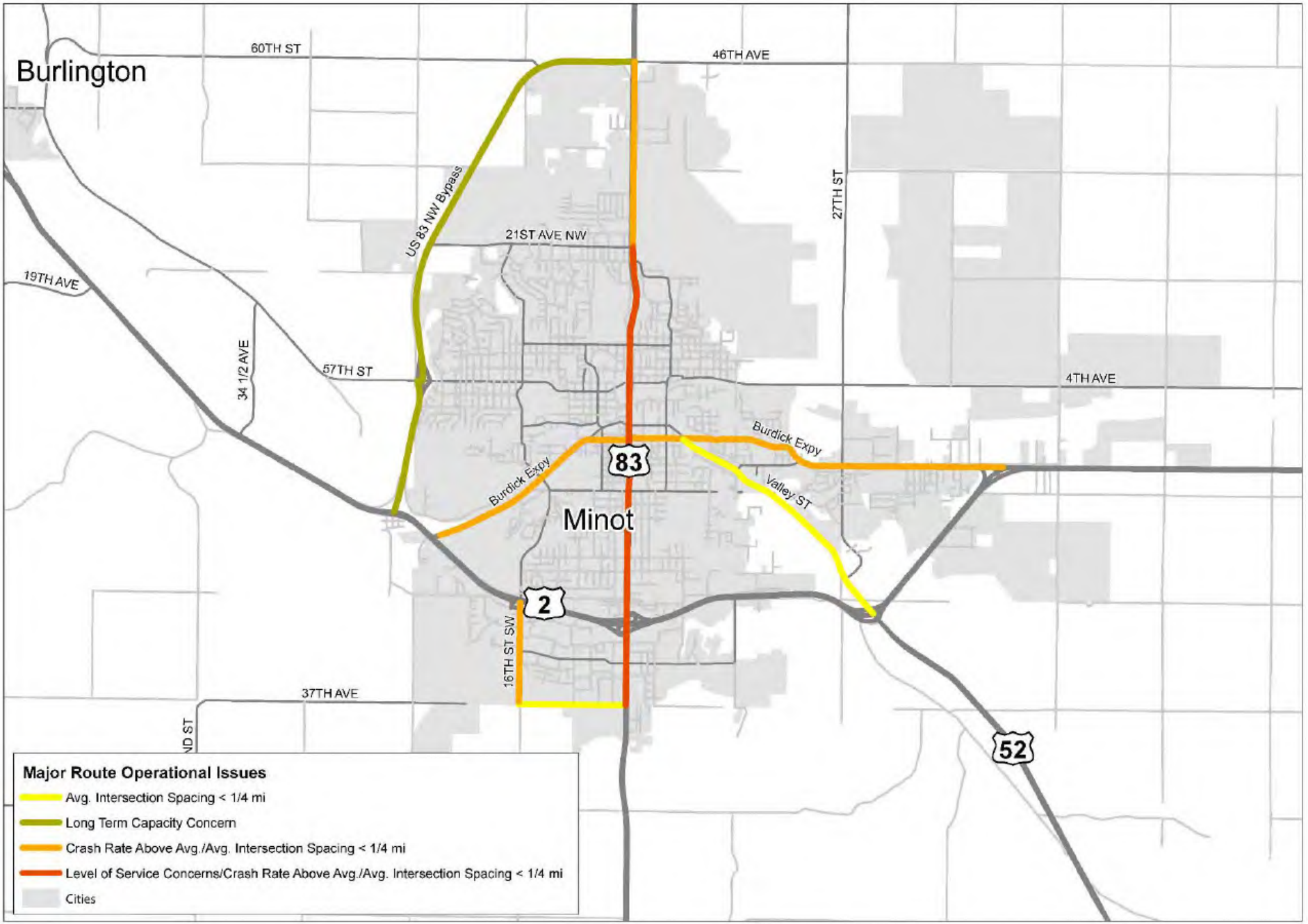


Figure 3.15: Constrained routes within Minot and the surrounding area, 2014.



Through advanced planning and traffic control, MAFB currently mitigates increased traffic levels and decreases in operational efficiency along missile complex routes. For example, if the most direct route is likely to be impacted by traffic congestion, an alternative will be identified and used. In addition, advanced traffic control is utilized to clear traffic along roadways and at intersections in advance of approaching military traffic.

The conflict created between increased traffic levels (especially semi-truck traffic) and other military traffic is different in the rural portions of the study area as compared to urban portions within the City of Minot.

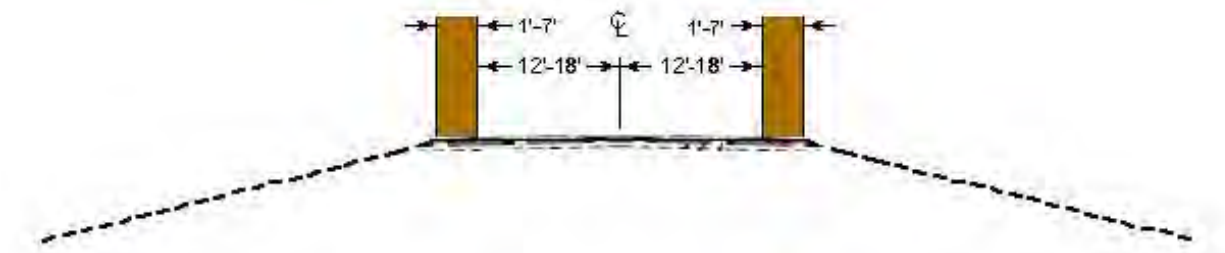
Rural Military Traffic Conflicts & Current Solutions

Increased traffic levels, including semi-truck traffic, in rural areas increases queuing at stop-controlled intersections and increases the potential for traffic collisions. Long queues of traffic and the potential for more collisions places an added burden on MAFB to plan for the safe passage of military traffic. Even with advance planning, an accident can slow down or stop military traffic, a scenario to be avoided if at all possible. It is important that roadways used by MAFB have sufficiently wide highway shoulders in order to bypass stopped traffic or to move traffic out of the travel lanes. State highways designed within the study area prior to the development of the missile complex in the early 1960s included shoulders of insufficient width to move traffic out of the highway travel lanes or to allow military traffic to bypass traffic that has blocked the travel lanes. Figure 3.16 depicts typical shoulder width of ND Highway 23 as it was designed and constructed in 1953. Since the development of the missile complex, the NDDOT has increasingly carried out the improvement of many two-lane highways into what is commonly referred to as the "super two" design. Recently redesigned cross-sections of ND Highway 23 are depicted in Figure 3.17, including both a wider shoulder and a relatively flat area between the edge of pavement and the ditch in-slope of sufficient width to allow traffic to clear the travel lanes or for military traffic to pass if necessary.

Urban Military Traffic Conflicts & Current Solutions

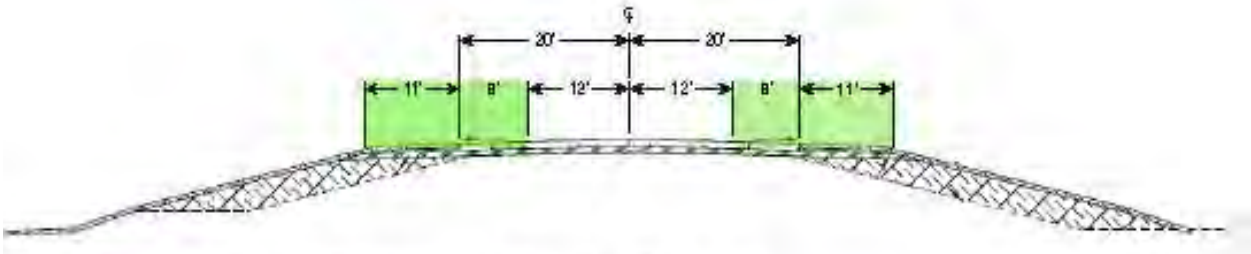
The operational efficiency of major routes in the City of Minot has diminished in recent years and is projected to

Figure 3.16: Roadway Section, ND Highway 23, Before Implementation of Roadway Improvements



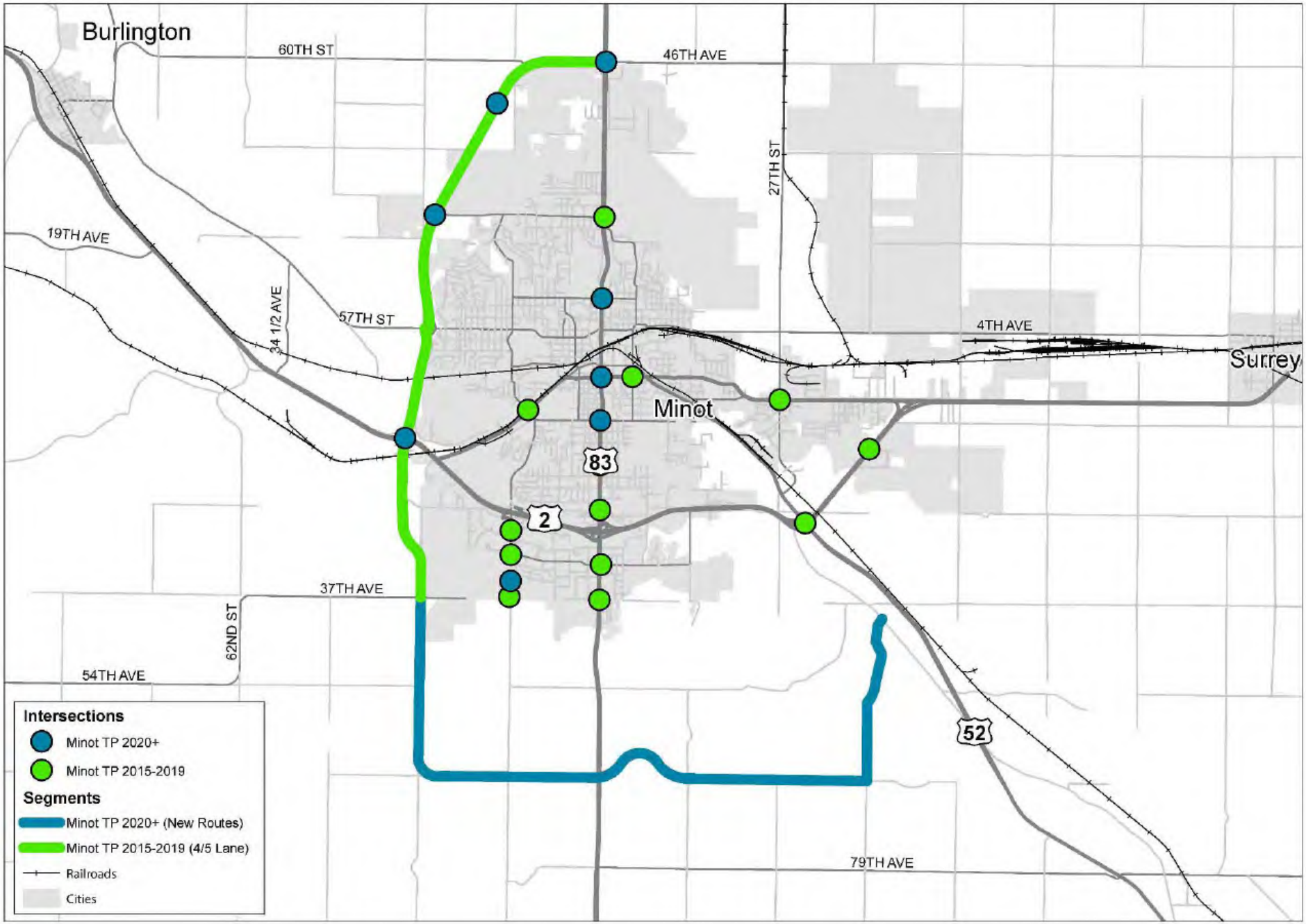
Note: Brown denotes area for traffic to pull over and allow clear thru-lanes.

Figure 3.17: Roadway Section, ND Highway 23, After Implementation of Roadway Improvements



Note: Green denotes area to pull over and allow clear thru-lanes.

Figure 3.18: Minot Transportation Plan identified improvements



continue to diminish without capacity and connectivity improvements. Major issues and threats to the transportation system can be summarized as follows (refer to Figure 3.18):

- Addition of access points and intersections
- Crash rates above the city average
- Long-term capacity concerns

Any of the major routes within the city can be considered as potential military traffic routes. The operational efficiency issues listed above will continue to increase the difficulty of advance planning for military traffic traveling along major city routes and may render some routes unfeasible for military traffic. The Minot 2035 Transportation Plan has been prepared by the city to address these operational issues to alleviate civilian traffic congestion. The plan will also benefit military traffic traveling through the city along existing routes and introduces future routes that will provide viable alternatives.

Issue: Increased heavy truck traffic in the missile complex area has caused military routes to deteriorate at a faster pace, requiring more monitoring and maintenance.

As documented earlier, the NDDOT has established that semi-truck volumes above 500 trucks per day along study area highways represents an impact resulting in the need for higher levels of annual maintenance. Deteriorating military routes increase the need for maintenance not only to the routes, but to the military vehicles as well. Exceptional deterioration requires additional advance planning to avoid or bypass degraded routes. In recent years, the NDDOT has improved several highways throughout the study area, many of which are military routes. These improvements in many cases involve complete reconstruction along with widening and/or the addition of passing lanes and wider roadway shoulders. The 2015-2018 State Transportation Improvement Program (STIP) includes a detailed list of improvement projects (Figure 3.19). During the same period of time addressed by the STIP, several of the counties within the study area will benefit from a large portion of the $240 million provided to North Dakota's top 10 oil producing counties as part of a 'surge bill' passed by the state legislature in 2015. It is likely that a portion of this funding will lead to the improvement of several county and township routes that also serve as military routes.

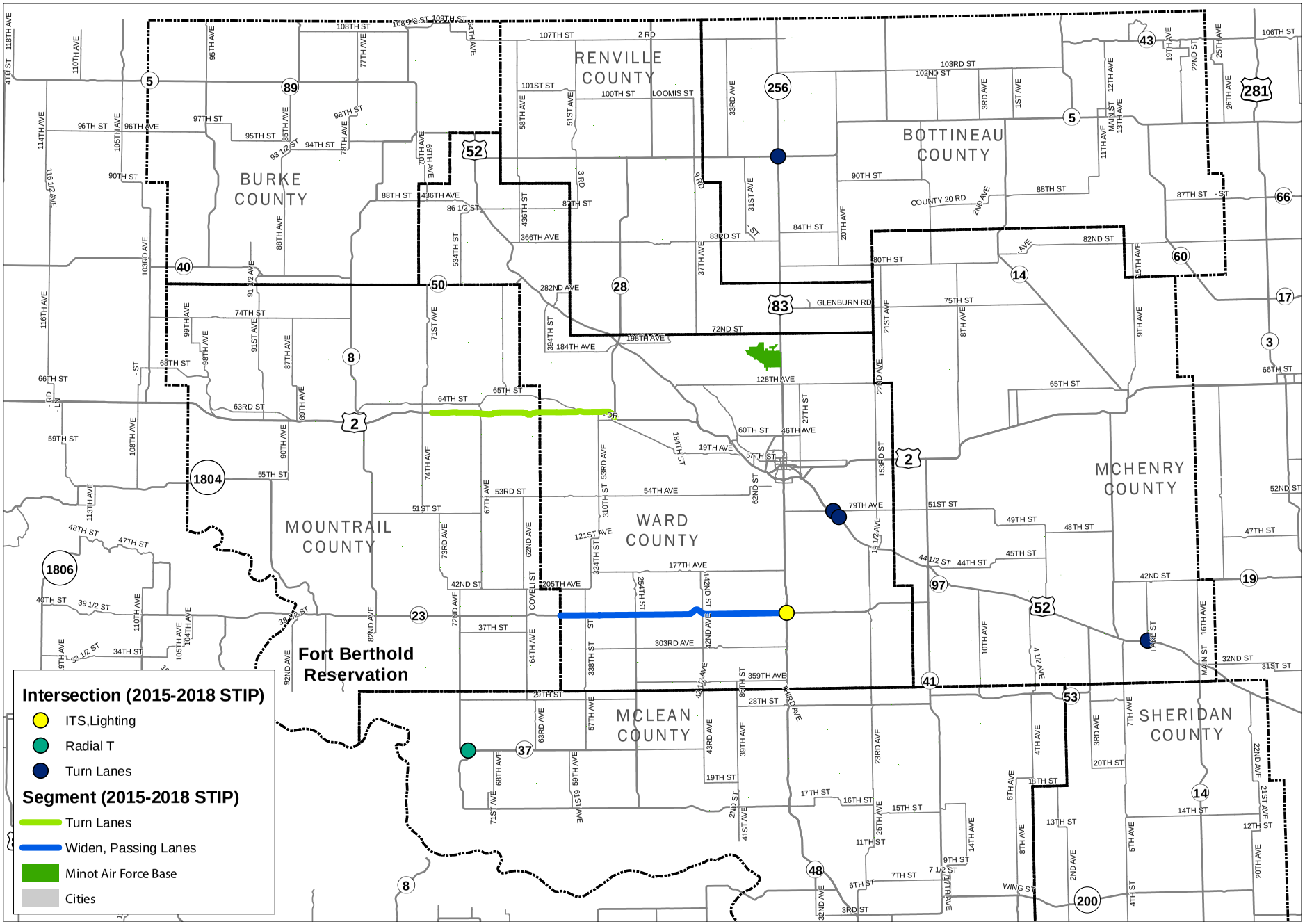
Issue: Erratic driving of semi-trucks on gravel township and county military routes places mission and security patrols in danger.

Interviews with MAFB personnel, including representatives of the 91st Security Forces, 91st Missile Maintenance Group, and 91st Operation Group revealed experiences of periodic encounters with semi-trucks exhibiting erratic driving with excessive speeds, often placing military personnel, operations, and property in danger. Many of these encounters occur on county and township roads that also serve as military routes. Many plausible reasons enable such driving behavior, including, but not limited to, lower levels of traffic, lack of training for civilian semi-truck drivers, lack of law enforcement presence, and a lack of signage indicating traffic laws. With respect to this conflict between semi-trucks and the military, local counties and law enforcement agencies have a crucial role. Solutions to the issue may involve a higher level of communication and coordination with law enforcement, changes to state and local traffic laws, or changes in enforcement.

Issue: Coordination between the State Department of Transportation and MAFB does not always occur at the earliest stage of project development. Therefore, military route impacts may not be accounted for early enough in the project development process.

In recent years, highway improvement projects conducted by the NDDOT have increased in size and scale throughout the study area. Given the reliance the 91st Missile Wing has upon many state and federal highways as military routes, it is imperative that highway projects consider their frequent use as military routes and as direct access routes to many missile launch facilities. For example, design elements such as shoulders can be a significant factor in ensuring the safe passage of military traffic during rare traffic incidents or other emergency situations. Traffic control and turning lanes/capacity improvements in congested areas can help assure safer access to some missile launch facilities.

Figure 3.19: 2015-2018 STIP projects within the study area.



As of 2015, NDDOT notifies MAFB through the Cable Affairs Office during the environmental documentation phase of project development. While the Cable Affairs Office is certainly an important contact early in project development, appropriate coordination needs to take place with all of the 91st Missile Wing groups that are involved with the use of missile complex routes. The earlier the involvement in NDDOT project development, the greater latitude there is to incorporate project design features and other considerations that accommodate MAFB interests (see Figure 3.20). MAFB 91st Missile Wing involvement before the environmental documentation phase would be optimal. Coordination with MAFB during the development of each new Statewide Transportation Improvement Program (STIP), which involves the preparation of a list of targeted projects by region, or NDDOT district, would also be very advantageous. Coordination at this early stage, in the applicable NDDOT Districts, would allow MAFB input and concerns to be identified even before project initiation.

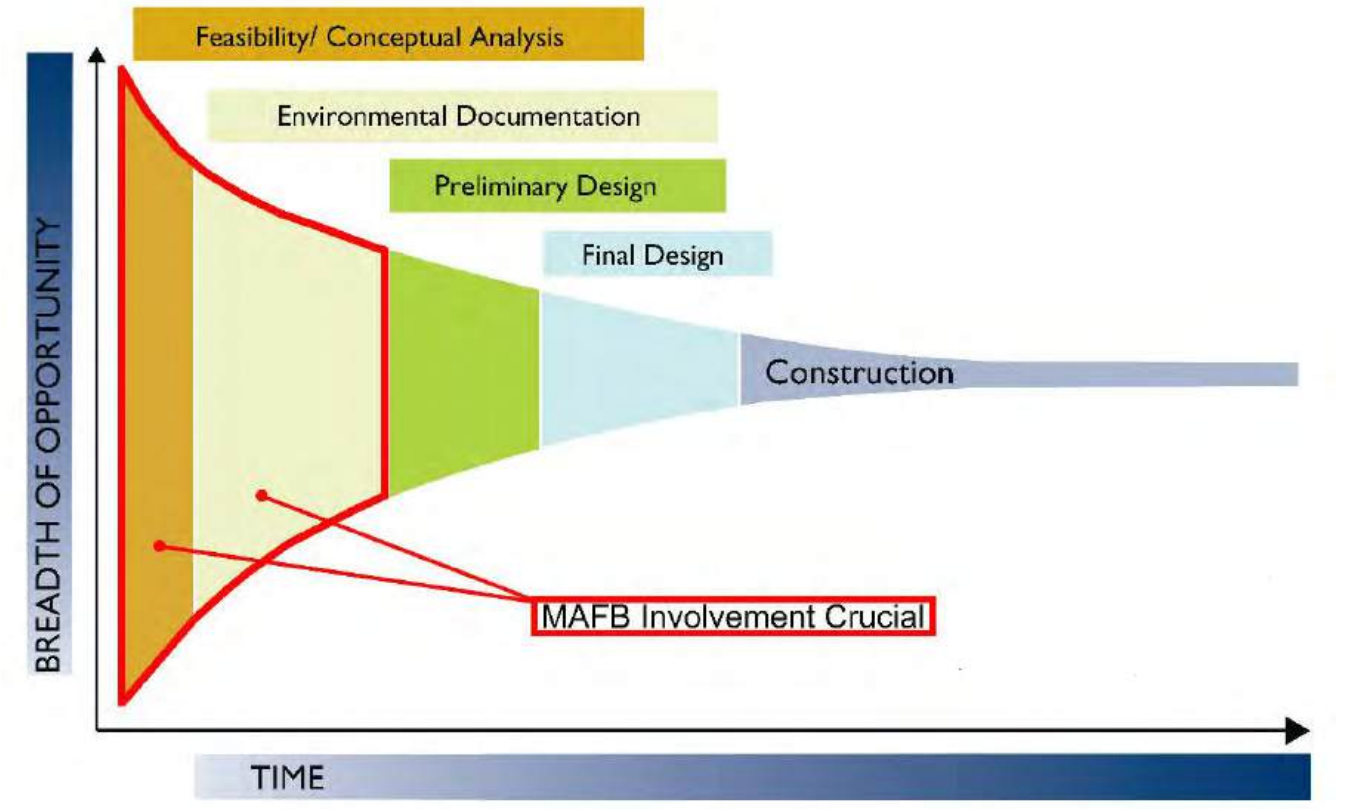
RAIL TRANSPORTATION

Issue: Trains transporting oil tanker cars represent minor risk to missile alert facilities. An oil train derailment near a missile alert facility could result in a grass fire and facility damage.

Because rail lines pass directly through population centers, the greatest risk posed by derailments of oil tanker trains is to the general public. In comparison, the risk to military facilities is minimal. There is no risk of an oil train derailment causing the detonation of a nuclear missile. For defense purposes, launch facilities are heavily armored to withstand the impact of a nuclear attack.

Because missile alert facilities do have some equipment and operations located above ground, any fire, including a fire caused by a derailed train, could pose a threat to personnel and equipment. Fire could also pose a threat to military traffic, maintenance personnel, and security forces. There are no missile alert facilities located within one-quarter mile of any major railway

Figure 3.20: Window of opportunity for changes to highway design projects.



oil-transportation route and only one is located within one-half mile. Because of redundant control systems, a damaged missile alert facility would not incapacitate the military's defense capability.

The following rail industry trends provide insight into North Dakota railroads' effects on land uses near rail lines:

- Large volumes of agricultural commodities have been shipped via rail since railways were first built through the study area. This is not expected to change.
- Due to increased oil shipments, Class 1 railroads will continue to be capacity constrained as the demand for rail transportation is expected to increase.
- Growth will continue in the area of oil and gas and intermodal and pipeline transportation.
- The development of additional oil transload facilities will occur.

These trends are supported by the State of North Dakota's Rail Plan and by oil and gas development projections from the North Dakota Department of Mineral Resources.

The Federal Railroad Administration (FRA), North Dakota Public Service Commission, and the railroad companies are all responding to recent high profile derailments of oil trains. Existing FRA regulations require the railroad to conduct two different types of rail inspections on a regular basis, including inspections for visual defects and inspections for defects that can only be found with the use of ultrasound. The frequency with which these inspections are required is based upon the tonnage transported on the subject track.

In April of 2015, the North Dakota Legislature approved over $500,000 to fund a rail safety program that will allow increased inspections of railroad tracks and equipment. In June of 2015, the US Senate Appropriations Committee approved a bill to provide $246 million to improve the safety of crude oil transportation by pipeline and by rail.

Figure 3.21: Example of rail transporting crude oil, Drake, ND.

COMPETITION FOR AIRSPACE

Issue: Air traffic has increased at small airports throughout the state. This increases potential conflicts with 5th Bomb Wing flights and helicopter flights in support of the mission.

A greater effort will be required for pre-flight planning and communications due to the increased air traffic at small airports throughout the state. Additional time for civilian pre-flight preparations will be necessary to achieve the appropriate level of air traffic safety and reduce potential conflict between military and civilian aircraft. The difficulty in educating civilian pilots about how to improve air traffic safety is complicated by the significant size of the JLUS area, the number of airports in the area, and the rural nature of the area. Therefore, a viable outreach program that can effectively reach civilian pilots throughout the region is imperative to success.

Issue: In the future, drones will be used for commercial activities throughout the state. This increases the need for air safety to avoid encounters with 54th Helicopter Squadron and 5th Bomb Wing flights.

Figure 3.22: Example of a drone in North Dakota.

Source: Grand Forks Air Force Base

The use of Unmanned Aircraft Systems (UAS) or drones will become more prevalent in the region as the FAA makes further determinations on how they will be regulated. Twenty-one universities have been designated as UAS research centers or FAA Center of Excellence (COE) locations. Among them is the University of North Dakota. The COE will develop policies and technologies for the use of drones.

While the entire state is now open for COE drone flights, current operations are mainly occurring in the Grand Forks area and near the US/Canadian border. Before the commercial use of drones is allowed by the FAA, new rules will be created to promote drone safety and avoidance of aircraft. Such rules could include requirements for filing a flight plan and the mandatory use of a transponder.

VERTICAL OBSTRUCTIONS

Issue: The general increase in development within the missile complex has led to an increase in the development of structures that can create vertical obstructions to helicopter flights. Developers of telecommunication towers often design towers to be below the minimum height that triggers a Federal Aeronautics Administration review.

Helicopter pilots will need to be cognizant of increased development related to the growth and activity in the region. The FAA is responsible for making determinations on whether a proposed structure represents a substantial adverse hazard on the safety and efficiency of an aircraft's navigable airspace. If the determination is made that a proposed telecommunications tower is a hazard, the FCC will not issue a permit for the tower. (Dougherty, James. "Telecommunications Tower Study", Fort Bragg Region. P.,1 August 2008).

Local governments may exercise controls on telecommunication tower locations. Many jurisdictions utilize a special use permit or conditional use permit as a tool for regulating the placement (and sometimes the appearance) of telecommunication towers. Regulations often consider the relationship between the height of a proposed tower and its location.

MAFB involvement in the review of proposed telecommunication towers may benefit the particular needs of

Figure 3.23: Example of vertical obstruction (communication tower).

the 54th Helicopter Squadron. The forthcoming 2016 Missile Installation Compatible Use Zone Study, an instructive tool for MAFB personnel, may assist in evaluating impacts of proposed towers in the JLUS area. The study may be useful in providing recommended protective measures for the airspace within the missile complex.

NOISE

Issue: Farmers have complained to MAFB Public Affairs about the impacts of low-flying helicopters on livestock, citing incidences where the noise has caused cattle to stampede, leading to injured and lost cattle.

Stakeholder interviews and public input indicated some concerns by farmers and ranchers about the noise associated with aircraft flying overhead. When contacted by concerned citizens, MAFB Public Affairs is able to verify if the concern is the result of a MAFB aircraft. As a result, MAFB pilots have become increasingly aware of the concerns to livestock and strive to avoid flights directly over cattle herds. Helicopter pilot training will continue to focus on the avoidance of residences, horses, and livestock when these elements are first seen by pilots.

The extent of noise impacts within the JLUS area is currently being evaluated through the preparation of the Missile Installation Compatible Use Zone Study, which is planned to be completed by 2016. Recommendations of the study may prove beneficial in identifying specific means of minimizing conflicts between MAFB helicopter flights and agricultural/ranching operations.

Figure 3.24: Example source of a noise issue within the Study Area.

Source: Minot Air Force Base.

EMERGENCY PREPAREDNESS

Issue: Local emergency response personnel may not always know how to respond and assist when a military vehicular accident occurs due to special training that may be necessary when dealing with military vehicular accidents.

Based on recent emergency responses, stakeholders and law enforcement agencies have indicated more knowledge and training would be helpful when responding to an accident involving a MAFB vehicle. The general attitude conveyed by local law enforcement personnel was that since they are typically the first to respond to an incident, they should be trained to respond appropriately. As with other issues, this issue should be addressed through coordination and outreach between MAFB and state and local agencies. In the case of local emergency responses, the MAFB Threat Response Force, the State Highway Patrol, and local EMS providers could work together to establish protocols and guidelines for determining responsibility, actions taken, reporting, and coordination of responses.

Issue: Local governments rely on Tier 2 reporting from the State Department of Disaster Emergency Services. MAFB is not advised of this information and does not know where hazardous chemicals are stored outside of Minot AFB in the JLUS study area.

The US Environmental Protection Agency, through the Emergency Planning and Community Right-to-Know Act, requires each state to implement their own hazardous chemical reporting procedures and requirements—this is referred to as Tier 2 reporting. In North Dakota, the agency tasked with ensuring that Tier 2 reporting is carried out is the State Department of Emergency Services (NDDES) through the Hazardous Chemicals Preparedness and Response Program. Typical facilities that require reporting include the following:

- Bulk fuel storage
- Anhydrous ammonia plants
- Energy producing sites
- Oil producing sites

Through the public involvement process, it became apparent that MAFB did not routinely monitor the state tier 2 database of hazardous chemical facilities. MAFB's collaboration with the NDDES to monitor the location of hazardous chemical facilities would further MAFB's efforts to more thoroughly secure military installations and operations.

RUNWAY CLEAR ZONES

Clear zones are located at both ends of the MAFB runway to provide an added margin of safety for potential aircraft overruns or landings that may fall short of the runway (see Figure 3.6). Aircraft noise levels experienced within the clear zones can also negatively impact any type of civilian activities. These areas are to remain undeveloped and limited to agricultural use. Current Ward County Zoning Regulations prohibit development in the runway clear zones and MAFB has obtained restrictive easements on the majority of clear zone areas.

INTRA-AGENCY COORDINATION

Issue: MAFB staff are present at the base for short periods of time, presenting a challenge to encroachment notification and follow up.

The United States Air Force is no different than many other branches of the nation's armed forces, involving personnel who are regularly rotated to different assignments and corresponding locations. While this is a common aspect of military service, this aspect proves challenging when attempting to establish long-term, collaborative working relationships with the public and state and local entities. Therefore, an emphasis on the establishment of common procedures and position contact points is imperative to carryout ongoing collaboration between MAFB and the local population. The long-term implementation of the JLUS will benefit from a commitment by MAFB to maintain consistent collaboration with local entities over the years as individual personnel change on a more short term basis.

NATURAL DISASTERS

Natural disasters, such as floods or tornados, can cause significant disruptions to the ability of the Air Force to operate in the study area and can even jeop-

ardize the integrity of MAFB as a viable installation in the region. Natural disasters can also disrupt local economies, transportation, and the viability of communities. An example of a recent natural disaster was the statewide flood event of 2011. The Mouse River experienced flooding beyond any flood event recorded in history. The flood displaced approximately 11,000 residents within the City of Minot alone and had a significant impact on the economy of the city and surrounding area. The flood, on a more regional basis, also resulted in the loss of a number of regional transportation connections. At a JLUS Policy Committee meeting, MAFB personnel reported that at the height of the flood, MAFB was left with only two road connections to the rest of the United States—and both of these connections were in jeopardy of being lost.

The US Environmental Protection Agency projects that the State of North Dakota, and especially the northern portion of the state, will have increased spring precipitation as a result of climate change. The increased potential for precipitation in spring will increase the potential for flooding events.

The primary concern relating to natural disasters is flooding due to the area's recent history of flooding and projections that predict increased precipitation throughout the region over decades to come. As a result of the Mouse River flood of 2011, the State of North Dakota initiated the Mouse River Flood Protection Plan. The plan is currently in the implementation phase. The plan will address the following objectives relating to protection from future flood events, and thus help to protect local communities and the viability of MAFB:

1) Reduce the risk of flood damage to as many homes as reasonably possible.
2) Minimize the [Flood Protection] Project footprint and number of residential acquisitions required.
3) Minimize increases in flood level water surface, flow rates, and duration.
4) Develop a [Flood Protection] Project that can be implemented at the lowest practical cost.
5) Establish key transportation corridors that can remain open during flood events.
6) Minimize environmental impacts to facilitate necessary regulatory approval.
7) Design a [Flood Protection] Project that is consistent with the long-range objectives of the affected communities.

Figure 3.25: Mouse River flood of 2011, US Highway 83.

Source: Federal Emergency Management Agency.

Long term involvement in the implementation of Mouse River Flood Protection Plan by MAFB will be important. Many of the plan's objectives will ensure the viability of Minot AFB, both directly and indirectly. For example, the establishment of key transportation corridors that remain open during flood events will directly benefit MAFB. Indirectly, the long term protection of housing in the area will help to ensure housing is available during flood events for MAFB personnel.

The City of Minot continues to pursue federal funding for projects that improve the long term sustainability of the area's infrastructure and economy. MAFB is a significant component of the city's economic vitality and will continue to be increasingly important as more and more base personnel seek housing outside MAFB. Minot has been, and is expected to continue to be the preferred location for off-base housing.

ISSUES NOT CARRIED FORWARD

As noted at the beginning of this chapter, 24 issues were initially identified. The first-tier issues have been discussed above. The issues listed below are also important but they do not rise to the same level of significance. Solutions for the issues below are not as tangible or realistic as the issues discussed above, but they are acknowledged for the purpose of maintaining an awareness that they were considered.

ENVIRONMENTAL JURISDICTION

Environmental approvals and regulatory aspects of projects throughout the region require coordination with the North Dakota Department of Health, with one exception. The Department of Health has no authority on the Fort Berthold Indian Reservation because it is a sovereign nation. The US Environmental Protection Agency handles environmental oversight on the Fort Berthold Reservation.

For projects that involve drainage or erosion control, air quality issues, hazardous waste, and underground storage tanks, one of these two environmental regulatory agencies will be involved. When the EPA is involved in projects on the Reservation, its environmental standards and requirements are likely to be more stringent than state requirements. The federal environmental review process can also be more time-consuming.

For military projects such as the removal or replacement of an underground storage tank, the tank's location will determine the extent of the environmental review and approval process. The same project can require two totally different review processes. Awareness of the requirements can allow MAFB personnel to anticipate project submittal requirements and establish timeframes and expectations for proposed military improvements and maintenance projects.

CULTURAL RESOURCES

Buildings, objects, features, locations, and structures with scientific, historic, and cultural value are all examples of cultural resources. Research of the presence of historic sites in the study area did not reveal any that were located near a launch facility, missile alert facility, or Minot AFB.

Prior to construction of projects funded with public revenues, an environmental review of the proposed project is standard procedure. Part of the environmental review process includes a search for the presence of cultural resources. When future improvement or expansion projects for military infrastructure are being considered, research of archaeological records at the North Dakota State Historic Preservation Office (SHPO) could reveal the potential for artifacts existing at the subject location during the Class I investigation (literature review). If artifacts or burial sites are discovered during the site inspection (Class III field investigation), it could result in changes to the proposed location of planned improvements.

Problems associated with cultural resources do not currently represent a significant issue in the study area. For future projects, the required site review and assessment process will protect any significant artifacts from being damaged by construction. The cultural resources issue was not carried forward for further analysis in this study.

THREATENED AND ENDANGERED SPECIES

Some species of wildlife, due to their low population numbers and potential for extinction, require special consideration. Whenever construction projects are supported by public funding, a standard screening requirement is to determine whether these species or their habitats exist at the proposed project site.

As identified in Chapter 1 of this study, some threatened or endangered species are present in the ecosystem of the study area and could inhabit areas identified for future potential military projects. Their presence is not incompatible with existing military facilities or operations.

In the event that a future military construction or expansion project is needed, an environmental review may indicate the presence of a protected species or its habitat which could require changes in plans to avoid or minimize impacts. Mitigation measures may be needed if impacts cannot be avoided. The completion of a biological assessment early in the project development process will prevent unanticipated delays later on in the process. The USFWS is often able to advise

other agencies about species that are likely to be added to the list as threatened or endangered within certain areas in the short term, thus allowing for those species to be considered in the event that they have been added to the list prior to completion of the environmental clearance process.

WETLANDS

Thousands of wetlands are scattered throughout the study area and, in most cases, they are compatible with military installations. Wetlands, however, do represent two concerns. Wetlands attract waterfowl. Birds have the potential to interfere with aircraft operations. Because wetlands are located in low-lying areas, they will flood during periods of above average precipitation. If a military installation or transport erector route is located in or near the same low-lying area, it too may become subject to problems associated with high water. Potential solutions for existing wetland problems are expensive but steps can be taken to prevent the issues from becoming worse.

As mentioned above wetlands are located in drainage basins. If a military facility is located near the wetland it may become vulnerable to flooding. Flooding can be minimized by preventing additional storm water runoff. If a development is proposed within the same drainage basin, runoff will increase due to the creation of impermeable surfaces in the development. Rooftops, roadways, parking lots, and all paved areas shed water and increase runoff. Drainage plans should be required for all proposed developments to prevent the additional drainage from impacting military facilities. During development, grading and site development should be monitored to ensure that the drainage plan is being carried out according to the approved plans. After development, vigilance will be necessary to monitor drainage patterns and avoid unexpected runoff problems at missile launch or alert facility sites. Also, if a future, private sector development is proposed for the area within the flight path of the MAFB runway, attention should be given to the proposed design. If it contains a manmade wetland, pond, or lake, waterfowl will be attracted. Wetlands are not compatible with aircraft operations.

Aside from the potential for high water problems at facilities near wetlands, the compatibility between military facilities and existing wetlands is similar to that of public and agricultural lands. Development is less likely to occur in a wetland area. Therefore, the wetland will function as a buffer area when located adjacent to a military facility such as a launch facility or missile alert facility.

PUBLIC LANDS

Public land in the study area includes the following types of property:

- Wildlife Management Areas
- Bureau of Land Management Land
- National Grasslands
- National Wildlife Refuges
- Waterfowl Production Areas

The presence of public land adjacent to military installations can be advantageous. In most cases, development will not occur on public land. Without the possibility of development, public land functions as a buffer to the military facility. Although some public lands will attract visitors, the concentration of people (hunters, hikers, bird watchers) is generally low and intermittent.

In addition to public lands which are, by definition, government owned, nonprofit organizations will often purchase land for conservation and habitat purposes. These lands are equally compatible because they also preclude development, function as buffers, and do not create concentrations of people.

As with cultural resources, the presence of public lands or conservation lands could present a barrier to future expansions of military installations. Otherwise, compatibility is good between public land and military installations. Due to the lower intensity of use, public land is similar to agricultural land and it was not carried forward for further scrutiny in this study.

Figure 3.26: Example source of a dust issue within the Study Area.

ENVIRONMENTAL OVERSIGHT

Minot AFB personnel undertake many projects throughout the missile complex and at Minot AFB that are subject to environmental regulations and permitting. The following environmental issues are regulated by two different agencies within the study area:

- Air quality
- Water quality
- Drainage/Erosion Control
- Hazardous Waste
- Underground Storage Tanks

If the project occurs within the boundaries of the Fort Berthold Reservation, the issue is under the purview of the US Environmental Protection Agency. Outside of the Reservation boundaries, the North Dakota Department of Health is the regulating agency. Dealing with two separate agencies for information about the subjects listed above, or for permit review and approval, represents a challenge in coordinating different review timeframes and navigating different regulations.

DUST

The increase in dust in the study area is directly proportional to the increase in truck traffic due to oil activity. Trucks traveling on dry gravel roads will create dust which drifts downwind. Drifting dust will blanket anything located near gravel roads. Pasture areas near gravel roads have become so inundated with dust that cattle will avoid the forage. Dust can also create a traffic safety issue by reducing driver visibility, which could become a factor for military traffic and routes.

Dust control has been identified as a significant issue in the oil-producing counties in North Dakota. A study performed by North Dakota State University (NDSU) and the Upper Great Plains Transportation Institute (UGPTI) explored some of the dust control issues relating to oil and gas development in Western North Dakota. (http://www.ugpti.org/resources/presentations/downloads/2014-02_DustControl.pdf. Road Dust Institute 3rd Conference, Feb 4 2014- William D Anderson). The study examined traffic related to oil and gas development and the resulting increase in dust generated on unpaved roads.

The Malmstrom AFB Joint Land Use Study documented the impact of dust on helicopter operations. Minot Air Force personnel indicated that dust can cause problems with helicopter flights but the dust problems in our region are not likely to deter helicopter operations.

VIBRATION

Ground vibrations can trigger the sensitive security monitoring systems which exist at each of the 150 missile launch facilities. Vibrations are produced by seismic exploration, heavy industrial activities and detonation of explosives. When a vibration is detected, it will activate a military response team who will quickly visit the installation to determine the cause of the alarm.

The recent increases in oil drilling and exploration in the study area creates the potential for more vibrations and

more alarms being set off. Advance knowledge of such activities can be useful in determining the appropriate military response. Although ground vibrations are not compatible with military facilities, the occurrences have not become routine or widespread. Coordination with MAFB officials indicated that they do not represent a significant problem at this time.

FREQUENCY SPECTRUM

As operations become more reliant on digital technology the importance of full spectrum frequency continues to grow. The mission of the 5th Communications Squadron is outlined as "American Airmen delivering secure, full spectrum communication capabilities to the 5th Bomb Wing and 91st Missile Wing, enabling safe, secure and reliable execution of Minot's strategic, conventional, and deployed missions." (http://www.minot.af.mil/news/story.asp?id=123432951)

Losing frequencies will negatively affect the Air Force, particularly with training operations. If frequency bands are too limited, training cannot simulate realistic combat conditions. Many training missions flying at low level training routes will be significantly degraded if frequency spectrum is lost. Losing bandwidth can be very expensive as moving to a new frequency could take several years to complete as equipment must be adjusted to accommodate the new frequency. Effective spectrum management is needed to accommodate the Air Force requirements as well as the growing needs of non-government wireless providers.

While effective spectrum management is important to the mission of MAFB, stakeholder and public comment received did not warrant the need to create specific JLUS strategies to address the need. MAFB personnel have communicated that spectrum management is already an installation priority.

INSTALLATION SECURITY

As one of the Air Force's three operational intercontinental ballistic missile units, the 91st Missile Wing, whose members are known as the Rough Riders, are responsible to defend the United States with combat ready nuclear force and if ordered, conduct a global strike with a fleet of Minuteman III missiles.

Installation security concerns were repeatedly conveyed by MAFB personnel through the development of the JLUS. Most security concerns were associated with the encroachment of civilian-related development adjacent to missile complex installations. Adjacent civilian development activity increases the frequency and number of civilian activities around military installations. As a result, the viability of some military installations is at an increased risk of being compromised due to a heightened possibility for suspicious activity and the increased danger to public safety. Since this issue related back to the use of land for civilian development, it relates to the broader issue of land use.

LIGHT AND GLARE

MAFB Installations

By law, exterior light must be directed inwards within an air base and within outlying installations. Pointing fixtures off an installation is prohibited. As with any military installation that requires lighting for nighttime operations and security purposes, there is associated glow from the airfield and other base facilities.

Civilian Sector

The recent development boom in not only oil and gas development, but also industrial, commercial, and residential development has led to the increase of sources of light and glare within the JLUS area. Increased light and glare can negatively impact helicopter flight operations by reducing night vision capabilities.

Comments from stakeholders and the public relating to light and glare was minimal. MAFB personnel did not convey a significant concern in regards to light and glare and the impacts it might have upon helicopter flights within the missile complex.

FEDERAL, STATE, AND LOCAL LAWS

Federal, state, and local laws can alone create barriers to the promotion of compatibility between the military and outside influences. Examples of compatibility issues gathered from the data collection phase of the JLUS are provided below based on the type of law/regulation:

- **Federal** – Where many county and township roads cross through areas within designated Federal Emergency Management Agency (FEMA) flood zones, the accomplishment of road improvement projects can be challenged by the need for local jurisdictions to work with FEMA to obtain necessary approvals. This can become an issue affecting the military where these roads also serve as military routes. In some existing cases, MAFB has stepped into the process, offering agency-to-agency coordination to assist local jurisdictions in receiving necessary FEMA approvals/permission.
- **State** – North Dakota laws have established taxes on oil and gas extraction in the state. Further, state law determines exactly how oil and gas tax revenue is to be utilized. During the initial round of public meetings for the JLUS, a number of local community members questioned why oil and gas tax revenue could not be utilized to help address compatibility issues between the military and oil and gas development—especially where oil and gas development seems to the cause of the conflict.
- **Local** – In many areas throughout the missile complex, it is difficult for both the military and private developers to determine what zoning regulations take precedence. Determining what entity has zoning authority is particularly challenging, involving townships, cities, counties, and a Native American reservation (Fort Berthold) throughout the eight county area. Through stakeholder interviews, it was discovered that cities, counties, and the MHA Nation all have different views of who maintains zoning authority within the boundary of the Fort Berthold Reservation.

Many of the strategies provided in Chapter Four aim to improve communication between different governmental entities (i.e., Fort Berthold Reservation, MAFB, and counties). In some cases, it may be deemed necessary to provide new laws or update inadequate laws to promote compatibility and reduce or eliminate existing and potential threats to military facilities and operations.

VEHICULAR TRAFFIC

Road construction along a military route may either require advance planning to utilize an alternative route or may temporarily inhibit access to a launch facility. Notification prior to construction activities along a military route is crucial to military operations and launch facility access. The existing State Department of Transportation Travel Information Map available online and as a smart phone application is readily available and utilized on a frequent basis by MAFB personnel in an effort to prepare for military routes subject to road construction.

Another transportation issue is due to security delays at the main MAFB gate causing traffic to back up onto US Highway 83, causing temporary traffic congestion on northbound US Highway 83. This issue has been addressed in the June 2014 MAFB Installation Development Plan. Design and operational alternatives have been developed to alleviate the queuing of traffic.

Figure 3.27: Road construction along ND Highway 23 near the entrance to a launch facility.

CHAPTER 4

STRATEGIES

Content

Chapter 4: Strategies

The incompatibility issues described in Chapter 3 were presented to the JLUS Technical and Advisory Committees for their input on possible solutions and strategies to address the problems. Their feedback, combined with additional research and follow-up discussions, led to the preparation of a strategies table. The table lists the issues, the military installation element(s) being affected by the issue, and solution strategies.

In late April of 2015, the table was offered for public comment at three public meetings. All who attended were asked to provide feedback on the proposed strategies. Input from the public meetings was used to further refine the strategies.

The table contains 16 categories of issues which correspond with the most significant issues covered in the first section of Chapter 3. Each category contains descriptions of issues. Strategies are provided to address each of the individual problems.

The table is arranged into four columns. For ease of reference, each issue is numbered in the far-left column. Issues are shown in the gray-shaded boxes with strategies listed below them, in boxes with a white background.

The specific military facilities and operations impacted by the problem are identified. In many cases, several military components are impacted by one issue.

The table provides an abundance of information in an easy-to-read format. It functions as a quick-reference guide to identify issues and strategies. The issues under each category are organized to correspond with their priority. The first issues of each category are more significant than those listed below them.

The table is not intended to be approached as a checklist, which would imply working at resolving individual issues from the top down. All issues are significant. Some strategies will be faster, lower cost, and generally easier to implement than others, and will provide benefit, even if they are not shown as the highest priority. Implementation of strategies to resolve multiple issues can occur simultaneously. Some issues will be easier to resolve than others. In many cases strategies can be combined to resolve several issues in one effort.

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#1	Competition for Airspace	In the future, drones will be increasingly used for commercial and recreational activities throughout the state. This increases the potential for conflict with 54th Helicopter Squadron and 5th Bomb Wing operations.				
	Strategy 1-A	Establish contact with administrators of UND's FAA Center of Excellence (COE) and develop a dialog to increase FAA awareness of military air operations in North Dakota. Promote the adoption of FAA regulations for commercial and recreational drone usage within military air operations areas.	X		X	X
#2	Competition for Airspace	Air traffic has increased at small airports throughout the state. This increases potential conflicts with 5th Bomb Wing flights and helicopter flights in support of the mission.				
	Strategy 2-A	MAFB will conduct an outreach program to airports statewide to advise pilots of the need to be aware of the periodic presence of MAFB helicopters within the JLUS Study Area.	X		X	X

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#3	Drainage	Increased precipitation inundates military routes, launch facilities, and missile alert facilities adjacent to wetlands and other water bodies, posing threats to the viability of some launch facilities and missile alert facilities.				
	Strategy 3-A	Any modifications to wetlands or surface water processed through the State Water Commission should involve notification to the MAFB Installation Encroachment Management Team. MAFB will coordinate with the State Water Commission to assess the need for changes to department policy or State law to facilitate notification and cooperation.	X		X	
	Strategy 3-B	Any modifications to wetlands or other bodies of water processed through the water resource boards located within the Study Area should involve notification to the MAFB Installation Encroachment Management Team. MAFB will coordinate with the water resource boards to assess the need for changes towards individual board policy to facilitate notification and cooperation.	X		X	
	Strategy 3-C	Anticipate future needs for defense access road grade raises throughout the Missile Complex, based upon problematic areas subject to periodic flooding/ inundation.	X		X	

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#4	Drainage	Drainage and erosion from grading for development adjacent to Air Force installations is not regulated if the project is less than one acre in size. Grading less than one acre, or the cumulative effect of projects less than one acre, can cause drainage and erosion that may impact Air Force installations.				
	Strategy 4-A	Support special notice and review of grading activities of MAFB concern within ½ mile of Air Force installations for grading projects of all sizes. MAFB will collaborate with the North Dakota Department of Health, US Environmental Protection Agency, and the MHA Nation to facilitate project review.	X		X	
	Strategy 4-B	Oil and gas well permits processed through the North Dakota Department of Mineral Resources should require stormwater/drainage management plans to manage offsite runoff.	X		X	
#5	Emergency Preparedness	Local emergency response personnel may not always know how to respond and assist when a military vehicular accident occurs due to special training that may be necessary when dealing with military vehicular accidents.				
	Strategy 5-A	Ensure coordination between the MAFB Threat Response Force, State Highway Patrol, County Sheriff Departments, and MHA Nation law enforcement to establish protocols that identify responsibility, actions taken, reporting, and coordination of response.	X		X	
#6	Emergency Preparedness	Local governments rely on Tier 2 reporting from the State Department of Disaster Emergency Services. MAFB is not advised of this information and does not know where hazardous chemicals are stored outside of Minot AFB in the JLUS study area.				
	Strategy 6-A	Tier 2 hazardous chemical information kept with the State must be periodically gathered, published, and transferred to the community liaison and security forces at MAFB. At a minimum, MAFB should be provided with access to all NDDES Tier 2 information as available online.	X		X	X

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#7	Housing	Housing affordability has decreased during the energy boom in Minot and cities surrounding MAFB.				
	Strategy 7-A	Conduct a housing study to validate needs of MAFB with projections for housing demands of MAFB personnel. Include an analysis of housing market trends.				X
	Strategy 7-B	MAFB should coordinate with the City of Minot and the Minot Housing Authority to create housing assistance programs targeted at reducing housing costs in the City and Ward County for MAFB personnel.				X
#8	Interagency Coordination	The North Dakota One Call system was developed to locate utilities prior to digging but is not always utilized in the missile complex. Because the hardened intersite cable system is spread extensively throughout the missile complex, it is important that the One Call system is utilized to ensure Hardened Intersite Cable System (HICS) lines are avoided.				
	Strategy 8-A	Support increased penalties for excavating without using the One Call system. Collaborate with the State Public Service Commission to promote understanding and ensure enforcement is carried out.		X		
	Strategy 8-B	Require grading permits or building permits prior to breaking ground on all projects. For all agricultural buildings, require a no-fee, courtesy building permit application so local government staff can review the proposed building location.		X		
	Strategy 8-C	Make the approval and issuance of building permits contingent upon confirmation of One Call system contact.		X		
	Strategy 8-D	Visit all local governments within the hardened intersite cable system area to promote understanding and provide template grading permit and/or building permit applications with One Call system notification verification.		X		

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#9	Interagency Coordination	Some local governments do not consistently coordinate with MAFB regarding planning and zoning proposals potentially impacting Air Force installations.				
	Strategy 9-A	Facilitate the adoption of a standardized checklist of agency notifications, including MAFB, for all development proposals located within two miles of US government property, including fee title and easements. Provide a standard template for a checklist, including a list of review agencies, contact information, and issues to consider on an accessible regional agency website, such as the Souris Basin Planning Council site. Coordinate with MAFB to update the checklist frequently to ensure that staffing changes and contact information are correct.	X	X	X	X
	Strategy 9-B	Establish deadlines and review timeframes for development applications (e.g. zoning changes, subdivisions, conditional use permits and building permits) to allow adequate screening and review to ensure that local governments and MAFB have adequate time to review and respond to application information.	X	X	X	X
	Strategy 9-C	At a minimum, ensure that all local jurisdictions within the Study Area send MAFB a notice of development proposals with the proposed location at least a week prior to the Planning Commission meeting.	X	X	X	X

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#10	Interagency Coordination	Study area counties and the State Public Service Commission do not share project proposals for wind energy systems with MAFB at the earliest point possible during the development review process.				
	Strategy 10-A	Work with Study Area counties and the State Public Service Commission to make necessary changes to State law or agency policy to ensure that project proposal information is shared with MAFB upon receiving initial applications for wind energy systems and energy transmission projects.	X	X	X	X
	Strategy 10-B	Work with Study Area counties and the State Public Service Commission to make necessary changes to State law or agency policy to initiate informal review of initial applications for wind energy systems and energy transmission projects. Informal review to be conducted in partnership with MAFB and Department of Defense Siting Clearinghouse.	X	X	X	X
	Strategy 10-C	MAFB will reach out to the Study Area counties and the State Public Service Commission to promote the use of the Department of Defense Siting Clearinghouse as a central location to store energy project information.	X	X	X	X

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#11	Interagency Coordination	The North Dakota Recorders Information Network has not been supplied with recorded documents that are older than the 1990s and 2000s in many cases. The burden to upload those documents is upon each county recorder's office. Air Force real property interests are commonly not being found in preliminary NDRIN title searches done by developers.				
	Strategy 11-A	Promote the understanding that North Dakota Recorders Information Network information may have a limited date range and that military easements may not be currently available without direct research at County Recorders' Offices.	X			
	Strategy 11-B	Explore funding possibilities for County Recorders within the Study Area to provide temporary staff to expand the date range of the North Dakota Recorders Information Network.	X			
	Strategy 11-C	File a "Notice of Easement" with County Recorders for each existing military easement. The "Notice of Easement" will be added to the NDRIN and alert title researchers of the presence of a historic military easement on the subject property.	X			

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#12	Intra-agency (MAFB) Coordination	MAFB staff are present at the base for short periods of time, presenting a challenge to encroachment notification and follow up.				
	Strategy 12-A	To help facilitate local government coordination regarding encroachments and other conflicts, MAFB should consider creating a simple name for a contact with the MAFB Public Affairs Office, such as “Military Coordination Contact” or “Air Force Development Coordinator”.	X	X	X	X
	Strategy 12-B	Provide and maintain a single contact point (phone number, email address, and mailing address) through the MAFB Public Affairs Office. The single contact point should be utilized for all projects that may impact military facilities, systems, or operations.	X	X	X	X
	Strategy 12-C	MAFB should coordinate and schedule meetings to visit with all necessary local government leaders to discuss the need for encroachment notification and Air Force encroachment contact information. “All necessary local governments” includes the MHA Nation, all eight missile complex counties, cities with missile complex facilities, and townships with missile complex facilities. Meetings should occur in perpetuity, on at least an annual basis.	X	X	X	X
#13	Intra-agency (MAFB) Coordination	Extensive excavation and construction activities have occurred, uninterrupted, within close proximity to some existing launch facilities.				
	Strategy 13-A	Work with all MAFB personnel involved in the missile complex to increase vigilance in monitoring activities on properties surrounding military facilities. At the first indication of construction activity within easement areas, MAFB personnel should investigate and report the activity. Initiate a rapid response to curtail construction within military easement areas.	X	X		
	Strategy 13-B	Research easement restrictions and enforcement authority. Develop procedural steps for quickly responding to easement violations.	X	X		

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#14	Land Use	Many jurisdictions within the JLUS study area exercise zoning authority but do not have a comprehensive plan.				
	Strategy 14-A	Educate the State Legislature about the relationship between local planning and zoning and the on-going sustainability of MAFB military installations. Encourage the designation of funds for preparing and updating comprehensive plans and zoning ordinances for jurisdictions with an identified need, particularly in the eight-county JLUS area.	X	X	X	X
	Strategy 14-B	Pursue grants from the Department of Defense, and Office of Economic Adjustment for jurisdictions within the Study Area to establish and amend comprehensive plans for local jurisdictions, particularly those which currently lack the necessary policies and regulations to prevent encroachment on military installations.	X	X	X	X
#15	Land Use	Industrial and residential development is situated within 1,200 foot no-build easements of various launch facilities within the Bakken Region.				
	Strategy 15-A	Purchase and remove encroaching structures.	X			
	Strategy 15-B	Create local zoning regulations to prohibit structures within military easements. Deem existing structures as nonconforming, subject to removal following an acceptable amortization period.	X			
	Strategy 15-C	Create local zoning regulations prohibiting structures within military easements. Deem existing structures as nuisances and remove them.	X			

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#16	Land Use	Due to local growth trends and adjacent energy infrastructure, the proximity of some military facilities subject them to a higher likelihood of encroachment.				
	Strategy 16-A	Create local zoning regulations to prohibit structures within military easements. Prioritize incorporation of these regulations into local zoning regulations in jurisdictions with launch facilities that have been identified to have two or more potential conflicts as identified on the LF and MAF Conflict Assessment Map.	X			
#17	Land Use	A portion of the MAFB approach zone within Renville County is not protected by land use regulations.				
	Strategy 17-A	Encourage Renville County to adopt the same types of regulations as those in the Ward County zoning ordinance, which consist of airbase protection standards. Apply the zoning to sections of land underneath the airfield approach zone.				X

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#18	Land Use	For public safety, the military has indicated that a building setback of distance of 2,500-feet (almost one-half mile) is desirable for habitable buildings.				
	Strategy 18-A	Purchase enlarged easements. Collaborate with State and Federal wildlife and conservation agencies, nonprofit wildlife and conservation entities, and landowners to identify opportunities to protect sensitive habitat within the 2,500 foot zone. Protections may be in the form of the purchase of development rights, the purchase of property, or the creation of conservation easements.	X			
	Strategy 18-B	Provide local governments with sample zoning templates that include buffer zones, overlay zoning districts, or setbacks from launch facilities, and encourage the adoption of those standards into their local zoning ordinance. Zoning standards could also initiate review and cooperation with MAFB to mitigate or ensure development does not place the public at risk or jeopardize MAFB security. Assist local jurisdictions in creating, adopting, and implementing tools from the 'zoning tool box' (as provided in the JLUS document) that facilitates military-friendly planning and zoning practices.	X			
	Strategy 18-C	Identify military facilities that are currently more vulnerable to encroachment, and work with property owners to establish an agreement giving the MAFB the "right of first refusal" to purchase the property if the owner decides to sell land within 2,500 feet of the launch facility.	X			
#19	Land Use	Development proposals near MAFB, if approved, pose a safety concern to potential occupants and may impact the viability of the airfield and the military mission.				
	Strategy 19-A	Work with Ward County and townships within Ward County (particularly those with zoning jurisdiction) to evaluate current zoning within two miles of MAFB and along the flight paths. If the area of current zoning restrictions requires expansion, MAFB should work with both Ward and Renville Counties and applicable townships to expand the no-build zone.				X

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#20	Land Use	Funding is limited for local governments to create regulations and enforce them to protect military facilities from encroachments.				
	Strategy 20-A	Explore funding possibilities for assistance in strengthening local zoning and building code administration. Assist local jurisdictions in creating, adopting, and implementing tools from the 'zoning tool box' (as provided in the JLUS document) that facilitates military-friendly planning and zoning practices.	X			X
#21	Land Use	Most existing local government planning and zoning documents do not recognize Air Force installations within the respective jurisdictions.				
	Strategy 21-A	Promote an increased awareness of public safety and the importance of avoiding development near military facilities. Contact local government leaders to identify opportunities appropriate for each jurisdiction that allow the dissemination of information. Methods may include periodic letters to community leaders or periodic presentations at public meetings.	X	X	X	X
	Strategy 21-B	Explore funding possibilities for assistance in strengthening local planning and zoning codes. Assist local jurisdictions in creating, adopting, and implementing tools from the 'zoning tool box' (as provided in the JLUS document) that facilitates military-friendly planning and zoning practices.	X	X	X	X

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#22	Land Use	It is difficult for MAFB and their developers to know which jurisdiction has zoning authority on properties adjacent to and near missile launch facilities.				
	Strategy 22-A	Utilize the maps and documentation provided in the JLUS document as a reference to identify the jurisdiction with development authority. MAFB facilities will not be shown on the maps, just boundaries between areas with different zoning jurisdiction.	X		X	X
	Strategy 22-B	On an annual basis, a regional or state agency, such as the Souris Basin Planning Council, should work with local and tribal governments to update jurisdictional boundary maps to show new city boundaries, updated extraterritorial boundaries, and any changes to tribal, township, or county jurisdictions. Where ambiguity exists, work with local or tribal governments to establish clear jurisdictional boundaries for planning and zoning review. Provide maps to MAFB and make maps easily accessible by utilizing a regional or state agency website, such as the Souris Basin Planning Council site or the North Dakota GIS Hub, where jurisdictional information may be posted for public information. MAFB facilities will not be shown on the maps, just boundaries between areas with different zoning jurisdiction.	X		X	X
	Strategy 22-C	Work with state legislators from the region to initiate amendments to current state law which would clarify the authority to review and approve proposed locations for the construction of agricultural buildings.	X	X		

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#23	Land Use	Farming and ranching activities and buildings are protected from county regulation by the North Dakota Century Code. It is difficult to monitor and make sure new agricultural buildings avoid military facilities.				
	Strategy 23-A	For all agricultural buildings, require a no-fee courtesy building permit application so local government staff can review the proposed building location and identify any conflicts with military installations. As part of the courtesy permit application, ensure that contractors and property owners are provided information about the requirement to contact One Call before grading or excavating.	X	X	X	X
	Strategy 23-B	In order to encourage agricultural land owners to obtain no-fee building permits, support state and county efforts to limit or hold property tax increases based on improvements for agriculture buildings.	X	X	X	X
#24	Local Infrastructure Extensions	Water line and fiber optic line planning and construction may not be coordinated with MAFB, thus resulting in potential impacts upon the HICS.				
	Strategy 24-A	Plan, prepare, and conduct a notification/information campaign directed at State Water Commission, county water resource districts, rural water districts, consulting engineering firms, fiber optic companies, excavating companies, and the State One Call System. The informational campaign would inform these entities of the need to coordinate with the MAFB during water line and fiber optic line planning and design, and again before digging.	X	X		

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#25	Local Infrastructure Extensions	Lack of “clean power” to missile launch facilities and missile alert facilities requires missile launch facilities and missile alert facilities to rely upon back-up power (diesel generators), often increasing costs and maintenance.				
	Strategy 25-A	Support recommendations provided by the State Transmission Authority’s Power Forecast 2012 to meet future electrical needs. Ensure that the Transmission Authority’s leadership and legislative bodies understand the relationship between power transmission and the facilities of the MAFB.	X			
	Strategy 25-B	Support the use of energy-efficient electrical equipment to conserve electrical power.	X			
#26	Natural Disasters	As a result of the Mouse River flood event of 2011 and EPA projections for a long-term increase in spring precipitation, road connections across the Mouse River between MAFB and the City of Minot will increasingly be in jeopardy of being compromised. The loss of surface transportation routes between MAFB and the City of Minot threatens the ability of MAFB to access the missile complex and the City of Minot.				
	Strategy 26-A	MAFB will partner with the State Water Commission, other state agencies, and local communities in the implementation of the Mouse (Souris) River Flood Protection Plan. A main objective of the Plan is to establish key transportation corridors that remain open during flood events.	X		X	X

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#27	Noise	Farmers have complained to MAFB Public Affairs about the impacts of low-flying helicopters on livestock, citing incidences where the noise has caused cattle to stampede, leading to injured and lost cattle.				
	Strategy 27-A	Avoid helicopter flights directly over cattle herds when possible.	X		X	X
	Strategy 27-B	MAFB will prepare an Air Installation Compatible Use Zones Study focusing on helicopter flights in the missile complex area to understand the extent of potential noise impacts in the Study Area.	X		X	
#28	Oil and Gas	Oil and gas company field development plans do not recognize the missile complex (LF, MAF, and HICS). This results in a reactive approach rather than a proactive approach in avoiding conflict between oil and gas company plans and all components of the missile complex.				
	Strategy 28-A	Plan, prepare, and conduct a notification/ informational campaign directed at the North Dakota Petroleum Council, oil and gas companies, the companies that provide oil field services, and organizations that work with oil and gas companies.	X	X	X	
	Strategy 28-B	Work with the MHA Nation and regulatory agencies such as the State Department of Mineral Resources to facilitate coordination between MAFB and oil companies.	X	X	X	
	Strategy 28-C	Inform elected officials in the State legislature to create statutes that require oil and gas companies to provide oil and gas field development plans to MAFB and to cooperate with MAFB in amending the plans as necessary to avoid impacts to MAFB facilities. Work with the MHA Nation to ensure similar cooperation.	X	X	X	

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#29	Oil and Gas	Flares created at oil well sites impact night vision capabilities of helicopter pilots in the missile complex.				
	Strategy 29-A	Support the North Dakota Industrial Commission's (NDIC) goals to incrementally reduce flaring of total gas produced through 2020. Support efforts by the MHA Nation to reduce flares.	X		X	
	Strategy 29-B	Identify any flares that are particularly problematic and coordinate with the State Industrial Commission, the MHA Nation, and/or the company that owns and operates the well to determine if the flare can be eliminated to reduce impacts to Air Force helicopter squadron night vision capabilities.	X		X	
#30	Oil and Gas	Seismic exploration for oil and gas resources in close proximity to launch facilities is detected by launch facility vibration detection systems.				
	Strategy 30-A	Seek cooperation with the MHA Nation and the State Department of Mineral Resources (DMR) and entities conducting seismic exploration to ensure that MAFB is informed about scheduled exploration activities. Conduct studies in partnership with the MHA Nation and/or DMR to determine if the risk of impacts is actual or perceived.	X			
	Strategy 30-B	If actual risk for impacts exists, explore alternatives to reduce risks.	X			

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#31	Oil and Gas	Oil and gas gathering pipelines and well effluent pipelines are not regulated and pose a risk to the Missile Complex.				
	Strategy 31-A	Plan, prepare, and conduct a notification/ informational campaign directed at the North Dakota Petroleum Council, oil and gas companies, the companies that provide oil field services, and organizations that work with oil and gas companies. The informational campaign would inform these entities of the need to coordinate with MAFB during pipeline planning and design, and again before digging.	X	X		
	Strategy 31-B	Work with the MHA Nation and regulatory agencies such as the State Department of Mineral Resources to facilitate coordination between MAFB and oil companies.	X	X		
	Strategy 31-C	Work with the State Department of Mineral Resources to amend the State Administrative Code to require gathering line designs be shared with MAFB prior to construction and require cooperation with MAFB to avoid impacts. Also work with the MHA Nation to facilitate the sharing of information.	X	X		

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#32	Oil and Gas	Oil and gas infrastructure is currently situated within the 1,200 foot no-build easements around several missile launch facilities.				
	Strategy 32-A	Conduct legal research on the development of oil and gas infrastructure within launch facility easements to determine if oil and gas infrastructure is exempted, and if so, to what extent.	X			
	Strategy 32-B	Conduct legal research on prescriptive easement rules to determine if oil and gas infrastructure predating the installation of the missile launch facilities is grandfathered.	X			
	Strategy 32-C	Work with the State Department of Mineral Resources to amend the State Administrative Code and work with the MHA Nation to require all oil and gas activities within ½ mile of a missile launch facility to notify MAFB and cooperate to avoid potential impacts.	X			
#33	Oil and Gas	Oil and gas regional transmission lines located adjacent to missile launch facilities pose a risk from explosions and leaks.				
	Strategy 33-A	Work with the State Public Service Commission to make necessary changes to State law or agency policy to ensure that project proposal information is shared with MAFB upon receiving initial applications for regional oil and gas transmission lines. Work with the MHA Nation to also ensure application information is shared with MAFB. Promote the use of the Department of Defense Siting Clearinghouse as a central location to store energy project information.	X			X
	Strategy 33-B	MAFB will participate in the North Dakota Pipeline Association annual meetings occurring in the region. MAFB participation will increase awareness of the MAFB facilities and the hardened intersite cable system.	X	X		X

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#34	Public Awareness	Many jurisdictions do not know about existing regulations and easement requirements around military installations.				
	Strategy 34-A	To the extent feasible (given security limitations), MAFB will provide information on the locations of US government easements around military facilities with the MHA Nation, all eight missile complex counties, cities, and townships with military facilities.	X			
	Strategy 34-B	Utilize a regional agency website, such as the Souris Basin Planning Council site, where missile Lf and MAF maps may be accessible for easy access.	X			
#35	Public Awareness	The public, in general, is not aware of the components of the missile complex, including all facilities, infrastructure, recorded easements, and recommended setback distances.				
	Strategy 35-A	MAFB should actively seek out and attend community events in the JLUS area where possible to provide information to the public about the mission of the 5th Bomb Wing and 91st Missile Wing. Other methods, such as presentations at public meetings or informational inserts in utility bills would also be beneficial.	X	X	X	X
#36	Rail Transportation	Trains transporting oil tanker cars represent minor risk to missile alert facilities. An oil train derailment near a missile alert facility could result in a grass fire and facility damage.				
	Strategy 36-A	Support current efforts in improving rail safety.	X			
	Strategy 36-B	Collaborate with Canadian Pacific Railroad, Burlington Northern Santa Fe Railroad, Federal Railroad Administration, and the State Public Service Commission to explore potential rail safety measures for railroad segments within ½ mile of military facilities.	X			

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#37	Runway Clear Zones	There are areas of the clear zone at the south-southeast and north-northwest ends of the existing runway that are outside of MAFB. Clear zones separate from MAFB property pose a danger to civilians.				
	Strategy 37-A	Collaborate with the DOD and Ward County to identify potential land protection strategies with land owner(s).				X
#38	Vehicular Traffic	Increased traffic in the missile complex area has led to increased traffic incidents with military traffic.				
	Strategy 38-A	Modify established military routes in the Minot metro area to avoid areas with existing and projected limitations to military traffic mobility. Utilize the Minot 2035 Transportation Plan as a guide in considering new and improved regional routes to avoid the city center, such as the northeast bypass (County Highway 10A and 55th Street), southwest bypass (66th Avenue SW and 30th Street SW), and southeast bypass (exact route to be determined).			X	
	Strategy 38-B	Work with the NDDOT to establish design standards for improvements to State routes along road segments and through intersections that have been designated as military routes. Shoulders should allow civilian traffic to pull off the road to allow military traffic to pass, or in the event of a civilian traffic incident, allow military traffic to utilize shoulders to circumvent a traffic incident. 'Military friendly' design would be required when road segments and intersections are improved.			X	
	Strategy 38-C	Amend the North Dakota Century Code to require all City, County, and Township road improvement projects to involve MAFB Installation Encroachment Management Team notification prior to the design phase. Require all Cities, Counties, and Townships to cooperate with MAFB to address Air Force concerns along military routes. Coordinate with the MHA Nation if necessary.			X	

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#39	Vehicular Traffic	Erratic driving of semi-trucks on gravel township and county convoy routes places military traffic and security patrols in danger.				
	Strategy 39-A	Support the increased posting of speed limit signs and fines for traffic violations along County and Township maintained military routes. Work with the State Department of Transportation and State legislators as necessary to change laws/regulations to allow enforcement.			X	
	Strategy 39-B	Support local and State efforts to increase funding in support of additional State Highway Patrol and county sheriff officers.			X	
#40	Vehicular Traffic	Increased heavy truck traffic in the missile complex area has caused convoy routes to deteriorate at a faster pace, requiring more monitoring and maintenance.				
	Strategy 40-A	MAFB and the State Department of Transportation will collaborate to ensure that the Statewide Transportation Improvement Program development process involves MAFB and the need to improve critical military route segments in need of improvement as a result of deterioration.			X	
#41	Vehicular Traffic	Security at the main MAFB gate causes traffic to back up onto US Highway 83, causing temporary traffic congestion on northbound US Highway 83. A project is currently planned by MAFB to improve the main entrance to the Air Base; however, the entrance improvement project is long term and funding has not been set aside for the future project.				
	Strategy 41-A	The main Entry Control Point (ECP) has been planned for improvements and is awaiting funding from the federal government.				X
	Strategy 41-B	MAFB will collaborate with the North Dakota Department of Transportation and Ward County to identify funding and teaming opportunities to construct improvements to the ECP.				X

	Minot AFB Issues & Strategies		Installation Element			
ID	Type	Description	Missile Complex Installation	Hardened Intersite Cable System (HICS)	Military Routes	Air Base
#42	Vehicular Traffic	Coordination between the State Department of Transportation and MAFB does not always occur at the earliest stage of project development. Therefore, military route impacts may not be accounted for early enough in the project development process.				
	Strategy 42-A	Work with the State Department of Transportation (NDDOT) to involve the MAFB Installation Encroachment Management Team with notification through the NDDOT solicitation of views process during field review, or in other words at the start of NDDOT project development. The solicitation of views letter should ask specifically for Air Force input regarding potential project impacts upon air force installations, military routes, and defense access roads. It is important to ensure that NDDOT project design alternatives consider all impacts to the missile complex, whether direct or indirect.			X	
#43	Vertical Obstructions	The general increase in development within the missile complex has led to an increase in the development of structures that can create vertical obstructions to helicopter flights. Developers of telecommunication towers often design towers to be below the minimum height that triggers a Federal Aeronautics Administration review.				
	Strategy 43-A	Identify all vertical obstructions (i.e. trees, wind farms, cell towers, etc.) on a map, much like an Airfield Obstruction Management System scenario (AOMS is a term for computer software used for tracking, analyzing, and managing airfield obstructions). On a periodic basis, collect building permit data from applicable jurisdictions to update the vertical obstructions map.	X		X	X
	Strategy 43-B	Where areas of concern/conflict with helicopter flights exist, draft design/construction criteria for what is compatible within each zone. Include the criteria on building comments forwarded to MAFB for review.	X		X	X
	Strategy 43-C	Implement the recommendations of the Missile Installation Compatible Use Zones Study (conducted simultaneously with the JLUS) to address helicopter landing protections throughout the Study Area.	X		X	X

Conclusion/Summary

The table presented in this chapter has been prepared to match specific solutions with specific problems.

By pairing the strategies with the most reasonable agency or agencies and discussing the process involved in pursuing implementation, the following chapter will show how the strategies can be carried out. Opportunities for collaboration among agencies is acknowledged for resolving most of the issues.

Recommendations for a leadership structure are also provided to guide the process, maintain momentum, and achieve project objectives.

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CHAPTER 5

JLUS IMPLEMENTATION

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Chapter 5: JLUS Implementation

INTRODUCTION

A well-coordinated implementation effort will allow the identified strategies to be put into practice. Tribal and local government leaders can build on their existing programs to guide new development. Compatibility between private sector growth and existing military facilities can be achieved through the adoption and implementation of specific regulatory and zoning measures. The adoption and implementation of proper zoning tools and long-range planning are among the most cost effective tools to achieve compatible development. Nevertheless, there are other coordination and communication practices that also have the potential to dramatically change the level to which MAFB knows about and can respond to potential conflicts or concerns. This chapter identifies the strategies and tools to address existing and potential conflicts, and preserve areas where no conflicts currently exist. This chapter also identifies the parties that would need to be involved and take primary or secondary responsibility, explains how various implementation tools function, and describes how they can be implemented.

IMPLEMENTATION COMMITTEE

The formation of a JLUS Implementation Committee will be vital in monitoring progress and maintaining momentum of the implementation program. The JLUS Implementation Committee membership could include representatives of each of the participating agencies. It could include members of the JLUS Policy Committee, the JLUS Technical Committee, and regional stakeholders.

A recommended method for achieving implementation would involve having one designated representative from each of the eight counties and the Fort Berthold Reservation to participate on the Implementation Committee. The tribal council and each county board of commissioners could appoint a JLUS Implementation Officer.

TRIBAL AND COUNTY IMPLEMENTATION OFFICERS

Understanding that the Implementation Officer position will require time and effort, counties may not be willing to volunteer a person to work on the project. Funding possibilities should be explored to determine if federal funding assistance for full or part-time positions or consulting assistance can be requested. An implementation program with paid employees, whose job responsibilities are identified as coordinating and carrying out implementation of JLUS recommendations, will be more successful than a purely volunteer effort.

The County Implementation Officers would identify planning and zoning deficiencies in the townships and cities of each county. Work could be done to enable proper development reviews and reporting procedures in each jurisdiction. In addition to providing better protections of military facilities, the local governments would obtain guidance in how to strengthen their own local land use programs. In doing so, they will improve their ability for self-determination and preservation of their autonomy.

MAFB INVOLVEMENT

MAFB personnel would be key members of the Implementation Committee. Working together with employed tribal and county representatives will produce results. The Committee can determine its mission and priorities and meet on a routine schedule to work incrementally towards achieving implementation. Some strategies may be amended during the implementation process. It is expected that the program will undergo refinement as the work proceeds.

TASK ASSIGNMENTS

To support the Implementation Committee in getting started, the following narrative of this chapter will connect tasks with agencies. The Implementation Committee can make adjustments as needed, but this provides a point from which to start.

Each agency will be designated as either a "Leader" agency or as a "Partner" agency. Leader agencies (shown in bold font) would be responsible for spearheading implementation efforts that best fit their ability, understanding, and authority. Partner agencies (shown in parenthesis) would assist, support, and collaborate with the leader agencies and participate in the implementation efforts.

When multiple agencies are listed together as primary agencies, it signifies a jointly-shared effort with equal participation. When one agency is identified alone as the leader, that agency is solely responsible for initiating and conducting the implementation effort. Some tasks can only be done by one agency.

As outlined in the previous chapter, a total of 43 identified issues resulted in 89 strategies. Each of the strategies will be described and elaborated upon relative to implementation, with responsible leaders and partners identified.

THE DEVELOPMENT PROCESS

Several opportunities currently exist for reviewing and guiding proposed developments, but the implementation of additional measures is needed in many jurisdictions. The uniform and consistent application of regulatory measures throughout the study area is supported by state law.

To understand how the implementation of identified strategies can prevent future encroachments, it is important to first understand how the development process works. Private sector entrepreneurs normally go through a process that begins with a concept and ends with a completed, functional development. To achieve orderly and compatible development, local governments need to work with developers.

Although every development project is unique, a generic sequence of events in the development process is provided below. Throughout the development process, opportunities occur for the application of recommended strategies.

IDENTIFYING AND ADDRESSING MILITARY FACILITIES AT THE CONCEPTUAL STAGE OF DEVELOPMENT

A developer needs a new structure and has decided to proceed. Concepts for the building type and building site locations are being considered. Eventually a suitable property is identified.

Once a property is identified and prior to the purchase, research (a title search) is conducted. Thorough research will reveal the presence of all easements and any other limitations on the subject parcel. But because extensive research is not always conducted, a land transfer can occur without knowledge of all easements and encumbrances on the land.

If hands-on property research is conducted in-person at a County Recorder's office, there is a stronger likelihood of the researcher discovering military easements. A cursory online title search using the North Dakota Recorders Information Network (NDRIN) will not provide the researcher with older information, such as the military easements, which were established in the 1950s and 1960s.

COUNTIES, CITIES, TOWNSHIPS, MHA NATION

Strategy 11-A	Promote the understanding that North Dakota Recorders Information Network information may have a limited date range and that military easements may not be currently available without direct research at County Recorders' Offices.

SBPC, MAFB, COUNTIES, CITIES, TOWNSHIPS, MHA NATION

Strategy 11-B	Explore funding possibilities for County Recorders within the study area to provide temporary staff to expand the date range of the North Dakota Recorders Information Network.

MAFB

Strategy 11-C	File a "Notice of Easement" with County Recorders for each existing military easement. The "Notice of Easement" will be added to the NDRIN and alert title researchers of the presence of a historic military easement on the subject property.

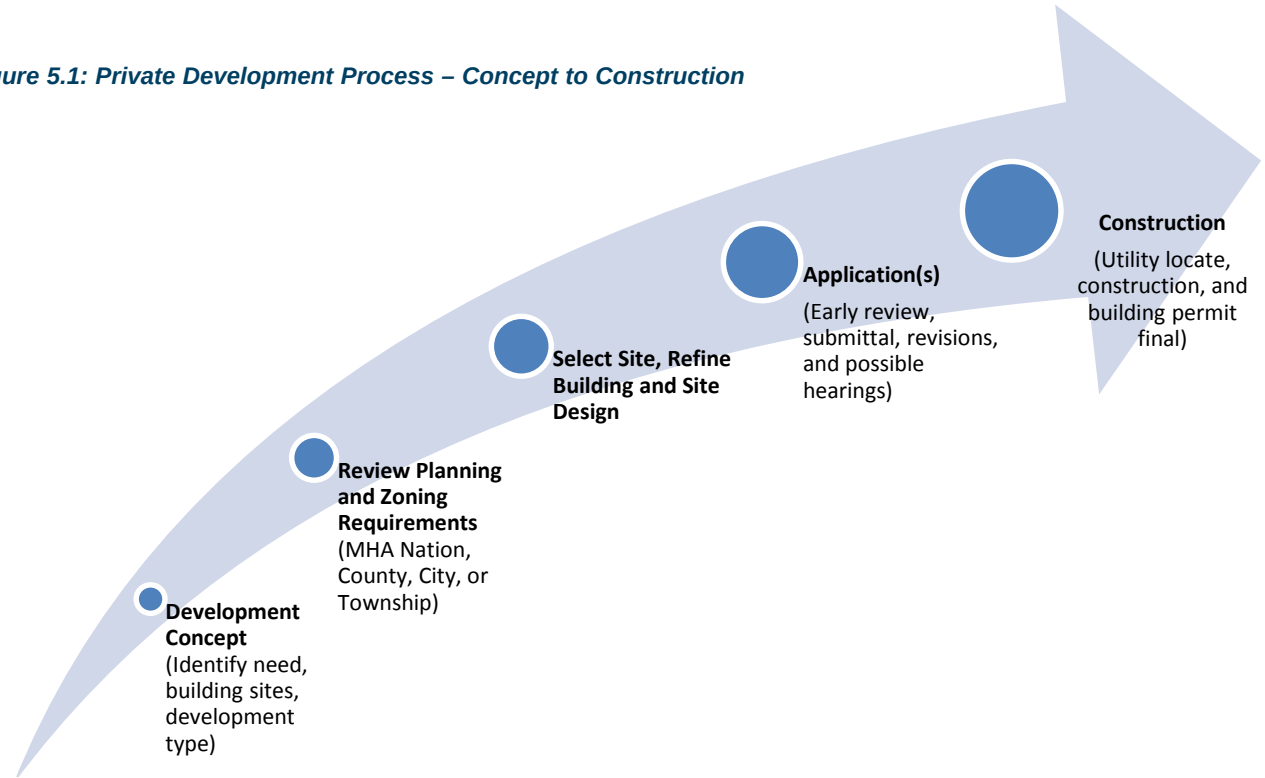
INFORMING LOCAL GOVERNMENTS ABOUT THE PRESENCE OF MILITARY FACILITIES

As a conceptual plan evolves into a site plan, the developer should be aware of local government requirements for approvals of zoning changes, special use permits, subdivisions, and building permits which may be needed to begin construction.

The developer's awareness of a local government's approval of building and development-related review and approval processes is essential. By knowing what is required, the haphazard construction of unregulated structures can be avoided. Fostering a better public awareness is the first step in achieving compatible development throughout the region.

As mentioned, conducting title research on the NDRIN will not always indicate the presence of military easements. Yet developers need to know, early in the process, which properties are plausible for development. Since the vast majority of development must go through a local or tribal government review process, it is critical that cities, counties, and the MHA Nation possess accurate information about the location of military easements for their own review purposes and to share with developers and other individuals seeking zoning changes, subdivisions of land, or building permits.

Figure 5.1: Private Development Process – Concept to Construction



MAFB (COUNTIES, CITIES, TOWNSHIPS, MHA NATION)

Strategy 34-A	To the extent feasible (given security limitations), MAFB will provide information on the locations of US government easements around military facilities with the MHA Nation, all eight missile complex counties, cities, and townships with military facilities.

SBPC

Strategy 34-B	Utilize a regional agency website, such as the Souris Basin Planning Council site, where LF and MAF maps may be accessible for easy access.

Increased levels of information at the local government level will result in heightened awareness amongst public officials of how and where development can occur. This information, when applied to daily work with the development community, will help facilitate compatible development throughout the region.

MILITARY AWARENESS OF UNAUTHORIZED DEVELOPMENT

Until local government measures can be put into place, increased awareness and vigilance of the MAFB personnel in monitoring development activities around launch facilities will be effective in preventing encroachments. If improper construction activities on military easements can be identified early in the process, projects can be halted before structures are extensively built.

MAFB

Strategy 13-A	Work with all MAFB personnel involved in the missile complex to increase vigilance in monitoring activities on properties surrounding military facilities. At the first indication of construction activity within easement areas, MAFB personnel should investigate and report the activity. Initiate a rapid response to curtail construction within military easement areas.
Strategy 13-B	Research easement restrictions and enforcement authority. Develop procedural steps for quickly responding to easement violations.

CONSISTENCY IN LAND USE REGULATIONS

Jurisdictions in the study area regulate land use to varying degrees, and with different procedures. The many counties, cities, and townships of the region are all independent jurisdictions, operating under their own rules and running their own programs. Some have adequate regulatory measures in place; others do not.

Most jurisdictions in the region currently do not have adequate measures in place to protect military facilities from encroachment. The jurisdictions most in need of improved programs do not have adequate resources available to establish, adopt and implement effective systems.

Achieving better consistency in the review and approval of development proposals throughout the region will foster a better understanding among developers. When development standards become more consistent region-wide, developers will better know what is expected of them. This “levelling of the playing field” will result in better compliance and more streamlined administrative practices. Furthermore, when local government planning, zoning and subdivision documents acknowledge the presence of military facilities and establish policies about their roles and responsibilities in the protection of those facilities, a higher degree of protection will exist.

The following regulatory tools are authorized by state law for the purposes of protecting the public health, safety, and welfare. These measures represent opportunities for local jurisdictions to guide growth and development.

THE COMPREHENSIVE PLAN

For a jurisdiction to exercise zoning controls, a comprehensive plan is required by state law. The comprehensive plan provides a foundation for decisions about land use. Several jurisdictions in the study area are currently operating without a comprehensive plan. If and when a controversial development situation emerges, jurisdictions without comprehensive plans are more vulnerable to legal challenges.

SBPC, MAFB, COUNTIES, CITIES, TOWNSHIPS, MHA NATION

Strategy 14-A	Educate the State Legislature about the relationship between local planning and zoning and the on-going sustainability of MAFB military installations. Encourage the designation of funds for preparing and updating comprehensive plans and zoning ordinances for jurisdictions with an identified need, particularly in the eight county JLUS area.
Strategy 14-B	Pursue grants from the Department of Defense, and Office of Economic Adjustment for jurisdictions within the study area to establish and amend comprehensive plans for local jurisdictions, particularly those which currently lack the necessary policies and regulations to prevent encroachment on military installations.

If cities and townships wish to do so, they can relinquish their zoning authority to the county. Counties often have more well-established administrative programs than smaller cities and townships for properly guiding growth and development. However, a political desire to retain local control is prevalent among smaller jurisdictions whether they have the administrative resources or not.

In addition to comprehensive plans, standard documents needed for guiding growth include the zoning ordinance and the building code. Cities and counties should also have subdivision regulations which require proper documentation of property lines, property ownership, documentation of easements, and analysis of the property's buildability. A zoning map and a future land use map are other standard mechanisms for promoting orderly development. For jurisdictions that have not adopted these tools, outside funding and assistance could facilitate the preparation of these regulatory documents.

SBPC, MAFB, COUNTIES, CITIES, TOWNSHIPS, MHA NATION

Strategy 20-A	Explore funding possibilities for assistance in strengthening local zoning and building code administration. Assist local jurisdictions in creating, adopting, and implementing tools from the 'zoning tool box' (as provided in the JLUS document) that facilitates military-friendly planning and zoning practices.

BUILDING PERMITS

The majority of developers should know they need a building permit but some may not be familiar with zoning changes, subdivision approvals, and special use permits. When a developer applies for a building permit, the local government can review the proposal to determine if it is consistent with local growth and development plans and zoning regulations. This is a key point in the process for identifying and avoiding potential encroachments.

Information on the preferred location and use of a proposed building is needed for local government staff to determine if the proposed location and use are consistent with local zoning. This information will also help to determine if the proposed structure will encroach upon

military facilities or easements. A jurisdiction's zoning map and accompanying regulations can be used to evaluate and guide development proposals.

Upon application for a building permit, it may be determined that additional approvals are needed. A zoning change or subdivision plat may be required. It is a good practice to require a pre-application meeting between the developer or developer's representative and the local planner or zoning administrator. Such a meeting can be very useful for sharing information. The local planner can learn about the proposed development and advise the developer on the steps needed to proceed.

Building permits should be a standard requirement, region-wide, for all structures. Beginning construction without a permit should be deemed a violation. Enforcement and penalties should apply. But, as mentioned earlier, some jurisdictions do not have the staff or resources for administration of a building program and for conducting enforcement.

COUNTIES, CITIES, TOWNSHIPS, MHA NATION

Strategy 8-B	Require grading permits or building permits prior to breaking ground on all projects. For all agricultural buildings, require a no-fee, courtesy building permit application so local government staff can review the proposed building location.

There are exceptions for the zoning and construction of agricultural buildings:

- North Dakota allows an exemption for agricultural buildings in NDCC 11-33-02.1.(3): "A board of county commissioners may not prohibit or prevent the use of land or buildings for farming or ranching and may not prohibit or prevent any of the normal incidents of farming or ranching."
- Another agricultural exemption is provided in the State Building Code, NDCC 54-21.3-04(3): "Any building used for agricultural purposes, unless a place of human habitation or for use by the public, is exempt from this chapter."

Despite these exemptions, several jurisdictions currently require a permit for agricultural buildings to promote orderly development and protect the farmer from constructing a building on an existing easement or right-of-way.

COUNTIES, CITIES, TOWNSHIPS, MHA NATION

Strategy 23-A	For all agricultural buildings, require a no-fee courtesy building permit application so local government staff can review the proposed building location and identify any conflicts with military installations. As part of the courtesy permit application, ensure that contractors and property owners are provided information about the requirement to contact ND One Call before grading or excavating.

SBPC, MAFB, COUNTIES, TOWNSHIPS

Strategy 23-B	In order to encourage agricultural land owners to obtain no-fee building permits, support state and county efforts to limit or hold property tax increases based on improvements to agriculture buildings.

SBPC, MAFB, MHA NATION, COUNTIES, CITIES, TOWNSHIPS

Strategy 22-C	Work with state legislators from the region to initiate amendments to current state law which would clarify the authority to review and approve proposed locations for the construction of agricultural buildings.

ZONING REGULATIONS

Zoning regulations help to achieve orderly growth by specifying designated areas for various land uses. Zoning regulations can also specify setback distances to allow separations between land uses.

Planning and zoning documents should acknowledge military facilities and zoning maps should show the no-build areas associated with government-owned property and military easements.

Zoning mechanisms are discussed in more detail below, under the heading “Zoning Tool Box”.

ADEQUATE REVIEW TIME

Many contractors expect to obtain a building permit immediately. They are willing to pay the fee but expect to have their permit issued to them as they wait at the counter. This has been a routine practice in many jurisdictions.

In order to properly review a building permit application or any development proposal, adequate time is required for staff to conduct a review. The practice of issuing building permits “on the spot” should be curbed to allow for proper evaluation of the proposed development. If a community has significant digital resources at its disposal, such as parcel based GIS mapping and other references at its disposal, and the applicant’s site plan and location map are of high quality, it may be very appropriate to issue a building permit in an over-the-counter manner, but parcel based GIS mapping is unavailable to many jurisdictions within the study area.

COUNTIES, CITIES, TOWNSHIPS, MHA NATION

Strategy 9-B	Establish deadlines and review timeframes for development applications (e.g. zoning changes, subdivisions, conditional use permits and building permits) to allow adequate screening and review to ensure that local governments and MAFB have adequate time to review and respond to application information.

COUNTIES, CITIES, TOWNSHIPS, MHA NATION (MAFB)

Strategy 9-C	At a minimum, ensure that all local jurisdictions within the study area send MAFB a notice of development proposals with the proposed location at least a week prior to the Planning Commission meeting.

CALL BEFORE YOU DIG

State law requires anybody who plans to dig or excavate to first notify the North Dakota One Call system. Simply by phoning 811, or going online to “ndonecall.com” the system can be activated and the process for identifying and marking all underground utility locations is initiated. The ND One Call staff will notify MAFB of utility location requests they receive in designated areas.

COUNTIES, CITIES, TOWNSHIPS, MHA NATION

Strategy 8-C	Make the approval and issuance of building permits contingent upon confirmation of One Call system contact.

MAFB (COUNTIES, CITIES, TOWNSHIPS)

Strategy 8-D	Visit all local governments within the hardened intersite cable system area to promote understanding and provide template grading permit and/or building permit applications with One Call system notification verification.

The effectiveness of the ND One Call System depends on the compliance of those who dig. Fines have been issued to violators who have dug without having underground utilities located. Steeper fines will result in better compliance and better protection of the military cable system.

MAFB (NDPSC)

Strategy 8-A	Support increased penalties for excavating without using the One Call system. Collaborate with the State Public Service Commission to promote understanding and ensure enforcement is carried out.

INFORMATION DISTRIBUTION TO OBTAIN AGENCY INPUT

Other development proposals such as requests for zoning changes, special (or conditional) use permits, variances, and subdivision approvals also require adequate time for review and analysis. Even a small-scale development near a military facility could create negative impacts for the facility and pose safety risks to the public.

It should become standard practice among all jurisdictions to obtain input from agency stakeholders by distributing information on the development proposals well in advance of any project approvals. MAFB should be notified of all development proposals in the study region at least one week prior to meetings on the proposal. Ideally, this notification would occur earlier in the process.

All tribal and local jurisdictions within the missile complex area should maintain routine communications with the MAFB about development proposals they receive.

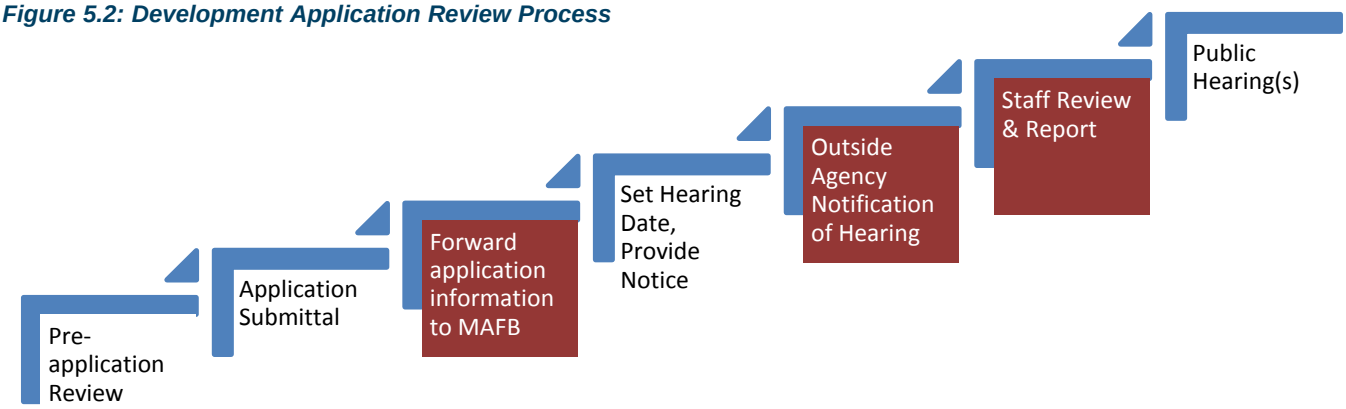
COUNTIES, CITIES, TOWNSHIPS, MHA NATION

Strategy 9-A	Facilitate the adoption of a standardized checklist of agency notifications, including MAFB, for all development proposals located within two miles of US government property, including fee title and easements. Provide a standard template for a checklist, including a list of review agencies, contact information, and issues to consider on an accessible regional agency website, such as the Souris Basin Planning Council site. Coordinate with MAFB to update the checklist frequently to ensure that staffing changes and contact information are correct.

The Development Application Review Process – Opportunities for MAFB Involvement

The red boxes in Figure 5.2 denote opportunities to involve Minot Air Force Base in the development review process. If the local government knows ahead of time that a military facility is in the vicinity of a proposed project, MAFB can be involved in the review of a proposal prior to submittal. Development applicants may appreciate this opportunity to discover any potential pitfalls prior to making substantial investment (and risk) in a development. After submittal of a development application, MAFB could also be notified via mail or email of the application and the date and time of the public hearings. Lastly, if a staff report is developed on a proposal, MAFB can be provided the report for review prior to the hearing.

Figure 5.2: Development Application Review Process



MAFB OUTREACH PROGRAM

Promoting an increased awareness will be a crucial step in achieving compatible development in the region. Tribal and local government jurisdictions are not intentionally creating problems by allowing encroachments to occur. Once local leaders become aware of the situation, new regulatory measures can be adopted and implemented.

MAFB personnel can facilitate an increased awareness by presenting information about the nature of military facilities and the importance of the no-build easements to local leaders. By attending regularly scheduled meetings of the tribal council, city councils, county commissions, and township boards, MAFB can begin a dialog with local leaders. This relationship has the potential benefit of providing information needed by local leaders to improve their development review processes. Such efforts will benefit public safety, facilitate economic growth, and protect military facilities and operations.

MAFB

Strategy 35-A	MAFB should actively seek out and attend community events in the JLUS area where possible to provide information to the public about the mission of the 5th Bomb Wing and 91st Missile Wing. Other methods, such as presentations at public meetings or informational inserts in utility bills would also be beneficial.
Strategy 12-C	MAFB should coordinate and schedule meetings to visit with all necessary local government leaders to discuss the need for encroachment notification and Air Force encroachment contact information. "All necessary local governments" includes the MHA Nation, all eight missile complex counties, cities with missile complex facilities and townships with missile complex facilities. Meetings should occur in perpetuity, on at least an annual basis.
Strategy 21-A	Promote an increased awareness of public safety and the importance of avoiding development near military facilities. Contact local government leaders to identify opportunities appropriate for each jurisdiction that allow the dissemination of information. Methods may include periodic letters to community leaders or periodic presentations at public meetings.

MAFB can assist local governments by providing examples of comprehensive plan policies and regulatory tools that can be utilized to promote orderly development

MAFB can also positively influence the body of information available to local governments by reaching out to the study area counties and the State Public Service Commission to promote the use of the Department of Defense Siting Clearinghouse as a central location to store energy project information.

MAFB

Strategy 12-A	To help facilitate local government coordination regarding encroachments and other conflicts. MAFB should consider creating a simple name for the contact with the MAFB Public Affairs Office, such as "Military Coordination Contact" or "Air Force Development Coordinator".
Strategy 12-B	Provide and maintain a single contact point (phone number, email address, and mailing address) through the MAFB Public Affairs Office. The single contact point should be utilized for all projects that may impact military facilities, systems, or operations.

ZONING AUTHORITY AREAS

To assure public safety, military readiness, and orderly development, there are some standard zoning mechanisms that can be applied. Provisions for these tools currently exist in most zoning ordinances.

Before discussing the zoning mechanisms available, jurisdictional boundaries need to be understood to determine which jurisdiction's regulations apply to which area.

There are multiple jurisdictions within the study area, each with its own set of rules and procedures. It is important to know where one jurisdiction's zoning authority ends and another begins. The perimeter boundaries of townships and counties rarely change but as cities grow, their zoning jurisdictions will expand. Growing cities will incrementally annex land and gradually replace county and township zoning authority in the fringe areas. There are also areas of joint-jurisdiction where decisions on land use and development are subject to the approval of two jurisdictions.

MAFB, COUNTIES, CITIES, TOWNSHIPS, MHA NATION

Strategy 22-A	Utilize the maps and documentation provided in the JLUS document as a reference to identify the jurisdiction with development authority. MAFB facilities will not be shown on the maps, just boundaries between areas with different zoning jurisdiction.

The map shown in Figure 5.3 illustrates the four types of jurisdictions with the authority to regulatory land use.

EXTRATERRITORIAL ZONING AUTHORITY (ETA)

Growing ETAs

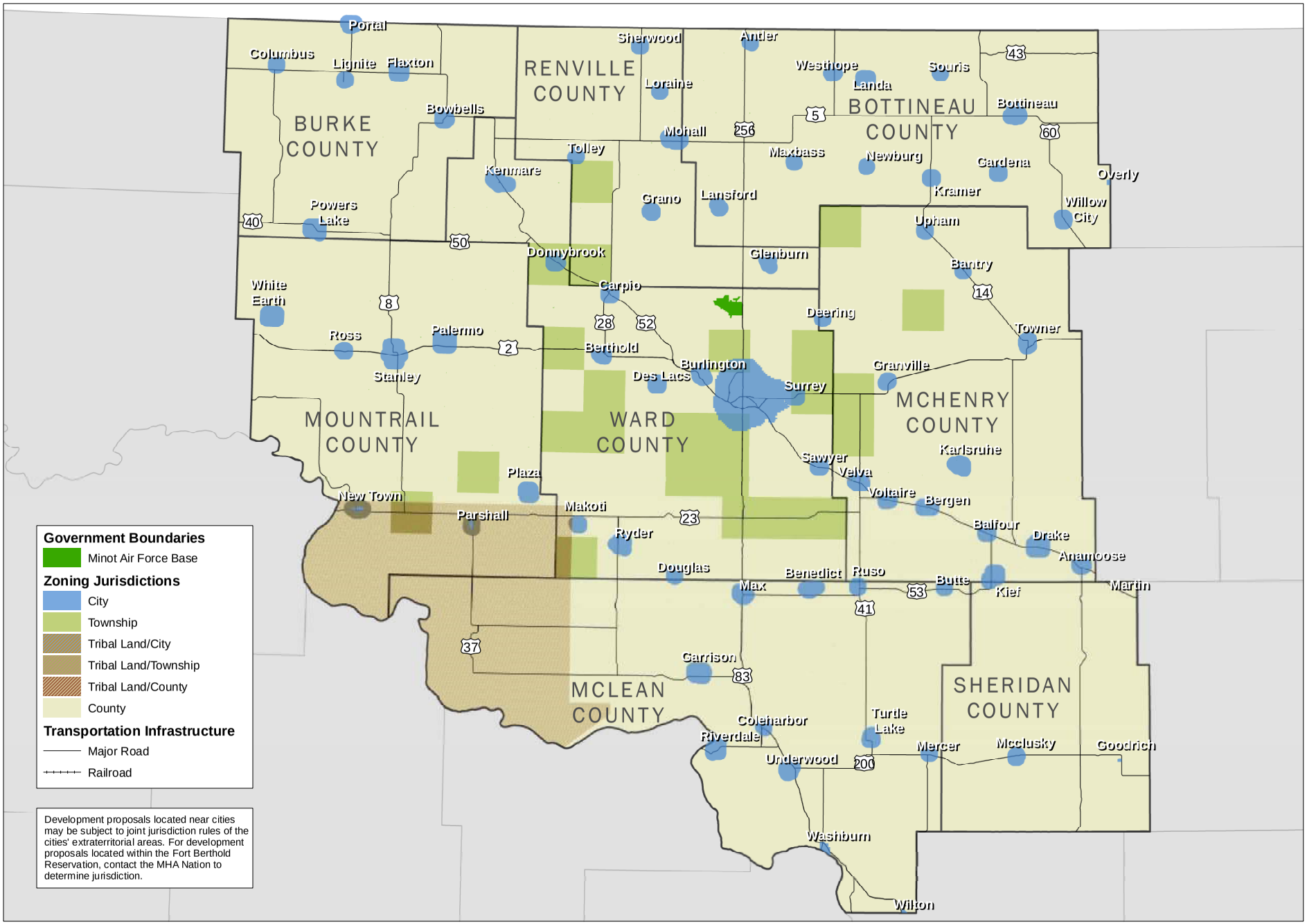
North Dakota cities are allowed to extend their zoning authority beyond their corporate boundaries for a distance proportional to their population. The purpose of this extended authority is to allow communities to plan for future growth and ensure that development in their growth area is compatible with urban expansion. Zoning authority outside city limits can also facilitate a city's outward growth in an orderly manner. The distances defining the size of the ETA are measured from the corporate boundary. The outer half of the ETA is an area of joint jurisdiction.

- Cities with up to 4,999 residents = one mile ETA
- Cities with 5,000 to 24,999 residents = two mile ETA
- Cities with 25,000 or more residents = four mile ETA

In the study area, all cities except Minot have populations of fewer than 5,000 people, resulting in the one mile ETA.

If a city chooses to expand its ETA as a result of an increased population (after May of 2009), the area that has been under joint jurisdiction will now be under the

Figure 5.3: Study Area Zoning Jurisdiction



SRF HDR MINOT AIR FORCE BASE JOINT LAND USE STUDY
Souris Basin Planning Council

Minot Air Force Base Area
Study Area Zoning Jurisdiction

0 5 10 20 Miles

sole jurisdiction of the city, and a new area of joint jurisdiction will be created farther out.

A more common way for an ETA to grow is incrementally. Steady population growth generally results in the demand for fringe area growth, which is typically preceded by annexation. The ETA boundary can then be extended if a city chooses to exercise that authority.

When a city extends its ETA, city zoning should be applied to the land that is within the new boundaries of the ETA. The zoning will change from county (or township) zoning to city zoning. The change in zoning jurisdiction typically means that the land will be regulated by somewhat different rules. However, before the city acts upon the adoption of city zoning designations, a zoning transition meeting must be initiated by the city. At the zoning transition meeting, the city will meet with the county and/or township officials to discuss the most appropriate zoning categories and the differences between county or township zoning and city zoning.

Figure 5.4: Zoning and Subdivision Authority by Jurisdiction

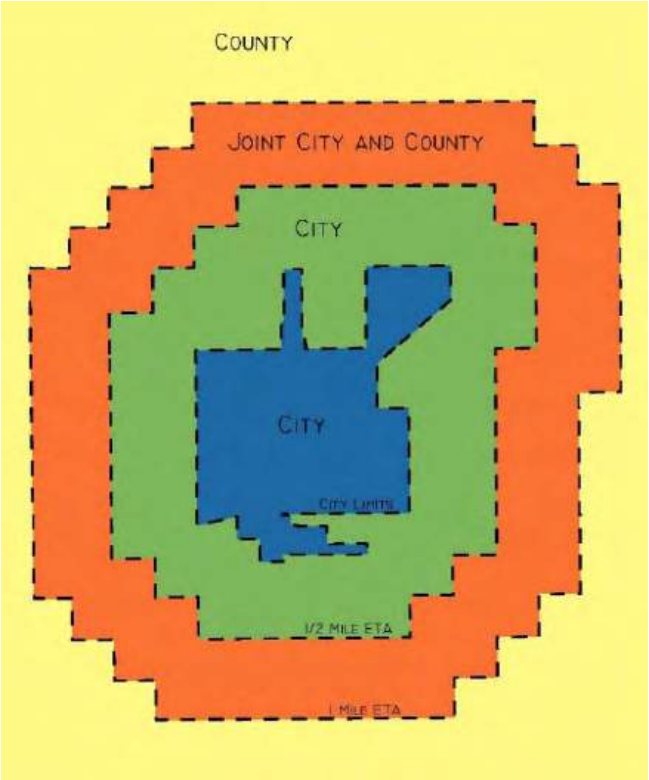
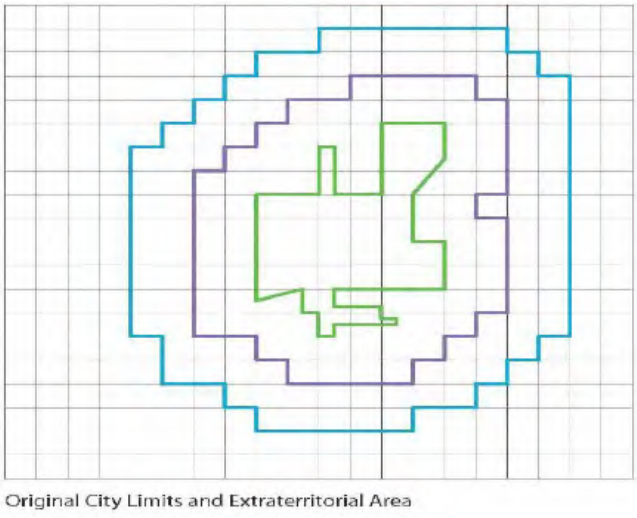
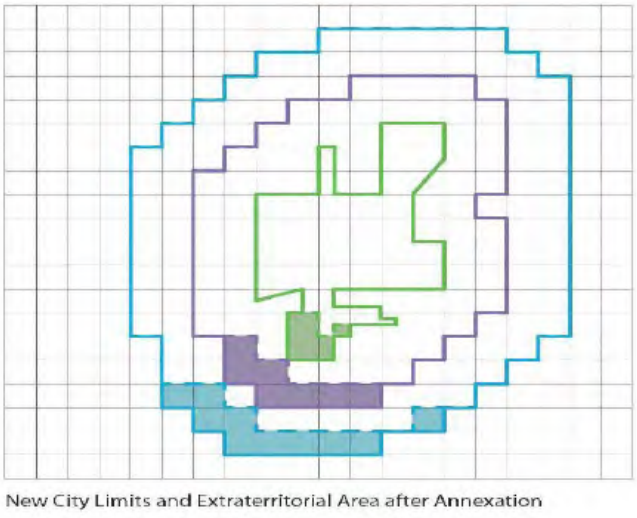


Figure 5.5: Example of ETA Expansion with Annexation


Original City Limits and Extraterritorial Area


New City Limits and Extraterritorial Area after Annexation

SBPC (COUNTIES, CITIES, TOWNSHIPS, MHA NATION)

Strategy 22-B	On an annual basis, a regional or state agency, such as the Souris Basin Planning Council, should work with local and tribal governments to update jurisdictional boundary maps to show new city boundaries, updated extraterritorial boundaries, and any changes to tribal, township, or county jurisdictions. Where ambiguity exists, work with local or tribal governments to establish clear jurisdictional boundaries for planning and zoning review. Provide maps to MAFB and make maps easily accessible by utilizing a regional or state agency website, such as the Souris Basin Planning Council site or the North Dakota GIS Hub, where jurisdictional information may be posted for public information. MAFB facilities will not be shown on the maps, just boundaries between areas with different zoning jurisdiction.

The Area of Joint-Jurisdiction

The outer half of the ETA is the area of joint jurisdiction where city zoning authority is shared. The other jurisdiction sharing in zoning authority is usually a county, but it could also be an organized township which has zoning authority. Zoning authority includes the issuing of building permits.

Before explaining the complexities of joint-jurisdictional procedures it is important to know that there is an alternative. It is possible to adjust jurisdictional boundaries between the city and the other jurisdiction. Some cities and counties in North Dakota have entered into agreements to eliminate the joint-jurisdictional rules and designate areas where each jurisdiction has sole zoning authority. This can streamline the process and eliminate the tedious rules of joint jurisdiction.

Under the joint-jurisdiction rules, a city has sole zoning jurisdiction over the inner half of the ETA. In the outer half of the ETA, that authority is shared. Before May of 2009 when the joint jurisdiction laws went into effect, cities had sole jurisdiction over the entire ETA and cities had approved subdivision plats in the area that would become the outer half or joint-jurisdiction area.

Prior to the 2009 change in law, many cities had exercised zoning authority in the entire ETA. When the law went into effect, cities were allowed to retain their zoning authority within those sections of land (the entire square mile) where they had previously approved a plat or taken other zoning actions. For any square mile sections in the outer half of the ETA where no city zoning actions had occurred, the county or township was given zoning authority.

When a new subdivision plat is proposed for a section in the outer half of the ETA where an earlier plat had been approved by the city, the determination on that new plat is handled by the city. The city functions as the lead jurisdiction and will receive development applications, review proposed plats, and process them under normal procedures through the city planning commission and city's governing body.

When development proposals are presented for final action by the governing body, after a vote by the elected leaders, the city will notify the other jurisdiction (county or township) of the city's decision. This notification step is required before the governing body's decision can be final. If the county or township disagrees with the city's decision, they have 30-days to request negotiation. If negotiation is not requested, the city's decision is then final.

The same process applies to all types of development proposals such as conditional or special use permits, variances, and any other zoning or development related issue that is covered by a city's zoning ordinance. The city has full zoning authority, plat approval authority, and zoning enforcement authority in those sections of land where they had approved a plat or a site plan prior to May of 2009. The city receives development applications and building permit applications, issues permits, and collects fees for projects in those areas.

But not all sections of land within the outer half of the ETA had a city-approved subdivision plat or site plan prior to May of 2009. For those sections, the county or township has zoning authority and will function as the lead jurisdiction. The same process applies.

When a new plat is proposed for one of those sections in the outer half of the ETA where an earlier plat or site plan had not been approved by the city, the county will review the proposed plat, process it through their planning and zoning commission and their governing body.

Even if a township has zoning authority, only the county can approve subdivision plats. State law does not provide townships with platting authority. Because most development proposals will be subject to subdivision platting requirements, the county will be involved. Townships with their own zoning can function as the lead jurisdiction for all zoning matters except subdivision platting.

After a vote of the governing body of the county or township, and before the decision can be final, the city will be notified of the decision. If the city disagrees with the decision, they have 30-days to request negotiation. If negotiation is not requested, the county or township decision is final.

Just as cities have full zoning authority on sections of land in which they had approved developments prior to May of 2009, counties and townships have full zoning authority over the remainder of the sections in the outer half of the ETA.

If one political subdivision disagrees with a decision of the other political subdivision and requests negotiation as indicated above, it triggers a mediation process and the dispute is submitted to a committee. A governor-appointed mediator will preside over the committee. If committee consensus cannot be achieved, the authority to resolve the dispute is given to the county commission.

ZONING TOOL BOX

Zoning is a regulatory tool that allows a local jurisdiction to regulate the use of land in a manner that protects the general health, safety, and welfare of the community. A local government's zoning ordinance represents legitimate regulatory authority which is sanctioned by state enabling legislation and carries a long-established legal precedent.

The primary purpose of zoning is to segregate uses that are incompatible. In practice, zoning also is used to prevent new development from interfering with existing uses.

Zoning documents consist of two parts: a map and an ordinance. The zoning map shows how the jurisdiction is divided into different use districts or zones. Most ordinances have zoning districts which include residential, commercial, industrial, and agricultural.

The zoning ordinance text serves two important functions. First, it explains the zoning rules that apply in each zoning district. These rules typically establish two lists of land uses for each district, a list of permitted uses and a list of special or conditional uses. Unlike a permitted use, a special use may or may not be appropriate for a particular location and it requires special consideration and approval. The zoning text also establishes standards for regulating lot size, building height, and required setback provisions. A zoning ordinance will also contain established procedures for the administration and application of the zoning ordinance.

JUSTIFICATION FOR NEW ZONING REGULATIONS

The creation of new zoning regulations designed to prevent future encroachments are legitimized by the obvious protections they provide to public health, safety, and welfare. Promoting orderly development also supports economic growth. Protecting military facilities supports MAFB which is a major contributor to the regional economy.

Regional economic health will be advanced by the adoption of uniform and consistent zoning regulations by local governments throughout the missile complex area. Developers appreciate the clarification offered by a well-defined pathway for proceeding with their projects. They typically do not mind complying with local government requirements, since the presence of clear rules and regulations aids in the efficient review and approval process.

MISSILE COMPLEX PROTECTIONS

As mentioned, military easements may not be detected during the initial property research early in the process, but by providing local governments with mapped locations of these easements, development proposals can then be screened for their proximity to LFs and MAFs by local government staff.

Although the easements themselves prohibit many forms of development, local governments are asked to take this to another level, by codifying the limitations of the easements and establishing additional land use limitations in the areas surrounding the easements. In doing so, local zoning can provide added assurances that development in the region is compatible with the missile complex and base.

MAFB (SBPC, COUNTIES, CITIES, TOWNSHIPS, MHA NATION)

Strategy 18-B	Provide local governments with sample zoning templates that include buffer zones, overlay zoning districts, or setbacks from launch facilities, and encourage the adoption of those standards into their local zoning ordinances. Zoning standards could also initiate review and cooperation with MAFB to mitigate or ensure development does not place the public at risk or jeopardize MAFB security. Assist local jurisdictions in creating, adopting, and implementing tools from the 'zoning tool box' (as provided in the JLUS document) that facilitates military-friendly planning and zoning practices.

AIR BASE PROTECTIONS

Improvements to local zoning programs will benefit the local jurisdictions by providing them with the tools to guide development, protect public safety, and maintain the quality of life of their residents. It will also protect launch facilities and sensitive areas around the air base from encroachment. Some areas around the air base are currently not addressed in the zoning provisions of nearby jurisdictions. Although Ward County has adequate measures in place, Renville County and Eureka Township do not appear to have adequate measures, based on research carried out as part of this analysis.

MAFB, WARD COUNTY, EUREKA TOWNSHIP

Strategy 19-A	Work with Ward County and townships within Ward County (particularly those with zoning jurisdiction) to evaluate current zoning within two miles of MAFB and along the flight paths. If the area of current zoning restrictions requires expansion, MAFB should work with both Ward and Renville Counties and applicable townships to expand the no-build zone.

MAFB (RENVILLE COUNTY)

Strategy 17-A	Encourage Renville County to adopt the same types of regulations as those in the Ward County zoning ordinance, which consist of airbase protection standards. Apply the zoning to sections of land underneath the airfield approach zone.

Another zoning mechanism that can protect air base operations includes the **regulation of industrial wind energy facilities**. Local jurisdictions can adopt provisions to establish standards for wind farms. A standard provision can include notifications and distribution of requests for comment from all affected area stakeholders. The North Dakota Public Service Commission also has this provision and MAFB was recently added to

their notification list based on research carried out as part of this study. It is important for MAFB to know about proposed wind farms because wind turbines can pose a threat to military air operations by creating vertical obstructions and disrupt military radar coverage.

SBPC, MAFB, COUNTIES, CITIES, TOWNSHIPS, MHA NATION, NDPSC

Strategy 10-A	Work with study area counties and the State Public Service Commission to make necessary changes to State law or agency policy to ensure that project proposal information is shared with MAFB upon receiving initial applications for energy transmission projects.
Strategy 10-B	Work with study area counties and the State Public Service Commission to make necessary changes to State law or agency policy to initiate informal review of initial applications for energy transmission projects. Informal review to be conducted in partnership with MAFB and Department of Defense Siting Clearinghouse.

MAFB (STUDY AREA COUNTIES, PSC)

Strategy 10-C	MAFB will reach out to the study area counties and the State Public Service Commission to promote the use of the Department of Defense Siting Clearinghouse as a central location to store energy project information.

In considering the goals of this study and the issues that have been identified, some zoning tools can be particularly useful. Following is a list of zoning mechanisms that can be adopted and applied by local jurisdictions in the study area.

NONCONFORMING USES

The inventory of existing conditions in the study area reveals several instances where structures are encroaching on military facilities. In some cases, structures have been built within existing no-build easement areas surrounding launch facilities. These are not necessarily zoning violations. To be deemed a violation, there must have been an existing zoning regulation that was violated at the time the structure was built. Local zoning ordinances may not have contained regulations prohibiting such structures and it's entirely possible that a building permit was issued. These existing encroachments are, in all likelihood, conforming structures. There are several ways to deal with existing encroachments:

COUNTIES, CITIES, TOWNSHIPS, MHA NATION

Strategy 15-B	Create local zoning regulations to prohibit structures within military easements. Deem existing structures as **nonconforming**, subject to removal following an acceptable amortization period.
Strategy 15-C	Create local zoning regulations prohibiting structures within military easements. Deem existing structures as **nuisances** and remove them.

A common approach in dealing with undesirable structures is the nonconforming uses tool. This is a standard means to gradually phase-out undesirable uses over time with minimal impacts to the property owner. There are typically three ways in which non-conforming uses are gradually phased out:

Expansion Prohibited

In order to be effective, regulations must state that nonconforming uses are allowed (generally) to receive minimal maintenance and repairs but they shall not expand.

Reconstruction after Damages to Building(s) or Property

Regulations must also clarify that if a nonconforming use is destroyed or substantially damaged by fire or tornado or other similar circumstance, it cannot be reconstructed and future use of the property must be conforming. Most ordinances establish a threshold for

the amount of damage that is incurred, above which reconstruction is not allowed. For example, some regulations specify that if a building is damaged over 50 percent of its value, it shall not be reconstructed to accommodate the non-conforming use.

Discontinuation of the Use

Zoning regulations for non-conforming uses must also specify that if a nonconforming use is discontinued for a period of time, it cannot be resumed. The abandonment period is usually one year, but it some jurisdictions use a shorter period of time such as six months.

A nonconforming use is created when new zoning regulations are adopted for a specific area. If there is an existing use within that area which does not conform to the new zoning regulations, it is deemed a nonconforming use. Although the existing military easements would seem to prohibit most forms of development, the adoption of new zoning regulations also prohibiting such development would be a supplementary tool for local governments to administer. This would strengthen the local government's ability to keep land uses compatible in areas where military facilities exist. Local regulations that provide this protection are also protection against staff turnover and the passage of time, when background knowledge of military facilities is no longer institutional.

Upon the establishment of zoning regulations which prohibit structures within the military's radial easements of 1,200-feet, any existing structures within that radius would be deemed nonconforming and subject to the ordinance standards for nonconforming uses.

COUNTIES, CITIES, TOWNSHIPS, MHA NATION

Strategy 16-A	Create local zoning regulations to prohibit structures within military easements. Prioritize incorporation of these regulations into local zoning regulations in jurisdictions with launch facilities that have been identified to have two or more potential conflicts as identified on the Launch Facility and Missile Alert Facility Conflict Assessment Map.

The rules for nonconforming uses can be strict or they can be lenient. It is up to the local government to decide on the degree to which they wish to impose new standards. The most standard application, a more lenient method, was discussed above. For special circumstances which represent a threat to public safety, more expedient methods may be applied.

Although not common in North Dakota, it may be possible to include an amortization clause within the nonconforming uses provisions. The amortization of a nonconforming use allows a structure's current value to be established and then amortized downward over a designated period of years. At the end of the structure's economic life, when the designated value reaches zero, the use must be vacated. It should be noted that these types of amortization actions may draw legal challenges and accusations of a local government "taking" of property.

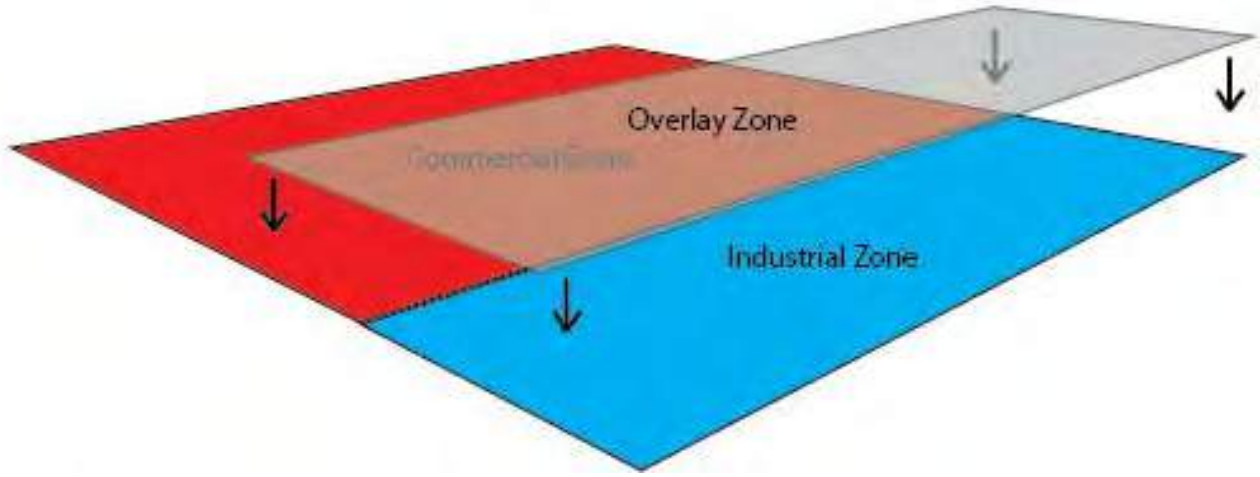
Establishing a nuisance clause in the ordinance is another potential tool for eliminating undesirable uses. A structure or a land use which is deemed a public nuisance can be enforced and the property owner can be punished with a fine or a criminal sentence or both. The violator can be required to discontinue the use, remove the structure, or pay for removal of the structure. To qualify as a public nuisance, the use or structure must be shown to threaten the public health, safety, and welfare provisions of the law. If the use was originally sanctioned by local government approvals, it may be more challenging to defend claims that a structure or land use constitutes a public nuisance.

Before proceeding with the creation of ordinance provisions for amortization and public nuisance provisions, it would be prudent to consult a land use attorney who is familiar with North Dakota law, to determine whether such practices are defensible. Enforcing the stipulations of the military easements may be more practical.

SAFETY OVERLAY DISTRICTS (SODS)

To promote compatible land use, all proposed developments within a designated distance of a military facility should be carefully reviewed and analyzed. By incorporating Safety Overlay Districts (SODs) into local zoning ordinances, all development proposals within two-miles (10,560 feet) of a military facility can be checked for

Figure 5.6: How an overlay zone applies.



compatibility. The SOD would also include regulatory provisions aimed at preventing undesirable uses from locating in close proximity to a military facility. Each of the 150 launch facilities and all of the 15 missile alert facilities within the missile complex would be subject to a SOD.

A zoning overlay district is a regulatory tool which incorporates the restrictions of the existing, underlying zoning district. The overlay district includes additional regulations specifically designed to address unique situations at special locations. A Safety Overlay District would not replace the existing zoning, but enhance it with added measures deemed to be in the public interest.

Once formally established, mapped, and adopted by the local jurisdictions, the SODs will provide land use administrators with a tool for identifying those development proposals which require special attention. The review, analysis, and processing of a development proposal can be formalized by requiring the approval of a conditional or special use permit.

By requiring formal approval of conditional or special use permit, specific standards can be established. Approvals can be subject to developers meeting specified criteria. A fee is required to cover local government costs and a public hearing is held. Information on all special use permit requests within the SOD area would be distributed to stakeholders for comment, including MAFB.

In the interest of public safety and to protect military facilities and operations, the Safety Overlay Districts could extend a distance of two-miles outward in all directions from a military facility. A typical SOD for a launch facility would cover a four-mile diameter circle with the launch facility located at the center of the circle. Each circular SOD can be divided into three segments or rings with conditional or special use permit approvals required for development proposals located in the inner and middle rings.

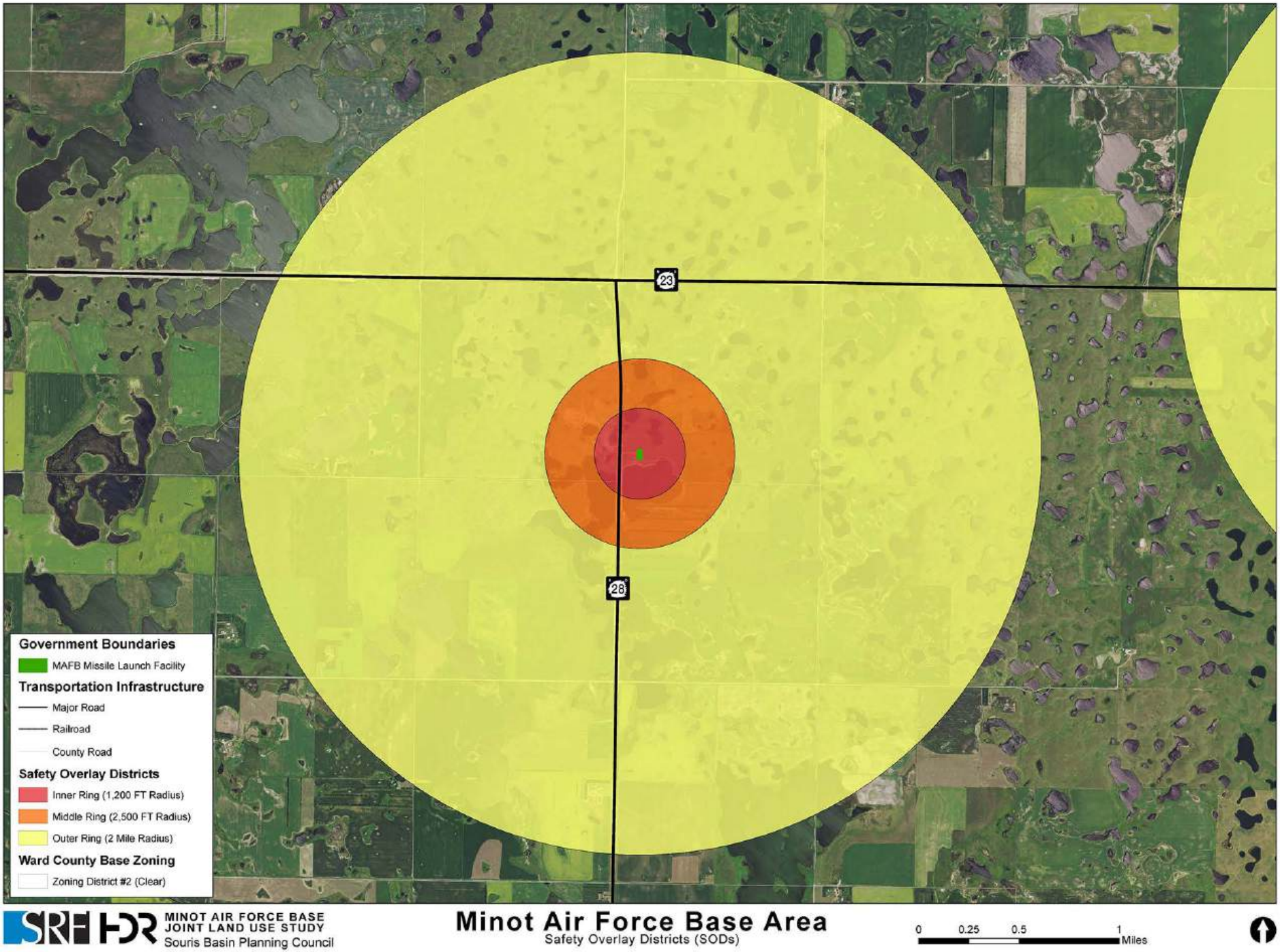
Inner Ring – 1,200 FT Radius

The inner ring, with a radius of 1,200-feet, would match the existing military easement and be the most restrictive area. Developments within that range would be subject to those uses specified on the existing military easement document. Because some uses are currently prohibited, the inner circle does not create or impose any new regulatory restrictions; it supports the existing easement provisions.

Middle Ring – 2,500 FT Radius

The middle ring, extending from 1,200-feet to 2,500-feet, would be slightly less restrictive than the inner circle, but for public safety reasons, inhabited structures would not be allowed. Provisions for other undesirable land uses can be established for the middle ring. Those uses which would attract people and generate traffic may not be appropriate for the middle circle. Areas reaching out to 2,500-feet are subject to immediate evacuation if the need arises.

Figure 5.7: Safety Overlay District Example



Outer Ring – 2 Mile/10,560 FT Radius

The outer ring, from 2,500-feet to two-miles, provides a specific means to review and more carefully analyze development proposals in that area. Some proposed developments could carry the potential to impact the military facility or result in higher traffic volumes on military routes or a higher concentration of people. The outer ring would be the most permissive area of the Safety Overlay District. MAFB would be notified of development proposals located in the outer ring. Because any major proposal in the outer ring would require approval of a subdivision plat (see below), there would be opportunity for all input to be heard at a public hearing.

In some cases, the complete outer ring of the SOD may not be needed due to the presence of existing development within the two mile radius. For example, Launch Facility D-7 is located adjacent to the city of Garrison. The outer ring, if utilized, would require MAFB notification for any development application within the entire city. The outer ring concept is most effective when applied to a sparsely developed or potential new growth area where MAFB can be advised of development interest in a general area at the earliest point possible.

PLATTING OF SUBDIVISIONS

As mentioned, the request for a building permit is often the first opportunity to guide orderly growth. As a general practice, building permits should only be issued for platted lots. Platting, the term for preparing a subdivision plat, should be prerequisite to development. A subdivision plat divides a tract of land into lots and streets. Approvals of zoning changes are often needed in conjunction with subdivision platting.

There are many benefits to subdivision platting. Platting defines property boundaries and shows the locations of existing and future easements for utilities that will serve the lots. Other easements such as existing or proposed drainage ways or water detention areas are also shown. Plats could also designate the boundaries of existing military easements within a specified distance. Easement locations are important information to include on a subdivision plat since they clarify the allowable building envelope on the lot, and ensure that the lot is buildable.

As part of the platting process (and for zoning changes), it is routine to consider potential impacts on adjacent properties. In some cases, the adjacent or nearby property may include an existing military facility.

When vacant property is developed, the existing soils and vegetation that soak up precipitation and snowmelt will be replaced by impermeable rooftops, roadways and paved areas. New development creates increased storm water runoff. A standard submittal item in the platting process is the storm water management plan. New developments should not discharge more runoff onto adjacent or other nearby properties than the property generated prior to development. Water detention or retention facilities are sometimes required to protect adjacent properties from too much runoff, which can become a nuisance or even hazardous to the integrity of the property. Planning to control storm water within a subdivision will protect adjacent properties (which could include military facilities) from the potential impacts of drainage.

Another element of review allowed by the platting process is the traffic that will be generated by the proposed development. A traffic study can be required for all proposed developments that have the potential to alter existing traffic flows or create safety concerns. Typically trip generation thresholds will be established, and proposed developments that generate trips above that threshold are required to complete a traffic impact study. Proposals for new intersections or access points along arterial roadways may also be established as the trigger for requiring a traffic impact study. A well-done traffic impact study will include information about the estimated number of trips generated by the proposed development, information about directional distribution to and from the property, and a traffic assignment which provides the estimated number of daily and peak hour trips on adjacent roadways and points of ingress and egress to the property. The study will also address the spacing of intersections and access points, and recommendations for roadway capacity or traffic control improvements to allow the safe and smooth flow of background traffic combined with traffic generated by the proposed development. Traffic studies should be prepared with input from MAFB for consideration of

potential impacts upon military routes and access to military facilities.

Other important elements of a subdivision application should include a utility servicing plan and a street grading plan. A utility serving plan allows for an assessment of the availability and capacity of existing utilities and a determination of whether or not existing utilities can be extended, or if improvements or expansions are necessary. Requiring a street grading plan will allow the developer to show that the proposed street designs are consistent with the local government standards for width, grade, paving, and drainage.

Careful platting of subdivisions protects future lot owners by proactively addressing all issues before they become problems. Platting is not only in the public interest, it is also required by state law. The North Dakota Century Code (11-33.2.01 and 40-50.1-01) establishes the requirement for and gives the authority for subdivision platting. A local jurisdiction's Subdivision Regulations will establish design standards and procedures for platting. Diligence in the subdivision of land has the potential to address many existing and potential issues pertaining to the compatibility of military facilities and nearby development, particularly if local governments adopt the practice of notifying MAFB of all development applications.

NON-ZONING REMEDIES

The preceding narrative explained how land use can be regulated with planning and zoning to protect the public and military interests. Planning and zoning relies upon local governments to adopt and administer proper tools.

Other strategies have been identified to achieve results, but they involve purchasing property or property rights such as the measure described in Strategy 15-A. These strategies will require MAFB to work with the DOD to seek funding sources.

MAFB

Strategy 15-A	Purchase and remove encroaching structures.

Conservation lands and wildlife set-aside areas offer another alternative for property adjacent to military facilities. Land that is unsuitable as production farmland or pastureland could qualify. Although perpetual conservation easements are not allowed in North Dakota, renewable 100-year leases serve essentially the same function. Opportunities for partnering with government agencies and non-profit conservation/wildlife groups to create such set-aside lands could produce beneficial results.

MAFB

Strategy 18-A	Purchase enlarged easements. Collaborate with State and Federal wildlife and conservation agencies, nonprofit wildlife and conservation entities, and landowners to identify opportunities to protect sensitive habitat within the 2,500 foot zone. Protections may be in the form of the purchase of development rights, the purchase of property, or the creation of conservation easements.

Due to more industrial oil activity in the western portion of the study area, the military facilities in that area are more vulnerable to encroachment at this time. Oil activity is expected to expand eastward making all military facilities equally vulnerable in the future. Although the desired protection radius is 2,500 feet, the current easements offer protection only to 1,200 feet. Another option would be for MAFB to make arrangements to have the initial opportunity to purchase property between 1,200 and 2.500 feet.

The DOD's established REPI, or Readiness and Environmental Protection Integration Program, allows the Air Force to coordinate with the DOD and local partners to acquire easements or other interests in land in an effort to provide a buffer or protection to an Air Force installation. In this case, REPI may be utilized to acquire easements (or other interests in land) to protect launch facilities beyond the existing 1,200 ft. easements. Potential local partners could include local cities, counties or local conservation groups (however, it is important to exclude waterfowl conservation groups due to potential impacts to air operations).

MAFB

Strategy 18-C	Identify military facilities that are currently more vulnerable to encroachment, and work with property owners to establish an agreement giving the MAFB the "right of first refusal" to purchase the property if the owner decides to sell land within 2,500 feet of the launch facility.

The purchasing options described above are costly but they are also immediately effective upon closing. In urgent situations, purchasing property or property rights may be a preferred alternative to zoning.

COMPETITION FOR AIRSPACE

Much of the JLUS is focused on installations which occur on the earth's surface and underground but MAFB flight operations have also been impacted by recent increases in airspace activity.

MAFB (COUNTIES, CITIES, MHA NATION)

Strategy 1-A	In the future, drones will be increasingly used for commercial and recreational activities throughout the state. This increases the potential for conflict with 54th Helicopter Squadron and 5th Bomb Wing operations.

Drones or Unmanned Aircraft Systems (UAS) offer a convenient and affordable means for the aerial monitoring of crops, electrical transmission lines, oil pipelines and other oil industry activities. As drone technology improves, a multitude of new commercial and industrial applications will emerge. The FAA is currently in the process of developing rules for drones and needs to be aware of military interests. The FAA's new program at UND in Grand Forks presents an opportunity for the US Air Force leadership in North Dakota to develop and maintain a dialog with FAA administrators on the use of commercial and recreational drones-to support a broader, nationwide effort between the US military and the FAA.

MAFB

Strategy 2-A	MAFB will conduct an outreach program to airports statewide to advise pilots of the need to be aware of the periodic presence of MAFB helicopters within the JLUS study area.

In order to reach civilian pilots in the JLUS area, it is suggested that MAFB reach out to all general aviation airports within and near the JLUS area. In coordination with each general aviation airport, flyers may be distributed at each airport. Each airport may also maintain contact information for local pilots whereby MAFB may be able to devise a simple method of notifying individual pilots of potential helicopter operations within certain areas during certain periods of time. If MAFB experiences challenges in contacting each airport, it is recommended that MAFB work with the North Dakota Aeronautics Commission to establish contact.

EMERGENCY PREPAREDNESS

As mentioned in Chapter 3, North Dakota is regularly impacted by natural disasters, particularly flooding. Future climate projections do not suggest any moderation in this trend. In addition to causing property damage and risks to human life, flooding will inundate roadways and impact transportation.

Planning and construction of the Mouse River Flood Protection Plan should include representation from the MAFB. Personnel assigned to coordinate with those studying and designing the project may need to involve representatives of the missile complex and military operations, depending upon the degree to which planned improvements and construction disrupt roadways and areas where military operations may be needed.

MAFB (COUNTIES, NDDOT, NDDES)

Strategy 26-A	MAFB will partner with the State Water Commission, other state agencies, and local communities in the implementation of the Mouse River Flood Protection Plan. A main objective of the Plan is to establish key transportation corridors that remain open during flood events.

Regarding non-flood emergencies, since local law enforcement personnel, local fire departments and EMS providers are typically the first to respond to an incident, they should be trained to respond appropriately.

MAFB (COUNTIES, MHA NATION, NDDOT, NDDES)

Strategy 5-A	Ensure coordination between the MAFB Threat Response Force, State Highway Patrol, County Sheriff Departments, and MHA Nation law enforcement to establish protocols that identify responsibility, actions taken, reporting, and coordination of response.

Bulk chemical storage facilities can pose a risk to the public and to MAFB personnel and installations. Improved awareness of such facilities and details of the materials being used and stored will promote safety.

Improved information sharing between the NDDES and MAFB will help protect the public and military personnel.

NDDES (MAFB)

Strategy 6-A	Tier 2 hazardous chemical information kept with the State must be periodically gathered, published, and transferred to the community liaison and security forces at MAFB. At a minimum, MAFB should be provided with access to all NDDES Tier 2 information as available online.

DRAINAGE

During the periods between extreme flooding events, abnormally high levels of surface water are not uncommon. By anticipating and planning ahead for water problems, the public interest will be better served and the public investment in military installations will be better protected.

Addressing water drainage issues as new developments emerge will help alleviate or abate hindrances to military operations and readiness. With proper reviews and hydraulic engineering, military routes and military facilities can be protected from flooding.

MAFB

Strategy 3-A	Any modifications to wetlands or surface water processed through the State Water Commission should involve notification to the MAFB Installation Encroachment Management Team. MAFB will coordinate with the State Water Commission to assess the need for changes to department policy or State law to facilitate notification and cooperation.
Strategy 3-B	Any modifications to wetlands or other bodies of water processed through the water resource boards located within the study area should involve notification to the MAFB Installation Encroachment Management Team. MAFB will coordinate with the water resource boards to assess the need for changes towards individual board policy to facilitate notification and cooperation.
Strategy 3-C	Anticipate future needs for defense access road grade raises throughout the missile complex, based upon problematic areas subject to periodic flooding/inundation.

A storm water management plan is currently required for projects over one acre in size that change the natural grade of the surface. The cumulative impact of several projects under one acre in size, without any storm water provisions, can also create erosion and flooding problems for downstream properties.

MAFB (COUNTIES, CITIES, MHA NATION, NDDOH, EPA)

Strategy 4-A	Support special notice and review of grading activities of MAFB concern within ½ mile of Air Force installations for grading projects of all sizes. MAFB will collaborate with the North Dakota Department of Health, US Environmental Protection Agency, and the MHA Nation to facilitate project review.

NDDMR (MINOT AIR FORCE BASE)

Strategy 4-B	Oil and gas well permits processed through the North Dakota Department of Mineral Resources should require storm water drainage management plans to manage offsite runoff.

Low impact development (LID) standards can be presented by the installation Civil Engineer to the appropriate city, county/NDDMR officials for consideration to mitigate the potential increased run-off associated with new development. The installation Civil Engineer currently provides maintenance at launch facilities but a greater emphasis on mitigation and grounds keeping needs to be presented and recorded with the cities/counties that may be affected. Through consistent actions, communication efforts and an effective working relationship between the installation and cities/counties that is focused on life/health/safety, drainage concerns can be addressed through collaborative efforts.

HOUSING

Affordable and available housing near MAFB is limited. The housing situation has been compounded by two major issues. The flood of 2011 damaged and destroyed thousands of area homes. At the same time, the region was experiencing a huge influx of employees working in the oil industry or filling spin-off jobs stimulated by the economic growth of the region. These new residents competed heavily for available housing. With increased demands, housing costs escalated.

Military personnel live both on and off the air base. For those who live off-base, it can be challenging to find affordable housing within a reasonable commuting distance. Commuting long distances can be challenging and uncertain during the winter months.

Minot Air Force Base is identified as the lead implementation agency to address the strategies listed below. For Strategy 7-A below, Souris Basin Planning Council can assist with seeking funds for a housing study and provide organizational and administrative support. Collaboration with the City of Minot and Ward County are needed to implement Strategy 7-B below.

MAFB

Strategy 7-A	Conduct a housing study to validate needs of MAFB with projections for housing demands of MAFB personnel. Include an analysis of housing market trends.

MAFB (CITY OF MINOT, WARD COUNTY)

Strategy 7-B	MAFB should coordinate with the City of Minot and the Minot Housing Authority to create housing assistance programs targeted at reducing housing costs in the City and Ward County for MAFB personnel.

Housing in the Minot area is currently being constructed at a rapid rate. Housing costs should stabilize as the oil industry workforce population stabilizes.

LOCAL INFRASTRUCTURE EXTENSIONS

Implementation of the strategies 25-A and 25-B will work to protect military facilities from encroachment and damage due to underground utility installations and promote the availability of reliable, clean electrical power to all facilities.

MAFB

Strategy 25-A	Plan, prepare, and conduct a notification/information campaign directed at the State Water Commission, county water resource districts, rural water districts, consulting engineering firms, fiber optic companies, excavating companies, and the State One Call System. The informational campaign would inform these entities of the need to coordinate with the MAFB during water line and fiber optic line planning and design, and again before digging.

MAFB could begin the notification/information campaign with the preparation of an email blast and a brief flyer outlining the need for the entities noted in the strategy to coordinate with MAFB during planning, design, and construction. The flyers and email blasts could then be sent to the State Water Commission, local county water resource districts, local rural water districts, in-state consulting engineering firms, local fiber optic companies, local excavating companies, and the State One Call System. If necessary, the State One Call System (Public Service Commission) could be contacted initially to gather contact information for many of these entities.

MAFB

Strategy 25-A	Support recommendations provided by the State Transmission Authority's Power Forecast 2012 to meet future electrical needs. Ensure that the Transmission Authority's leadership and legislative bodies understand the relationship between power transmission and the facilities of the MAFB.
Strategy 25-B	Support the use of energy-efficient electrical equipment to conserve electrical power.

MAFB could simply share the JLUS report with the State Transmission Authority and also ask for notification regarding public documents or reports distributed by the Authority.

When electrical equipment is replaced due to old age, MAFB should first consider the use of energy efficient equipment. While the cost of more energy-efficient equipment may be higher on the front end, cost savings from energy conservation in the long-term should be factored into the decision-making process with updating such equipment.

NOISE

The strategies listed below were designed to address helicopter noise which has created some isolated incidents with cattle.

MAFB

Strategy 27-A	Avoid helicopter flights directly over cattle herds when possible.
Strategy 27-B	MAFB will prepare an Air Installation Compatible Use Zones Study focusing on helicopter flights in the missile complex area to understand the extent of potential noise impacts in the study area.

In order to implement the identified noise strategies, MAFB will continue to train 54th Helicopter Squadron pilots to avoid low-level flights over cattle. The Air Installation Compatible Use Zones Study will examine helicopter operations in the JLUS area, identify noise impacts, and identify measures to mitigate or minimize such impacts.

OIL AND GAS

In many ways this study was commissioned as a response to situations created, either directly or indirectly, from increased oil activity in the region. The recent pace of growth in oil and gas extraction and production has caused a corresponding increase in the number of issues.

In each case listed below, MAFB is designated as the primary agency. By working together with regulatory agencies, changes can be implemented to protect military facilities, the oil and gas industry, and the public at large.

MAFB

Strategy 28-A	Plan, prepare, and conduct a notification/information campaign directed at the North Dakota Petroleum Council, oil and gas companies, the companies that provide oil field services, and organizations that work with oil and gas companies.
Strategy 31-A	Plan, prepare, and conduct a notification/informational campaign directed at the North Dakota Petroleum Council, oil and gas companies, the companies that provide oil field services, and organizations that work with oil and gas companies. The informational campaign would inform these entities of the need to coordinate with MAFB during pipeline planning and design, and again before digging.

Strategy 28-A refers to oil and gas field development plans and strategy 31-A refers to oil and gas gathering lines and well effluent lines. First and foremost, the North Dakota Petroleum Council, oil and gas companies, the companies that provide oil field services need to be informed of the presence and importance of MAFB in the JLUS area. Some of these entities may not be aware of the missile complex and the extent of the complex throughout the eight county and MHA Nation region. It is suggested that MAFB coordinate with the North Dakota Petroleum Council as a place to start gaining oil and gas company, and other related industry contacts. Email blasts combined with hard copy flyers could be utilized with brief messages that state the importance of working with MAFB to design new company Field Development Plans and modify existing plans to recognize MAFB installations and operations.

MAFB (MHA NATION, NDDMR)

Strategy 28-B	Work with the MHA Nation and regulatory agencies such as the State Department of Mineral Resources to facilitate coordination between MAFB and oil and gas companies.
Strategy 28-C	Inform elected officials in the State legislature to create statutes that require oil and gas companies to provide oil and gas field development plans to MAFB and to cooperate with MAFB in amending the plans as necessary to avoid impacts to MAFB facilities. Work with the MHA Nation to ensure similar cooperation.
Strategy 31-B	Work with the MHA Nation and regulatory agencies such as the State Department of Mineral Resources to facilitate coordination between MAFB and oil companies.
Strategy 31-C	Work with the State Department of Mineral Resources to amend the State Administrative Code to require gathering line designs be shared with MAFB prior to construction and require cooperation with MAFB to avoid impacts. Also work with the MHA Nation to facilitate the sharing of information.

It is recommended that strategies 28-B and 28-C be utilized as insurance in the event that the notification/information campaign (strategy 28-A) fails to encourage the oil and gas industry to work with MAFB in modifying the various Field Development Plans in the region. Similarly, it is recommended that strategies 31-B and 31-C be utilized as insurance in the event that the notification/information campaign (strategy 31-A) fails to encourage the oil and gas industry to work with MAFB in the planning, design, and construction of oil and gas gathering lines and well effluent lines.

Understandably, these strategies may take a significant amount of time to allow coordination between various governmental entities. The State legislature, which only meets every other year (will convene next in 2017), means that any laws passed in reference to strategy 28-C may not be enacted until 2017 at the earliest.

MAFB (MHA NATION, ND INDUSTRIAL COMMISSION, OIL COMPANIES)

Strategy 29-A	Support the North Dakota Industrial Commission's (NDIC) goals to incrementally reduce flaring of total gas produced through 2020. Support efforts by the MHA Nation to reduce flares.
Strategy 29-B	Identify any flares that are particularly problematic and coordinate with the State Industrial Commission, the MHA Nation, and/or the company that owns and operates the well to determine if the flare can be eliminated to reduce impacts to Air Force helicopter squadron night vision capabilities.

Strategy 29-A should involve MAFB working closely with the NDIC, which includes the State governor, attorney general, and agricultural commissioner, to help the commissioners understand the impact of light pollution upon the military's night vision capabilities and the related connection to the viability of the missile complex. This effort will help the State in continuing to hold to and enforce the goal of 15% by 2016.

The 54th Helicopter Squadron could be tasked to identify any problematic flares, to first identify the extent (if any) of the issue addressed through strategy 29-B. If problematic flares are identified, follow up with the NDIC and MHA Nation (if necessary) for discussion of the particular flares is recommended.

MAFB (MHA NATION, NDDMR, SEISMIC EXPLORATION COMPANIES)

Strategy 30-A	Seek cooperation with the MHA Nation and the State Department of Mineral Resources (DMR) and entities conducting seismic exploration to ensure that MAFB is informed about scheduled exploration activities. Conduct studies in partnership with the MHA Nation and/or DMR to determine if the risk of impacts is actual or perceived.
Strategy 30-B	If actual risk for impacts exists, explore alternatives to reduce risks.

In coordination with the MHA Nation and the DMR, MAFB should stress the importance of notification prior to seismic exploration activities taking place. The parties should agree to a mutually agreeable timeframe. Oil and gas companies may already have their own information or studies that help further MAFB's understanding of the impact seismic activities have on surrounding land uses.

MAFB

Strategy 32-A	Conduct legal research on the development of oil and gas infrastructure within launch facility easements to determine if oil and gas infrastructure is exempted, and if so, to what extent.
Strategy 32-B	Conduct legal research on prescriptive easement rules to determine if oil and gas infrastructure predating the installation of the launch facilities is grandfathered.

The efforts of MAFB to conduct legal research necessary through strategies 32-A and 32-B may be supplemented, if necessary, by reaching out to the State Attorney General's office.

MAFB (MHA NATION, NDDMR)

Strategy 32-C	Work with the State Department of Mineral Resources (DMR) to amend the State Administrative Code and work with the MHA Nation to require all oil and gas activities within ½ mile of a launch facility to notify MAFB and cooperate to avoid potential impacts.

MAFB may begin approaching strategy 32-C by reaching out to the DMR, to understand impressions and possibilities from a State regulatory perspective. It may then be necessary for MAFB to reach out to the North Dakota Industrial Commission, who have DMR oversight, to implement a ½ mile "cooperation and avoidance" area around launch facilities.

MAFB (MHA NATION, NDPSC, DOD)

Strategy 33-A	Work with the State Public Service Commission to make necessary changes to State law or agency policy to ensure that project proposal information is shared with MAFB upon receiving initial applications for regional oil and gas transmission lines. Work with the MHA Nation to also ensure application information is shared with MAFB. Promote the use of the Department of Defense Siting Clearinghouse as a central location to store energy project information.

A significant part of accomplishing this strategy is the opportunity for the State Public Service Commission and the MHA Nation to have transmission line applicants utilize the Department Defense Siting Clearinghouse to upload project information. The Clearinghouse should be promoted as an existing platform that allows convenient accessibility for the applicant, state, tribal, federal, and military entities.

MAFB (NORTH DAKOTA PIPELINE ASSOCIATION)

Strategy 33-B	MAFB will participate in the North Dakota Pipeline Association annual meetings occurring in the region. MAFB participation will increase awareness of the MAFB facilities and the hardened intersite cable system.

RAIL TRANSPORTATION

Recent derailments of oil tanker cars have resulted in catastrophic explosions and fires. MAFB can inform regulatory agencies and the railroad industry about the proximity of military facilities to rail lines.

MAFB (CP RAIL, BNSF, FRA, NDPSC)

Strategy 36-A	Support current efforts in improving rail safety.
Strategy 36-B	Collaborate with Canadian Pacific Railroad, Burlington Northern Santa Fe Railroad, Federal Railroad Administration, and the State Public Service Commission to explore potential rail safety measures for railroad segments within ½ mile of military facilities.

The collaborative and cooperative efforts of the Canadian Pacific Railroad, Burlington Northern Santa Fe Railroad, Federal Railroad Administration, and the State Public Service Commission will be needed to identify practical measures that can be taken reduce the risk of derailment adjacent to the military facilities. The Federal Railroad Administration's Office of Railroad Safety should particularly be helpful in providing insight from accidents not just within North Dakota, but from across the nation.

SAFETY ZONES

While the Air Force either owns the land in fee title or owns restrictive easements for majority of the runway clear zones at both ends of the airfield runway, some areas remain that are not protected by such means.

The DOD's established REPI, or Readiness and Environmental Protection Integration Program, allows the Air Force to coordinate with the DOD and local partners to acquire easements or other interests in land in an effort to provide a buffer or protection to an Air Force installation. In this case, REPI may be utilized to acquire easements (or other interests in land) to protect the runway clear zone at MAFB. Potential local partners could include Ward County or local conservation groups (however, it is important to exclude waterfowl conservation groups due to potential impacts to airfield operations).

MAFB

Strategy 37-A	Collaborate with the DOD and Ward County to identify potential land protection strategies with land owner(s).

VEHICULAR TRAFFIC

With the recent surge in oil activity the incidence of traffic-related problems has increased. MAFB can explain their operations needs to the NDDOT and begin to resolve some of the safety concerns. Due to heavy truck traffic associated with the oil industry, roads are deteriorating more rapidly. A corresponding increase in highway improvement projects has created difficulties, impacting the military traffic which provides routine service to the launch facilities. Collaboration with state and local governments as described below, will be needed to develop and facilitate solutions.

MAFB (NDDOT)

Strategy 38-A	Modify established military routes in the Minot metro area to avoid areas with existing and projected limitations to military traffic mobility. Utilize the Minot 2035 Transportation Plan as a guide in considering new and improved regional routes to avoid the city center, such as the northeast bypass (County Highway 10A and 55th Street), southwest bypass (66th Avenue SW and 30th Street SW), and southeast bypass (exact route to be determined).
Strategy 38-B	Work with the NDDOT to establish design standards for improvements to State routes along road segments and through intersections that have been designated as military routes. Shoulders should allow civilian traffic to pull off the road to allow military traffic to pass, or in the event of a civilian traffic incident, allow military traffic to utilize shoulders to circumvent a traffic incident. 'Military friendly' design would be required when road segments and intersections are improved.

Strategy 38-A necessitates MAFB's ongoing coordination with the Minot City Engineer and the Ward County Highway Department to monitor implementation of the Minot 2035 Transportation Plan and any changes made to the Plan.

The implementation of strategy 38-B could be approached through the following steps initiated by MAFB:

1. Work with the NDDOT to identify to what extent existing NDDOT design standards accommodate 'military friendly' design as referred to in strategy 38-B.
2. Identify NDDOT standards that could use modifications to better accommodate military traffic.

3. Collaborate with NDDOT to propose design standard modifications that would result in the greatest benefit with minimal additional cost to design and construct (cost-benefit analysis).
4. Amend NDDOT design standards with mutually agreeable modifications.
5. MAFB will ask for 'military friendly' design standards to be utilized through the NDDOT project scoping and design process.

MAFB (DISTRICT LEGISLATORS FROM THE 8-COUNTY REGION, COUNTIES, CITIES, TOWNSHIPS, MHA NATION)

Strategy 38-C	Amend the North Dakota Century Code to require all City, County, and Township road improvement projects to involve MAFB Installation Encroachment Management Team notification prior to the design phase. Require all Cities, Counties, and Townships to cooperate with MAFB to address Air Force concerns along military routes. Coordinate with the MHA Nation if necessary.

The State legislature, which only meets every other year (will convene next in 2017), means that any laws passed in reference to strategy 38-C may not be enacted until 2017 at the earliest. Given the delay until the next legislative session and the possibility of not having support for such an amendment to the North Dakota Century Code, MAFB should focus early and consistently on missile complex and military traffic awareness (reference public awareness strategies 34-A, 34-B, and 35-A).

MAFB (COUNTIES, MHA NATION, NDDOT, DISTRICT LEGISLATORS FROM THE 8-COUNTY REGION)

Strategy 39-A	Support the increased posting of speed limit signs and fines for traffic violations along County and Township maintained military routes. Work with the State Department of Transportation and State legislators as necessary to change laws/ regulations to allow enforcement.
Strategy 39-B	Support local and State efforts to increase funding in support of additional State Highway Patrol and county sheriff officers

The implementation of strategies 39-A and 39-B will require MAFB to reach out to local governments in the JLUS area and to the State government. Local governments may be limited in changes they can implement, likely limited to the increased posting of speed limit signs and potential changes to the local law enforcement presence. Much control remains with the State related to State law and funding. Therefore, the State is likely to be where the most can be done to further both strategies through amendments to state law and/ or funding increases to the Highway Patrol and local governments for related law enforcement needs.

MAFB, NDDOT

Strategy 40-A	MAFB and the State Department of Transportation will collaborate to ensure that the Statewide Transportation Improvement Program development process involves MAFB and the need to improve critical military route segments in need of improvement as a result of deterioration.

The JLUS study report will be a helpful resource to aid in the development of the Statewide Transportation Improvement Program as it pertains to the JLUS area. MAFB should utilize the JLUS report document and stress that it was developed with significant input from local, regional, and state entities, including the NDDOT.

MAFB (NDDOT, WARD COUNTY)

Strategy 41-A	The main Entry Control Point (ECP) has been planned for improvements and is awaiting funding from the federal government.
Strategy 41-B	MAFB will collaborate with the North Dakota Department of Transportation and Ward County to identify funding and teaming opportunities to construct improvements to the ECP.

MAFB should follow and implement recommendations for the ECP as provided in the MAFB Installation Development Plan. MAFB should reach out as early as possible to Ward County and the NDDOT regarding the implications of planned improvements and necessary changes to US Highway 83.

MAFB (NDDOT)

Strategy 42-A	Work with the State Department of Transportation (NDDOT) to involve the MAFB Installation Encroachment Management Team with notification through the NDDOT solicitation of views process during field review, or in other words at the start of NDDOT project development. The solicitation of views letter should ask specifically for Air Force input regarding potential project impacts upon air force installations, military routes, and defense access roads. It is important to ensure that NDDOT project design alternatives consider all impacts to the missile complex, whether direct or indirect.

The current NDDOT solicitation of views request includes the MAFB Chief of Missile Engineering, in addition to the Cable Affairs Office. The letter sent to the Chief of Missile Engineering should be modified as described in strategy 42-A.

VERTICAL OBSTRUCTIONS

To meet increased cell-phone and communications demands associated with oil activity, a proliferation of towers is occurring. MAFB helicopters support the military mission in North Dakota. Because the helicopters routinely fly at low altitudes, any new structures that extend into their airspace need to be identified. Because the installation of a communications tower requires the approval of a building permit or in some cases a special use permit, better coordination between the local governments which issue the permits and MAFB will be helpful.

MAFB (COUNTIES, CITIES, TOWNSHIPS, MHA NATION)

Strategy 43-A	Identify all vertical obstructions (i.e. wind farms, cell towers, etc.) on a map, much like an Airfield Obstruction Management System scenario (AOMS is a term for computer software used for tracking, analyzing, and managing airfield obstructions). On a periodic basis, collect building permit data from applicable jurisdictions to update the vertical obstructions map.
Strategy 43-B	Where areas of concern/conflict with helicopter flights exist, draft design/construction criteria for what is compatible within each zone. Include the criteria on building comments forwarded to MAFB for review.

MAFB

Strategy 43-C	Implement the recommendations of the Missile Installation Compatible Use Zones Study (conducted simultaneously with the JLUS) to address helicopter landing protections throughout the study area.

PROMOTING NEW LEGISLATION AT THE STATE LEVEL

Several strategies suggest action at the state legislative level to promote new laws which would benefit the public and protect public investments in military facilities. Below is a consolidation of the "legislative" strategies arranged by category. Some of these strategies have already been presented throughout this chapter.

DRAINAGE/FLOODING

- Any modifications to wetlands or surface water that are processed through the State Water Commission should involve notification to the MAFB Installation Encroachment Management Team. MAFB will coordinate with the State Water Commission to assess the need for changes to department policy or State law to facilitate notification and cooperation. (Strategy 3-A, as discussed on page 31 of this chapter)

ENERGY

- Work with study area counties and the State Public Service Commission to make necessary changes to State law or agency policy to ensure that project proposal information is shared with MAFB upon receiving initial applications for energy transmission projects (Strategy 10-A, as discussed on page 20 of this chapter).
- Work with study area counties and the State Public Service Commission to make necessary changes to State law or agency policy to initiate informal review of initial applications for energy transmission projects. Informal review is to be conducted in partnership with MAFB and Department of Defense Siting Clearinghouse (Strategy 10-B, as discussed on page 20 of this chapter).
- Work with the State Public Service Commission to make necessary changes to State law or agency policy to ensure that project proposal information is shared with MAFB upon receiving initial applications for regional oil and gas transmission lines. Work with the MHA Nation to also ensure application information is shared with MAFB. Promote the use of the Department of Defense Siting Clearinghouse as a central location to store energy project information.
- Inform elected officials in the State legislature to create statutes that require oil and gas companies to provide oil and gas field development plans to MAFB and to cooperate with MAFB in amending the plans as necessary to avoid impacts to MAFB facilities. Work with the MHA Nation to ensure similar cooperation.

TRANSPORTATION

- Support the increased posting of speed limit signs and issuance of fines for traffic violations along County and Township maintained military routes. Work with the State Department of Transportation and State legislators as necessary to change laws/regulations to establish fines that result in greater levels of adherence to speed limits and other traffic laws.
- Amend the North Dakota Century Code to require all City, County, and Township road improvement projects to involve MAFB Installation Encroachment Management Team notification prior to the design phase. Require all Cities, Counties, and Townships to cooperate with MAFB to address Air Force concerns along military routes. Coordinate with the MHA Nation if necessary.

LAND USE/PUBLIC AWARENESS

- Work with the State legislature to pass legislation requiring lending institutions to obtain property title searches to at least 1950 (prior to the establishment of MAFB) before property is sold. Such legislation only needs to apply to the JLUS study area (eight county region).

BUILDING PERMITS FOR AGRICULTURAL BUILDINGS

Although some jurisdictions do require permits for agricultural structures, the authority to do so is questionable under current State laws as follows: NDCC 11-33-02.1.(3) “A board of county commissioners may not prohibit or prevent the use of land or buildings for farming or ranching and may not prohibit or prevent any of the normal incidents of farming or ranching.” and NDCC 54-21.3-04(3): “Any building used for agricultural purposes, unless a place of human habitation or for use by the public, is exempt from this chapter.”

Without clear authority to review proposed locations for agricultural buildings, those structures may unintentionally encroach on utility and military easements and in some cases on public right-of-way. Authorization for local government review and approval (permitting) can protect farmers and ranchers from the inconvenience, delays and costs of relocation and rebuilding.

- Work with state legislators from the region to initiate amendments to current state law which would clarify the authority to review and approve proposed locations for the construction of agricultural buildings.
- Support for legislative changes such as these will require buy-in from legislators representing the study area legislative districts. A lobbying effort will be needed. Collaboration with the staff at the North Dakota Legislative Council will be necessary to craft the wording of bills.

EXPLORE FUNDING POSSIBILITIES

Many of the measures discussed in this chapter will require significant time and effort to achieve implementation. Close collaboration with local and state government staff will be necessary. Because most of the local government workers are already stretched thin with the duties of their jobs, additional staff may be needed. Listed below are some strategies which will require funding efforts.

As mentioned at the beginning of this chapter, the creation of funded positions for County Implementation Officers will be highly effective in carrying out implementation efforts in partnership with MAFB personnel.

In some cases, it may be unrealistic to expect that the jurisdictions will volunteer their time and resources to implement the recommended measures. They simply may not have the ability to add additional duties, responsibilities, and attention to their current workload. In some cases, they may not possess the technical expertise to carry out certain strategies. For this reason, to implement the strategies discussed, additional funding possibilities as listed above must be researched and funds must be requested.

- Explore funding possibilities for County Recorders within the study area to provide temporary staff to expand the date range of the North Dakota Recorders Information Network.
- Educate the State Legislature about the relationship between local planning and zoning and the on-going sustainability of MAFB military installations. Encourage the designation of funds for preparing and updating comprehensive plans and zoning ordinances for jurisdictions with an identified need, particularly in the eight county JLUS area.
- Explore funding possibilities for assistance in strengthening local zoning and building code administration. Assist local jurisdictions in creating, adopting, and implementing tools from the ‘zoning tool box’ (as provided in the JLUS document) that facilitates military-friendly planning and zoning practices.
- Explore funding possibilities for assistance in strengthening local planning and zoning codes. Assist local jurisdictions in creating, adopting, and implementing tools from the ‘zoning tool box’ (as provided in the JLUS document) that facilitates military-friendly planning and zoning practices.
- Support local and State efforts to increase funding in support of additional State Highway Patrol and county sheriff officers.
- The main Entry Control Point of the air base has been planned for improvements and is awaiting funding from the federal government.
- MAFB will collaborate with the North Dakota Department of Transportation and Ward County to identify funding and teaming opportunities to construct improvements to the main Entry Control Point of the air base.

Conclusion and Summary

This chapter has provided an inventory of potential solutions and methods for addressing current and future compatibility problems between private sector development and military facilities. Existing conflicts and areas where future conflicts are most likely to occur have been identified. It must be noted that existing land use around the majority of MAFB facilities is currently compatible and measures should be taken to preserve that compatibility. Among the many implementation actions which are covered in this chapter, proper zoning and long-range planning are among the most cost effective means to achieve and maintain compatible development.


Minot