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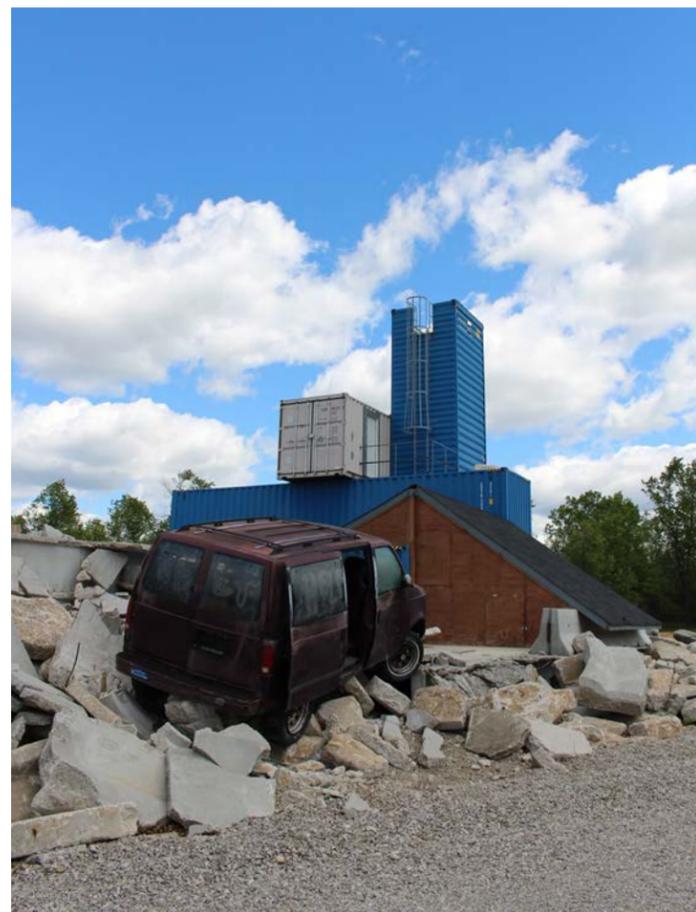
camp grayling JMTC and community study area

chapter overview

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An impact range at Camp Grayling JMTC.



The Combined Arms Collective Training Facility (CACTF) at Camp Grayling JMTC consists of numerous structures to train soldiers in Urban Operations capabilities.

2.1 Camp Grayling JMTC Study Area Overview

2.1.1 How to Read this Chapter

The following sections describe Camp Grayling JMTC and the areas surrounding it. The first section contains a study area overview, which includes existing conditions information about the Camp Grayling JMTC area. A two-mile study area buffer was created around the Camp Grayling JMTC boundary to establish a focus area for this land use study. The next section has a description of the public participation aspect of this JLUS for Camp Grayling JMTC, and finally, the third section features a discussion of the JLUS issues brought up by local stakeholders and refined by the JLUS project team.

2.1.2 How Camp Grayling JMTC and its Surrounding Area Is Unique

The region surrounding Camp Grayling JMTC is unique in that it provides a large training area, an air-to-ground range, and a large airspace for aerial training all in one complex. Military activity has been going on in the region for over 100 years. Camp Grayling JMTC is used by a cross-section of the U.S. military, including active-duty and National Guard forces, and as a result, the equipment used to train at the camp

is also varied. Nonmilitary groups and agencies also use the ranges and other facilities, including Michigan state police, county sheriff departments, local clubs, and scout troops.

The training area is also used by international partners such as Canada, Great Britain, Australia, and Latvia and Liberia (part of the National Guard's State Partnership Program that matches states with international security partners).

The surrounding communities and townships are small, and the area is mostly rural and wooded, with abundant recreational uses. Much of the land on and around Camp Grayling is managed by the Michigan Department of Natural Resources (MDNR) and leased to the Michigan Department of Military and Veterans Affairs (MDMVA). The original 13,000-acre installation footprint was granted to the state of Michigan by lumber baron Rasmus Hanson to use as forest game preserve and military training. No hunting is allowed in the Hanson land grant area, and the public is allowed to access much of the large Camp Grayling JMTC footprint except during active military training.

Camp Grayling JMTC has a state-of-the-art Urban Operations training site, used to train soldiers to handle combat in urban environments. It features a mock village, including subterranean tunnels, to simulate wartime settings. The Michigan Army National Guard (MIARNG) mixes live training at the installation with virtual capabilities using state-of-the-art simulation software.



An image of Camp Grayling in 1917. (Source: Library of Congress Prints and Photographs Division Online)

2.1.3 Setting

The Camp Grayling JMTTC study area is located in the rural north-central portion of Michigan's Lower Peninsula. The installation cantonment, adjacent to the City of Grayling, is approximately 50 miles east of Traverse City and 200 miles northwest of Detroit. Access to the area is generally via Interstate 75 (I-75) and Michigan Highway 72 (M-72).

The abundance of public forest land and the locations of the Au Sable and Manistee rivers make the area popular with outdoor enthusiasts; activities include hiking, fishing, golfing, canoeing, kayaking, skiing, snowmobiling, and biking.

Camp Grayling JMTTC, the largest National Guard training center in the country, spans 147,000 acres in Crawford, Kalkaska, and Otsego counties and is split into North Camp and South Camp. The study area for this JLUS extends into Roscommon, Oscoda, and Montmorency counties.

The Camp Grayling JMTTC main cantonment area, located in South Camp, is about 4 miles from the City of Grayling, the immediate area's largest population center. Gaylord, a city of about 3,600, is a 35-minute drive to the north.

The Camp Grayling JMTTC study area has a very short and highly variable growing season. Temperatures at Camp Grayling JMTTC range from an average low of 16.7 degrees Fahrenheit in January to an average high of 79.6 degrees in July, according to the Midwestern Regional Climate Center. The area averages 33.61 inches of precipitation annually. The average snowfall is 93.1 inches.

2.1.4 History

The forested environment surrounding Camp Grayling JMTTC played a major role in its history, as many of the first settlements in the area were associated with the trapping and lumber industries, and railroad construction in the area began in the late 1800s. The first schoolhouse in Grayling opened in the 1870s, and a railroad depot was built there in 1882. In 1911, First Mercy Hospital opened in Grayling. Two

years later Rasmus Hanson, a local lumberman, donated 13,000 acres of land to the state for military training, which later became Camp Grayling JMTTC. The camp's historic Officer's Club building was constructed in 1917.

In 1914, Hanson founded the Grayling Fish Hatchery, partly in an unsuccessful attempt to save the Michigan Grayling from extinction. The hatchery is now owned and operated by the Grayling Recreation Authority, and its preservation is part of a public-private partnership (P3) with Harrietta Hills Trout Farm. The area also had a DuPont Chemical Plant, as well as the Hanson and Salling Mill; both closed in 1925.

However, the area's military contingent was growing. Between 1918 and 1921, the acquisition of 35,000 acres allowed for the first artillery range. The Grayling airport was developed for the National Guard Air Squadron of Detroit. Featuring sand runways, it opened in 1929, and the runways were paved in 1936. An exchange, control tower, fire department, and barracks were added to the camp in 1942.

In 1948, the land area of Camp Grayling grew dramatically when more than 53,000 acres were leased in perpetuity from the Michigan Conservation Department (now the MDNR). This allowed for tank training at the camp.

An additional 47,000 acres were leased from the MDNR in 1984. Among the numerous range and facility projects at Camp Grayling in that part since the 1960s, including the development of a logistical support facility, motor pools, and the Maneuver Area Training Equipment Site (MATES) facility, which was built in 1986. More recently, the wastewater treatment facility was added in 1991 and a multipurpose range complex in Range 30 was built in 1997.

2.1.5 Mission/Operations

The Alpena CRTCC and Camp Grayling JMTTC are vital and irreplaceable components of the U.S. military. They are physically separated but operationally inseparable. Camp Grayling acts as the local garrison component of the range complex while Alpena CRTCC oversees and controls training



Downtown Grayling in 2018.

operations and management of the entire complex stretching from the eastern border with Canada to the western edge of the camp including the supporting special use airspace (SUA) complex. While Alpena CRTCC is a Michigan Air National Guard installation, Camp Grayling JMTTC is owned and operated by the MIARNG.

Camp Grayling JMTTC is directly accessible from interstate highways and has its own railhead for equipment delivery. This training complex provides units from all branches of service under the DOD opportunities to train and qualify at nearly every activity necessary for national defense. It provides for joint, intra-service operational training, which is imperative in today's asymmetrical battlefield. Its massive footprint is among only a small few in the nation that can support mission command across extended distances and the ability to synchronize joint attack maneuvers to maximize the most effective use of the battle space while retaining freedom and flexibility of action, protecting against fratricide, and integrating joint and multinational forces in a dynamic, decisive operating environment. It provides realistic and simulated environments and four-season capability to train for military operations in all conditions.

This includes simultaneous integration of ground forces (both on foot and vehicular), ground-to-air (including artillery, mortar, and small arms fire), air (including rotary wing, fixed wing, fighters, bombers, reconnaissance, communications, and unmanned aerial systems [UAS]), air-to-ground (strafing, door gunnery, aerial bombing, missiles, close air support [CAS], medical evacuation [MEDEVAC], electronic detection and prevention, and laser targeting), and space assets (including intelligence, surveillance, and reconnaissance [ISR], and communications satellites and receivers).

Camp Grayling JMTTC comprises a few component features:

- ▶ **RANGE 30 COMPLEX:** Includes 65,000-acre heavy and light maneuver areas, small arms firing ranges for training and qualification, sniper ranges, convoy training, improvised explosive device (IED) awareness training, military operations on urban terrain (MOUT) mock villages, a heavy multipurpose range complex, rocket launching

systems training, UAS launch and recovery and flight zone within restricted airspace (RA), and equipment storage and maintenance support facilities.

- ▶ **RANGE 40 COMPLEX:** Includes over 17,000-acres of maneuver area, 10,000 acres of live-fire area with a dud-impact zone, small-arms fire capability, artillery and mortar direct fire, mechanized live fire, combined arms live fire, rotary-wing and fixed-wing aerial gunnery, rotary-wing door gunnery, and aerial bombing from as high as 23,000 feet above mean sea level (MSL) within RA.
- ▶ **SOUTH CAMP GRAYLING:** Includes small-arms ranges for training and qualification on all current firearms, infantry squadron battle course, mortar and grenade ranges, light demolition range, fire movement range, and known distance ranges.
- ▶ **OPERATIONAL READINESS TRAINING COMPLEX AT CAMP GRAYLING:** Includes 8,000 transient bed spaces, 53 officers' quarters, 45 mess halls, seven maintenance buildings, seven classrooms, and two distance-learning centers. It has over 220,000 SF of warehouse storage space, bulk fuel storage for aircraft and ground equipment, munitions storage facilities, and a wide variety of recreational support facilities.
- ▶ **GRAYLING ARMY AIRFIELD (AAF):** Includes an area large enough to support up to a combat aviation brigade including 60 helicopter tie-downs, housing to support 300 troops plus an additional 300 person bivouac area, dining facilities, training and administrative facilities, educational and operations facilities, two paved runways (both 5,000 feet long by 150 feet wide) capable of landing a fully loaded C-17, a control tower overseeing Class-D controlled airspace, aircraft maintenance hangars, a launch and recovery runway for RQ-7B Shadow UAS, and Shadow UAS simulators. The airfield is owned and operated by the Army but is open to the public. Grayling AAF supports slightly more overall activity than Alpena County Regional Airport but fewer military flights.
- ▶ **SPECIAL USE AND PROTECTED AIRSPACE:** One of the largest airspace complexes in North America, including approximately 18,000 square nautical miles of low-altitude (below 18,000 feet MSL) and high-altitude (above 18,000 MSL) SUA, some extending as high as 45,000 feet MSL and as low as 300 feet over Lake Huron. It includes approximately 935 square nautical miles of protected airspace for dangerous activities like tactical flight maneuvering, air interdiction, aerial denial, chaff and flare release, aerial gunnery, and bombing designed to protect nonparticipating aircraft.

The training activities at Camp Grayling JMTTC bring as many as 250,000 personnel through the area per year. The installation supports 44 Army National Guard personnel, 54 state employees, and 20 contract employees with an additional 56 temporary employees during training events.

2.1.6 Demographics

The Camp Grayling JMTc study area for this JLUS is set in a largely rural area in Michigan. As of 2017, data shows 1,820 people reside in the City of Grayling, with 5,705 residing in Grayling Township. In general, northern Michigan is much less urban than the rest of the state, and the study area is primarily rural.

Although there are only about 174 personnel housed at Camp Grayling JMTc annually, approximately 10,000 troops train there throughout the year. Camp Grayling JMTc is a continued source of economic activity for the local community. The federal funds that pay camp employee salaries are subsequently used to pay local taxes and to support schools, hospitals, churches, and local businesses.

Outside of the military, property tax is the primary generator of revenue. The City of Grayling has a workforce population of 803 people. In 2017, the leading industries in Grayling were health care, social services, retail, accommodation and food services, and public administration.

Population Projections

Population in the area has slowly been declining since 2000. This could be due to the aging population of Grayling and high poverty rates. However, unemployment rates have decreased significantly, dropping from 15.3 percent in 2010 to 5.6 percent in 2016. Also, the cost of living is very low compared to other rural areas in the region. The forecasted population looks to increase by the year 2022 due to key growth potential factors. See Figure 2.2, City of Grayling Population Trend, 1910-2020.

Growth Potential

There are several key growth potential factors and strategies that the Camp Grayling JMTc study area has planned to implement. These plans are in place to help boost the economic and population growth potential in the area.

In an effort to attract skilled talent to the area and curb a decreasing population, a 10-year talent plan was commissioned for the 11-county Northeast Michigan region. The

plan focuses on long-term growth, bringing to the region full-time, higher-wage positions in the highest growth industries. The Northeast Michigan 10-year talent plan provides a timeline, best practices, and recommendations for assessing and bringing in skilled employees to the region. Northeast Michigan is looking to adequately plan for long-term growth by anticipating industry trends and educational needs. The vision for the future of Northeast Michigan is to fill 10,000 jobs in 10 years. For details, see Table 2.1, Northeast Michigan Industry Forecast.

Grayling will soon experience a resurgence in the forestry industry. A Chilean forestry company, Arauco, is opening a particle board factory in 2018. This is poised to bring in hundreds of local jobs and boost the economy significantly. Once the factory opens, it will become the second-largest county employer after Grayling's hospital, dropping Camp Grayling JMTc to third largest.

The City of Grayling has recently prepared a thorough economic development strategy. The strategy specifies detailed steps, responsible parties, and timelines for implementation to boost Grayling's economic growth. The steps focus on the key issues in the area, some of which include:

- ▶ Child care options
- ▶ Better communication with Camp Grayling JMTc
- ▶ Transportation
- ▶ Housing options
- ▶ Cell service and internet access
- ▶ Diversity in dining options
- ▶ Appearance improvement to the downtown area

Figure 2.2 | City of Grayling Population Trend, 1910-2020

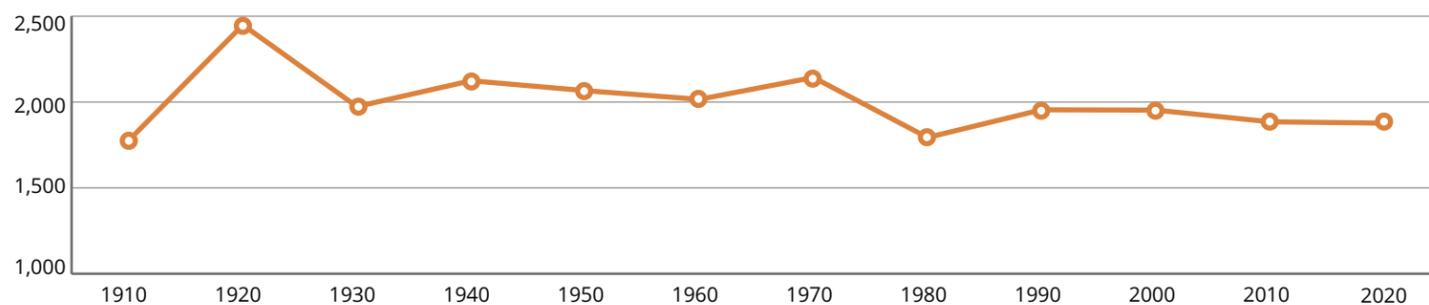


Figure 2.3 | Camp Grayling JMTc Study Area

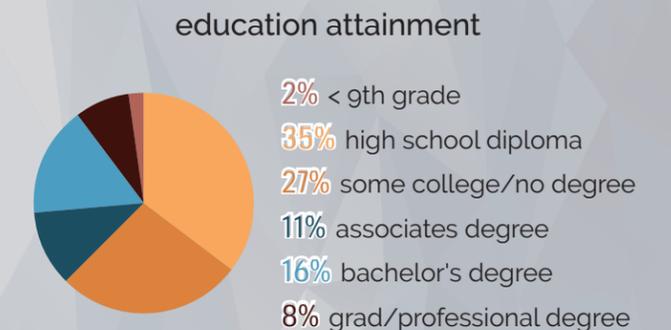
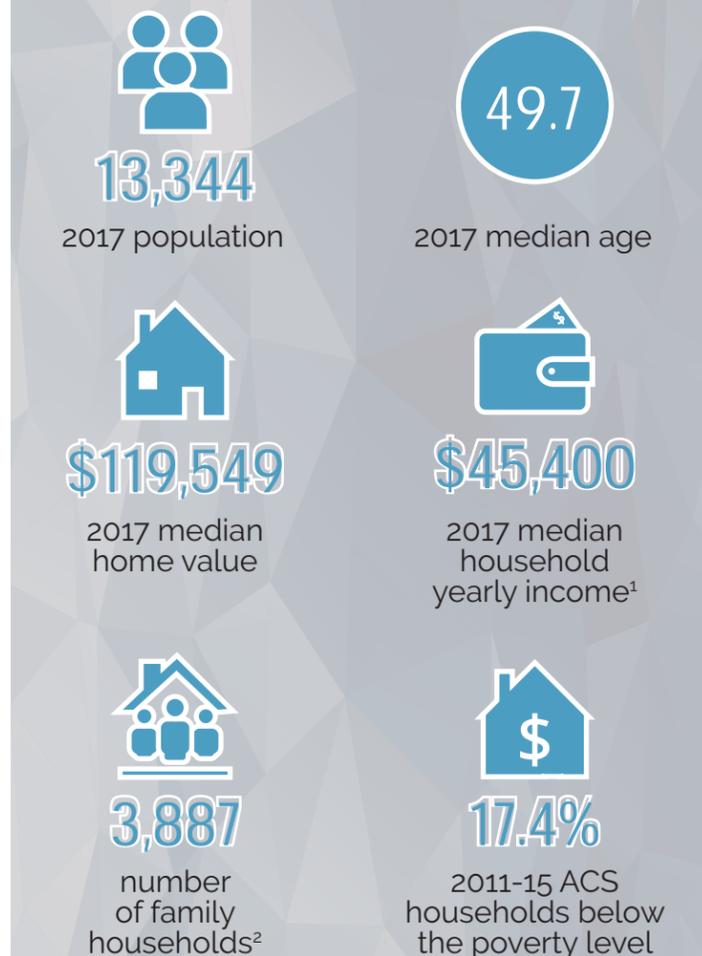


Table 2.1 | Northeastern Michigan Industry Forecast

INDUSTRY	EMPLOYMENT 2012	EMPLOYMENT 2022	PERCENT CHANGE (%)
Retail Trade	10,960	10,860	-0.9
Healthcare and Social Assistance	9,560	10,212	6.8
Transportation and Warehousing	1,460	1,630	11.6
Manufacturing	5,170	5,420	4.8
Construction	2,380	2,780	16.8
Agriculture, Forestry, Fishing, and Hunting	1,790	1,850	3.4
Professional and Business Services	2,320	2,620	12.9
Accommodation and Food Services	6,410	6,860	7.0
Leisure and Hospitality	7,530	8,040	6.8
Government	6,270	6,090	-2.9
Financial Activities	2,320	2,360	1.7

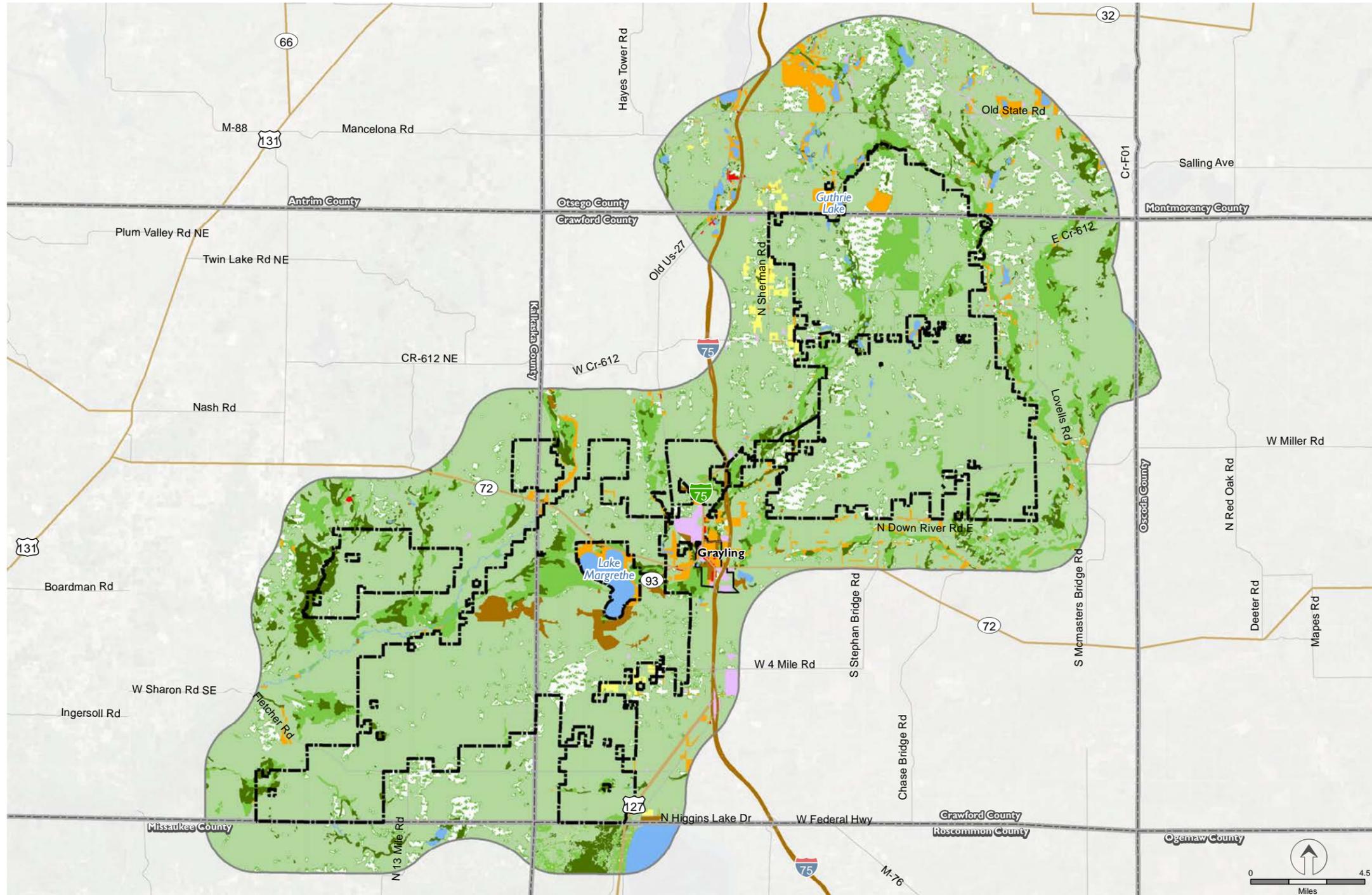
Source: http://www.discovernortheastmichigan.org/downloads/rpi_10_year_talent_plan.pdf

Figure 2.4 | Camp Grayling JMTc Study Area Demographics



1. Esri
2. 2010 US Census

Figure 2.5 | Camp Grayling JMTC Land Use



- | | | | |
|------------------------|--------------------------|--------------------|------------|
| Camp Grayling JMTC | Existing Land Use | Agricultural | Wetlands |
| JLUS 2-Mile Study Area | Residential | Non-Forest Uplands | Water |
| County Boundary | Commercial | Upland Forest | Industrial |
| | Institutional/Service | Lowland Forest | |

2.1.7 Land Use

The divisions of land use are categorized into natural areas and those created by human activity. They were organized in this manner to reconcile the differing land-use categories provided by the counties within the study area. Man-made uses are concentrated along the roadways throughout the study area but primarily located in the City of Grayling. Areas of man-made uses consist of commercial, industrial, recreational, and residential uses; the map only indicates the locations of the uses, not the density of these uses.

It should be noted that land use is a portrayal of the actual use of real property and, while it informs zoning, is not considered to be legally enforceable. It is generally used for reference and various data analytics. Many of these land uses may be in conflict with codified land-use regulations that are governed by the townships that fall within the study area boundaries. Often the land use map is used as the template for the creation of zoning laws that are compatible with the current land uses, or in some cases to alter a certain use for desired future development.

The study area for the Camp Grayling JMTC consists of over 300,000 acres of various land uses. Included in the land-use analysis are Crawford, Kalkaska, and Missaukee counties. A vast majority, approximately 96 percent, of the area are natural uses. These include lowland and upland forest, wetlands, water, and nonforested uplands. Among the land uses that are man-made, residential areas consist of 2 percent and are mainly located around Lake Margrethe and in the City of Grayling.

Figure 2.6 | Camp Grayling JMTC Study Area Land Use Distribution

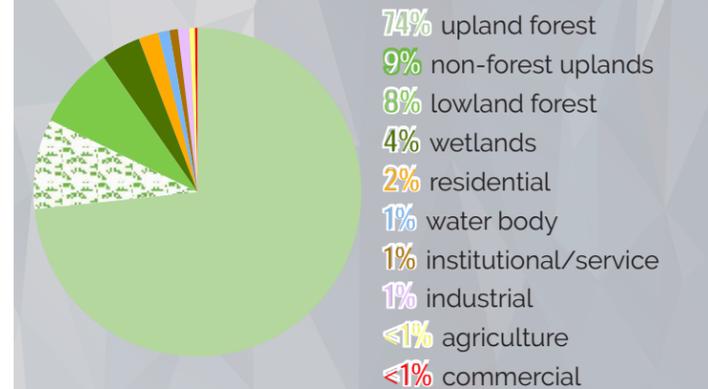


Figure 2.7 | Guthrie Lakes Land Use

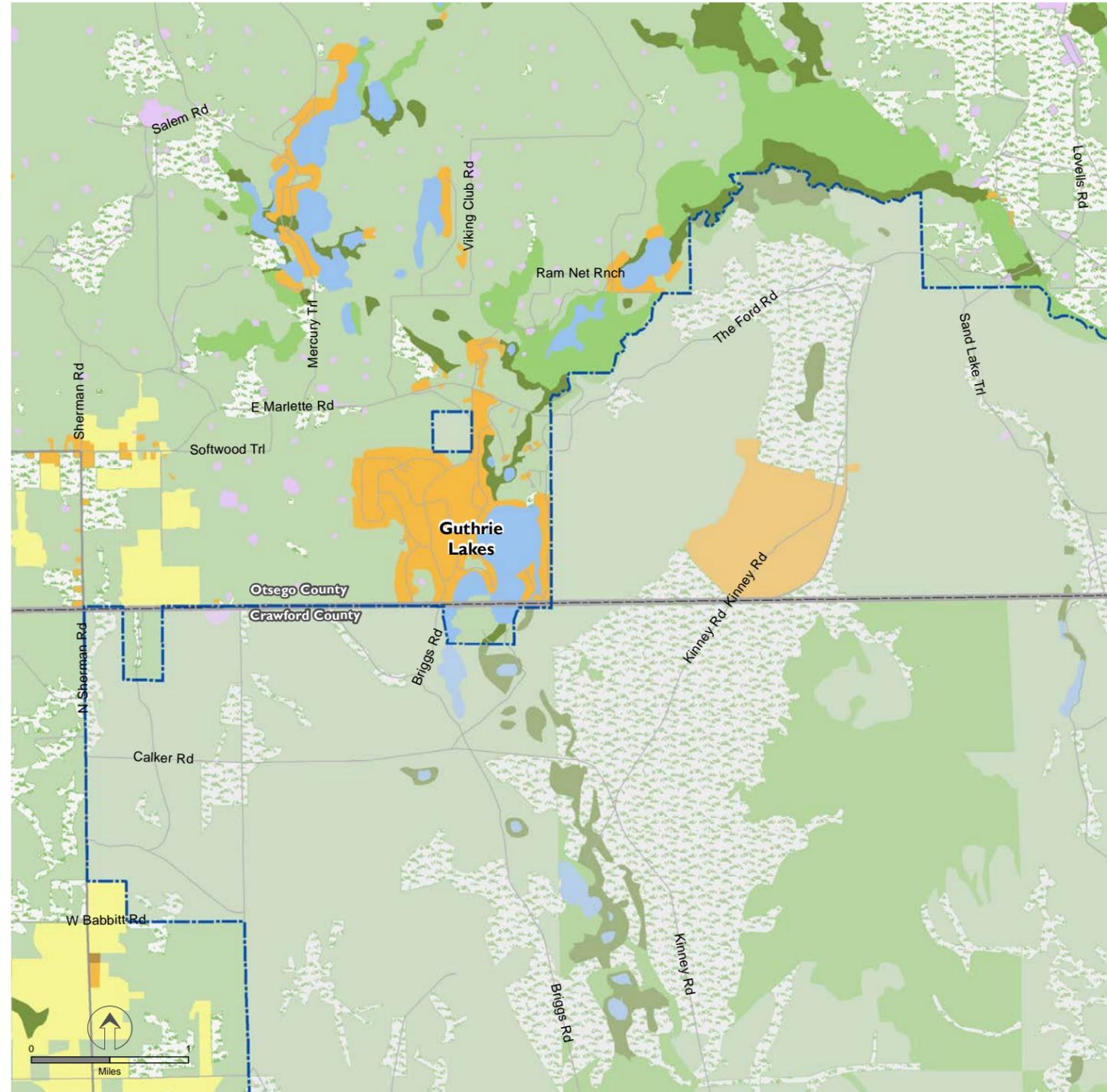


Figure 2.8 | City of Grayling Land Use

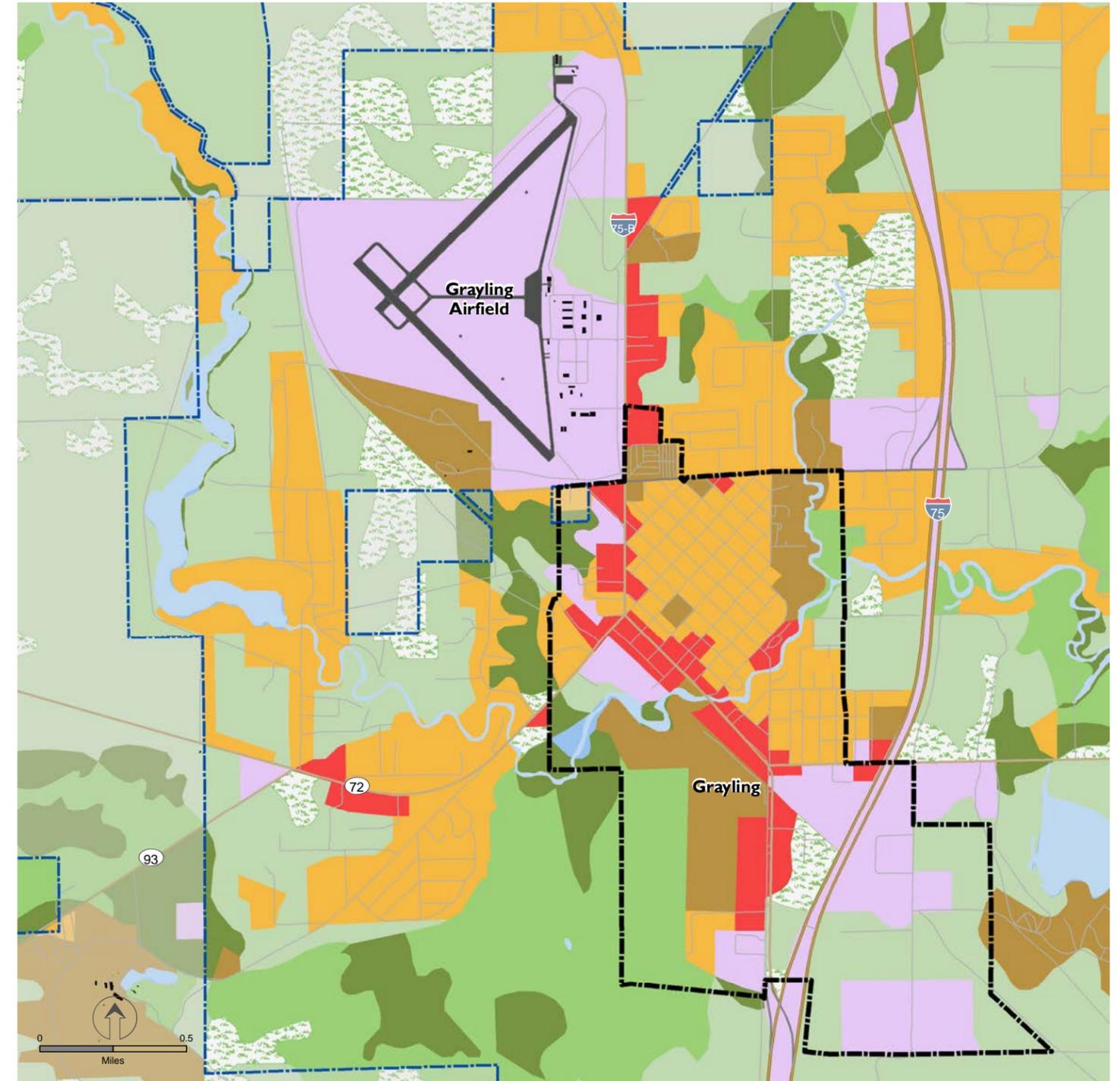
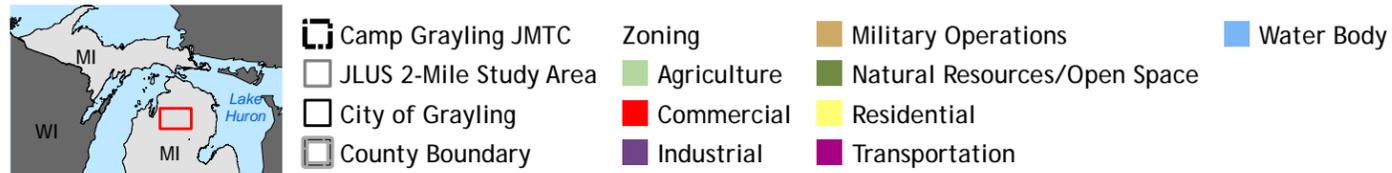
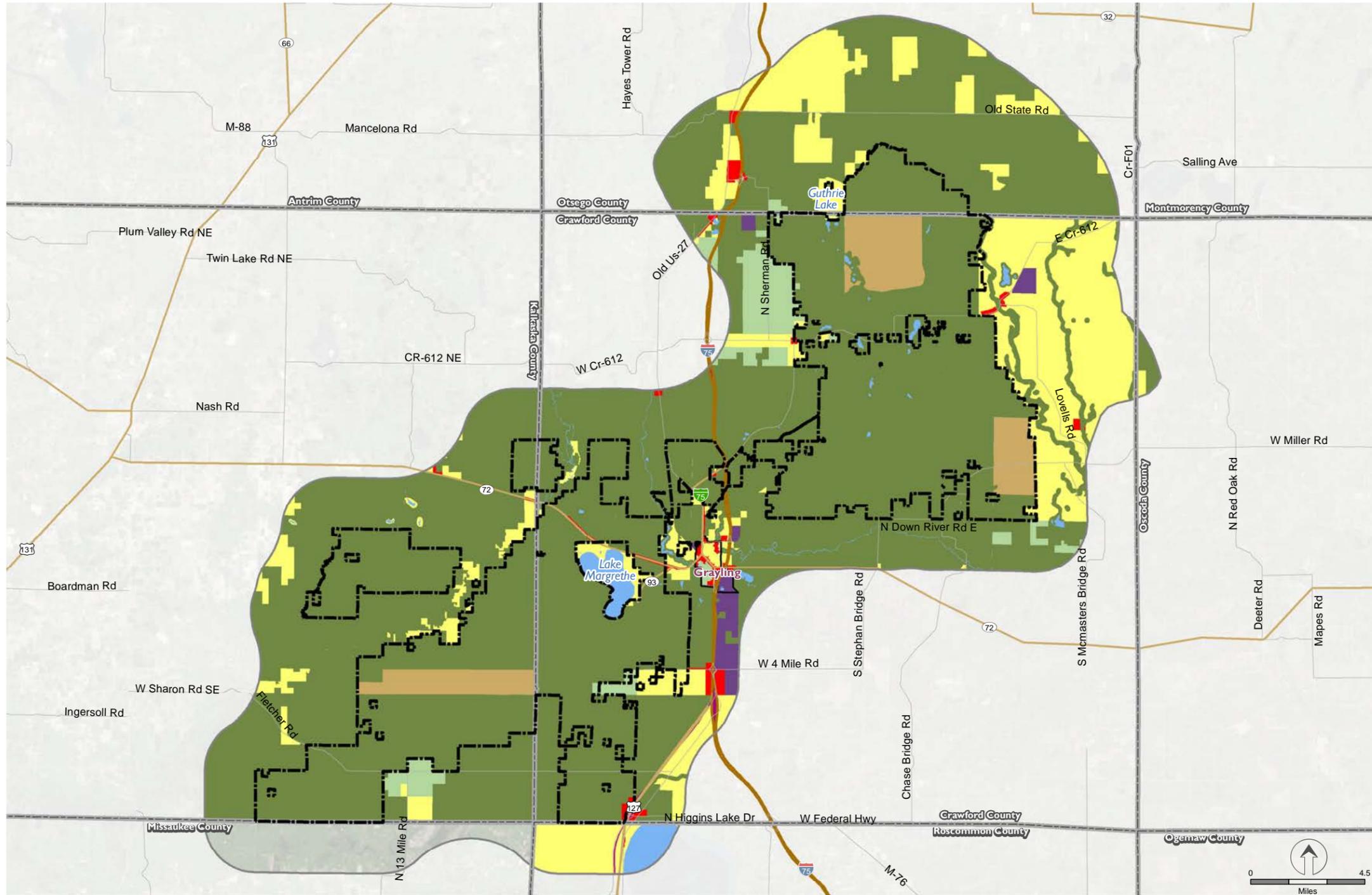


Figure 2.9 | Camp Grayling JMTc Zoning



2.1.8 Zoning

The Camp Grayling JMTc study area includes portions of six counties, each with their own zoning regulations and/or zoning controlled by the townships within. Endowed by the state of Michigan to enforce zoning, the townships included in the study area have created zoning for each of their respective jurisdictions. The zoning data analyzed for this section was taken from the townships and the City of Grayling that are within Crawford County, Kalkaska County, Otsego County, Oscoda County, and Roscommon County. Missaukee County is not zoned.

The varying zones have been grouped into eight categories that best fit the overall description of the zone. While the categories do not take into account the intensity of the zone, they lay out the legal mechanisms available within the study areas that control the use of property.

Among the zoning categories, a natural resource (or open space type district) is the largest at 72 percent of the study area. This zone contains large portions of Camp Grayling JMTc that are inaccessible by nonmilitary personnel. Recreational areas accessible to the public at Camp Grayling JMTc area not included. The second-largest zoning category is residential, at varying levels of density. This category accounts for 16 percent of the study area. Although the zone category is located throughout the area, the highest densities are within the City of Grayling. Residentially zoned areas in the eastern portion of the study area are of very low density despite covering a large area. It should be noted that the military operations zone is a category assigned by only one of the townships within Crawford County and is not representative or inclusive of the entirety of Camp Grayling JMTc.

Figure 2.10 | Camp Grayling JMTc Zoning Distribution

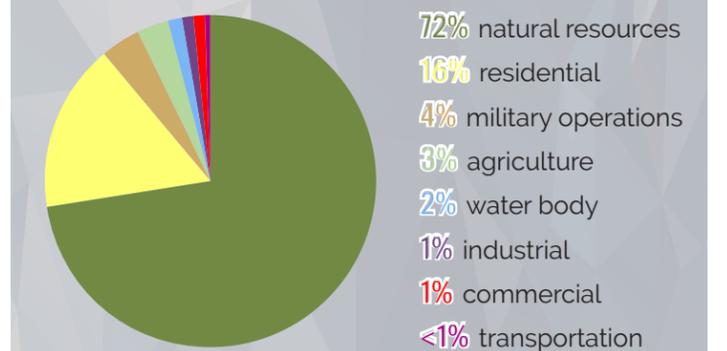


Figure 2.11 | Guthrie Lakes Zoning

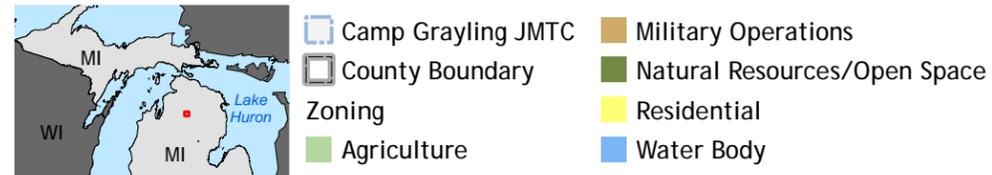
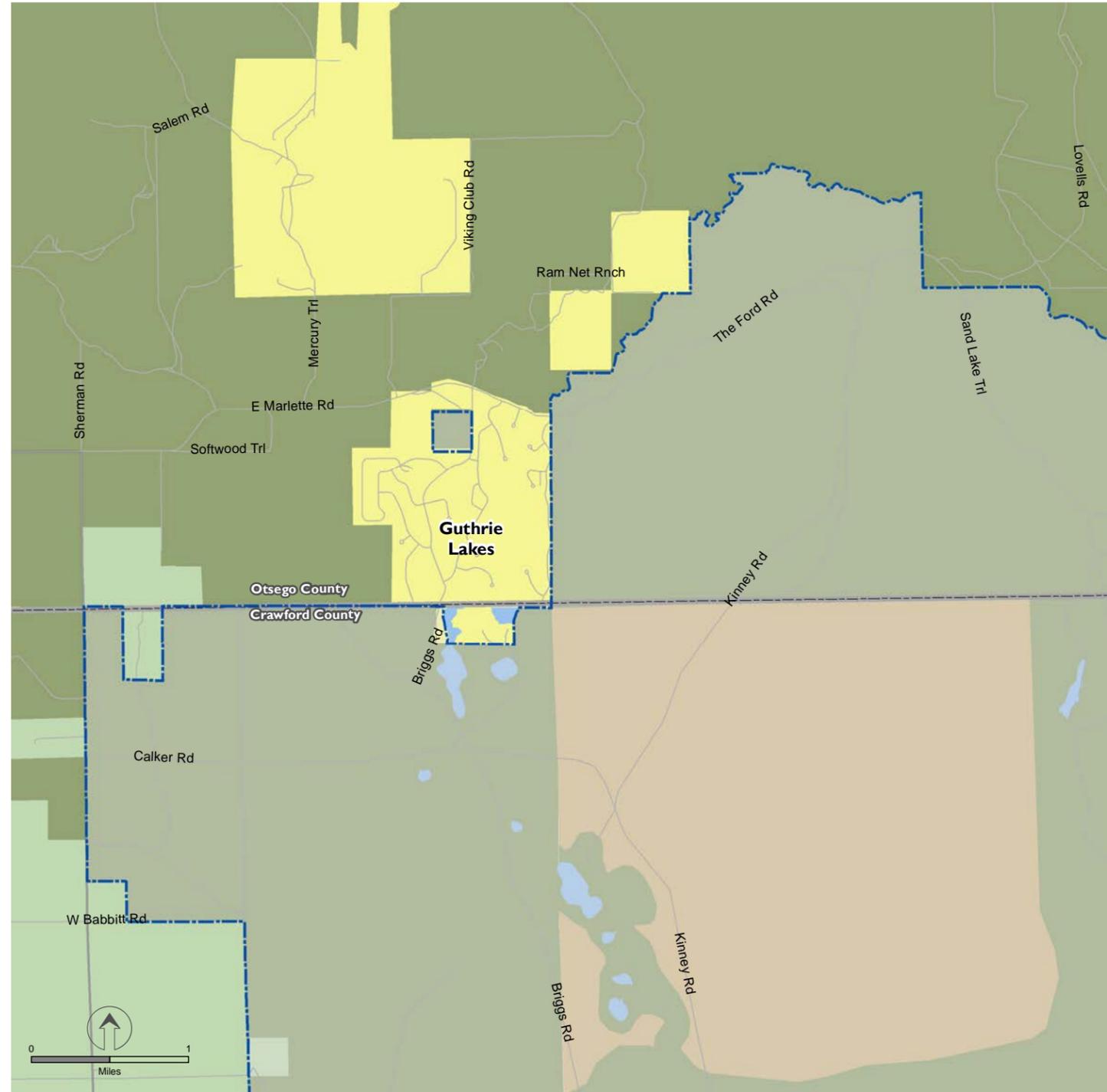


Figure 2.12 | City of Grayling Zoning

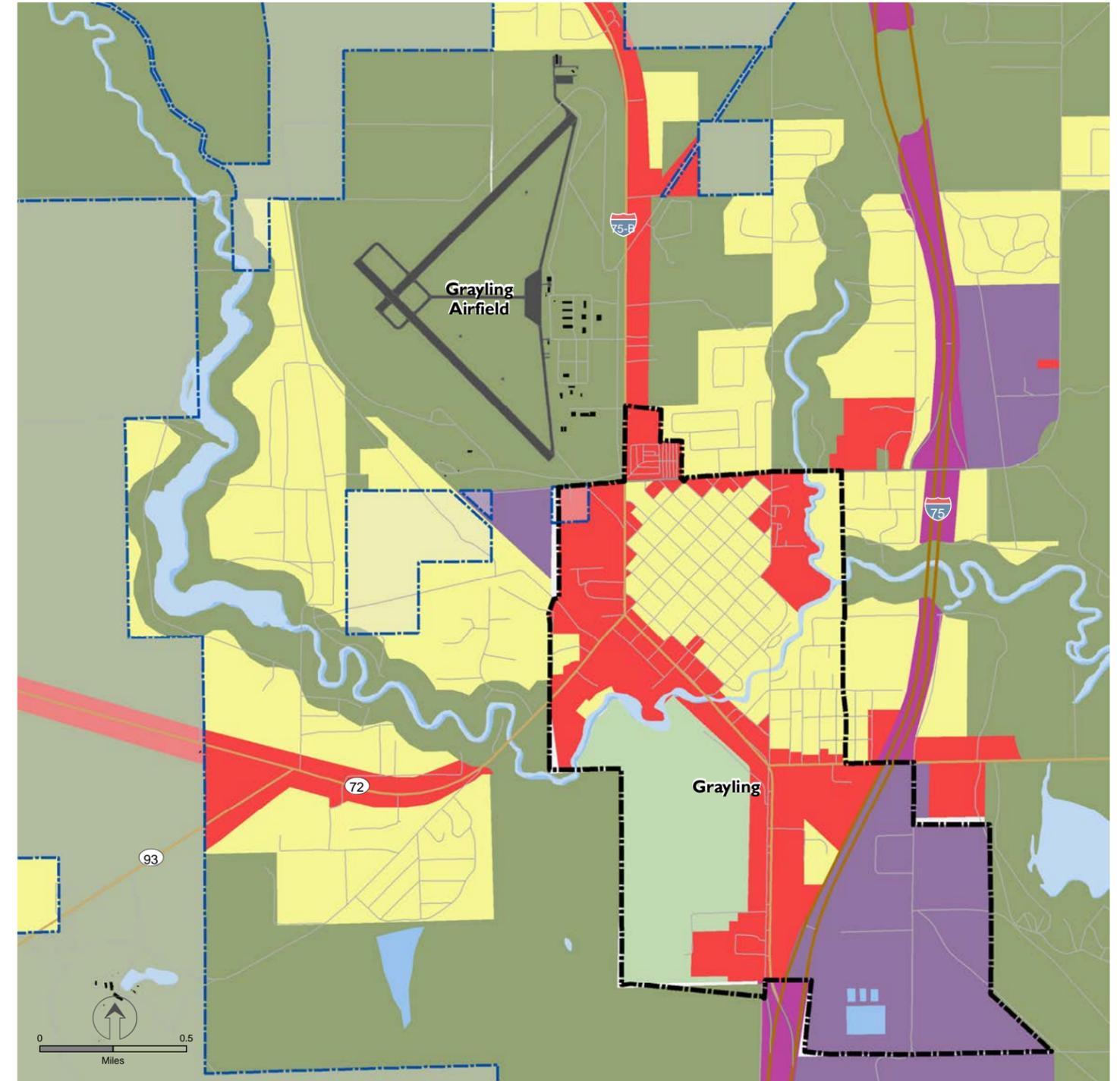
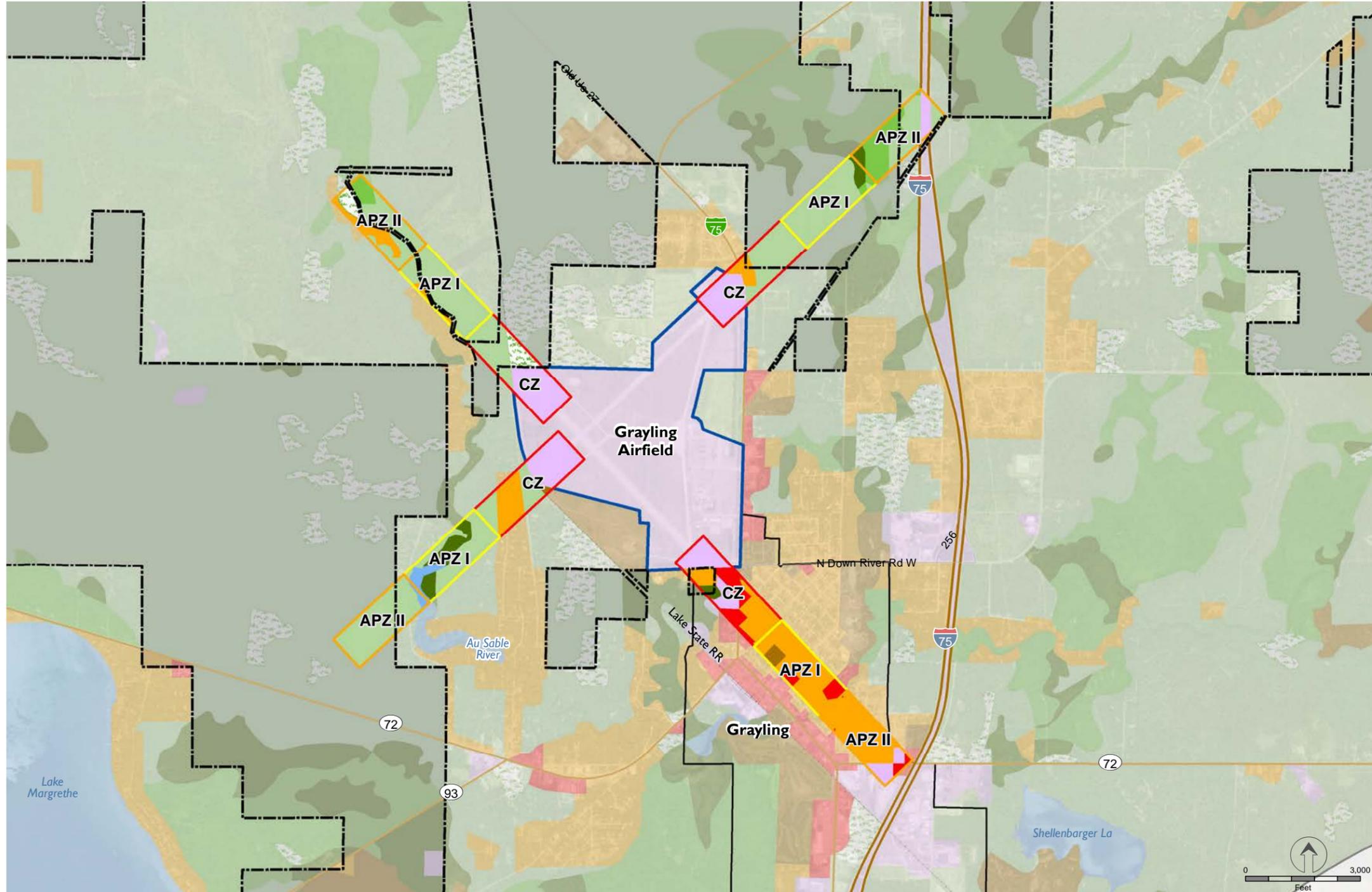


Figure 2.13 | Camp Grayling JMTc Incompatible Use – Land Use in APZs



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|--------------------|---------------------------|--------------------------|--------------------|------------|
| Camp Grayling JMTc | Air Accident Zones | Existing Land Use | Non-Forest Uplands | Water |
| Grayling Airfield | APZ I | Residential | Upland Forest | Industrial |
| City of Grayling | APZ II | Commercial | Lowland Forest | |
| | Clear Zone (CZ) | Institutional/Service | Wetlands | |

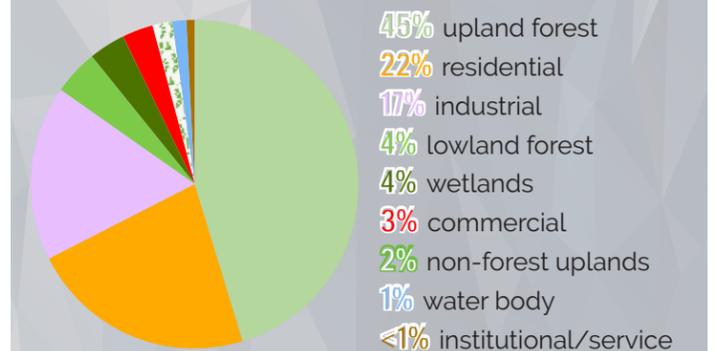
2.1.9 Incompatible Use

Land Use in APZs

Clear zones (CZ) and accident potential zones (APZs I and II) occur at the ends of runways and were established based on crash patterns. For an Army Class A runway – designed for small, light aircraft – the CZ starts at the end of the runway and extends outward 3,000 feet at 1,000 feet wide. It has the highest accident potential of the three zones and has few uses that are compatible. APZ I extends from the CZ an additional 2,500 feet in an area of lower but still considerable accident potential, and APZ II extends out from APZ I an additional 2,500 feet, possessing less accident potential than APZ I but still enough to warrant land use restriction recommendations.

The majority of the APZ for Grayling AAF falls within the jurisdiction of Grayling Township and the City of Grayling. Within those areas that fall into the APZ, the majority is made up of natural uses at 56 percent. Residential use makes up 22 percent of the land within the APZs, followed by 17 percent industrial, 3 percent commercial, and less than 1 percent institutional.

Figure 2.14 | Camp Grayling JMTc Land Use Distribution in APZs



Land Use in Noise Contours

Varying uses of the land within the 75+ dB noise contours highlights the many opportunities for harmful human exposure to increased sound levels. A vast portion of the land uses within this area are classified as either a forest or wetland and thus the likelihood of human exposure is decreased. However, 2 percent of the use is residential, which would have higher chances of exposure to higher sound levels.

Figure 2.15 | Camp Grayling JMTc Incompatible Use – Land Use in Noise Contours

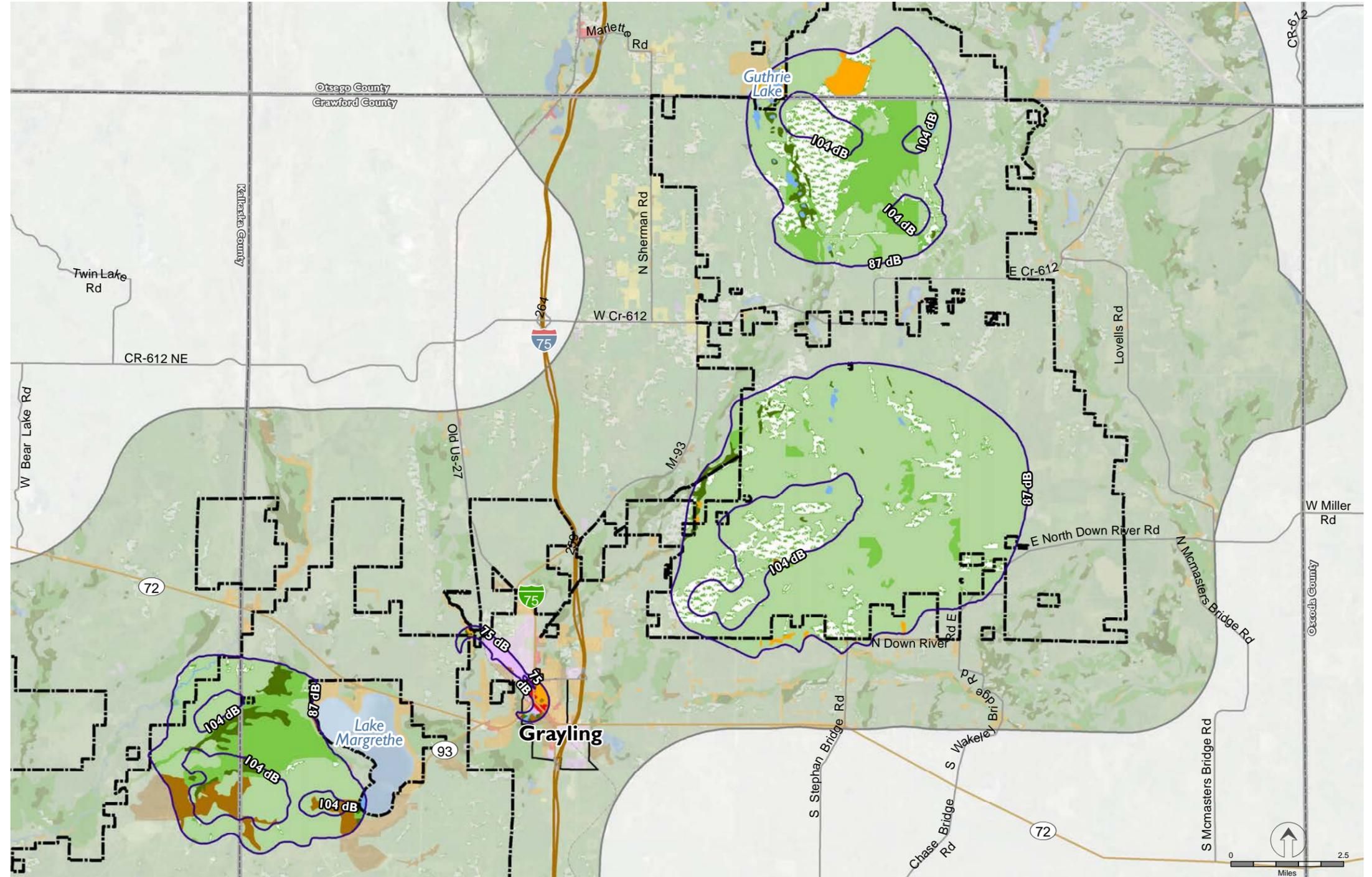


Figure 2.16 | Camp Grayling JMTc Land Use Distribution in Noise Contours

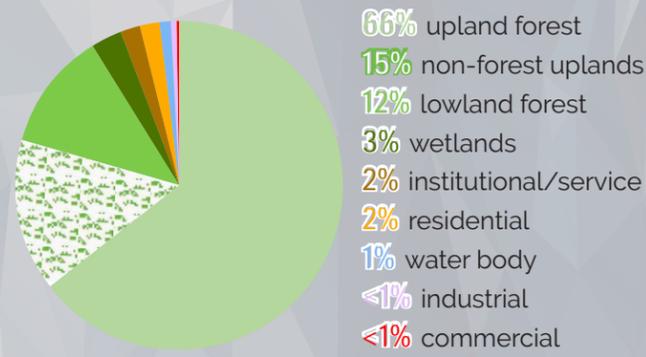


Figure 2.17 | Guthrie Lakes Land Use in Noise Contours

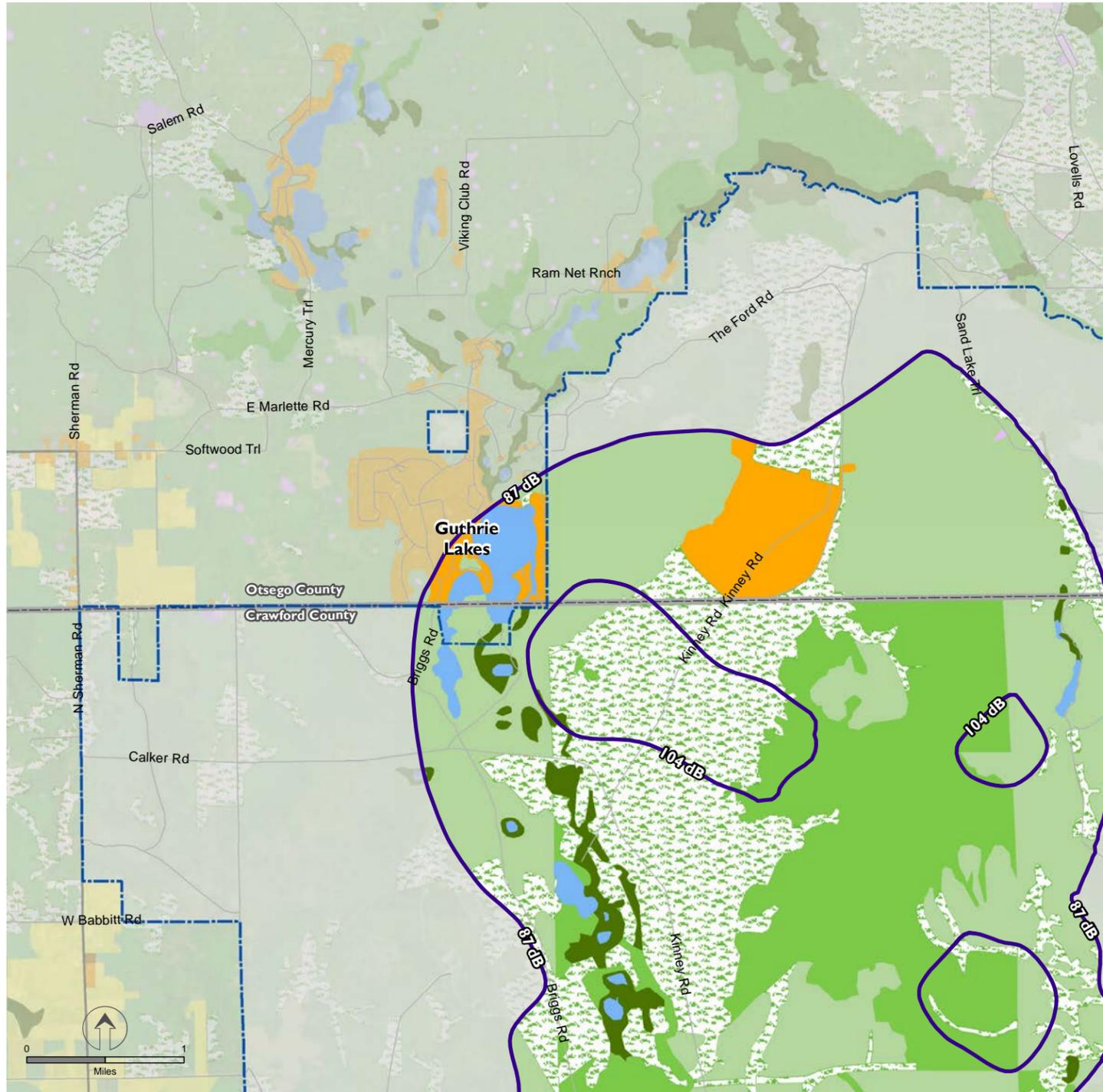
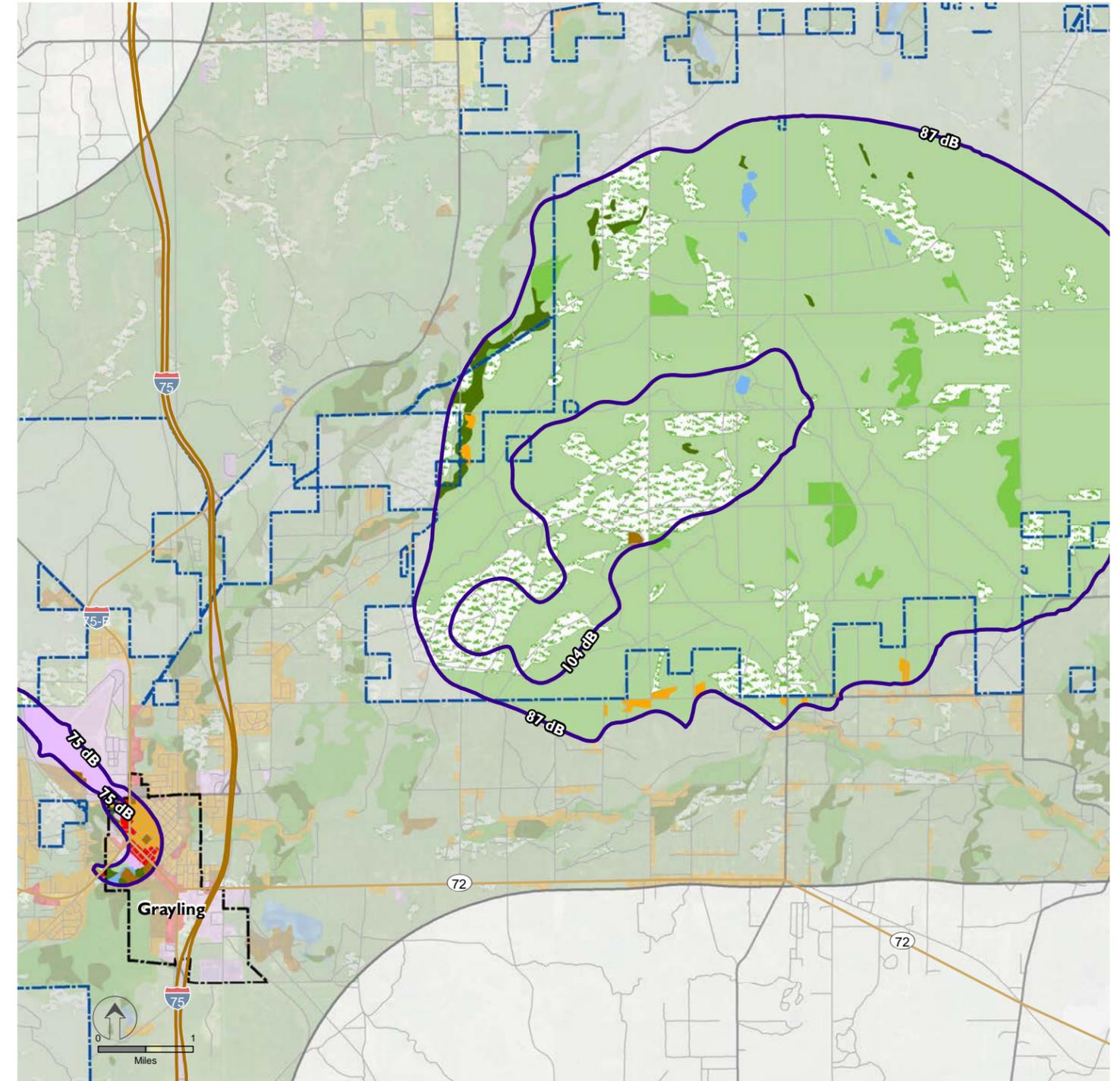


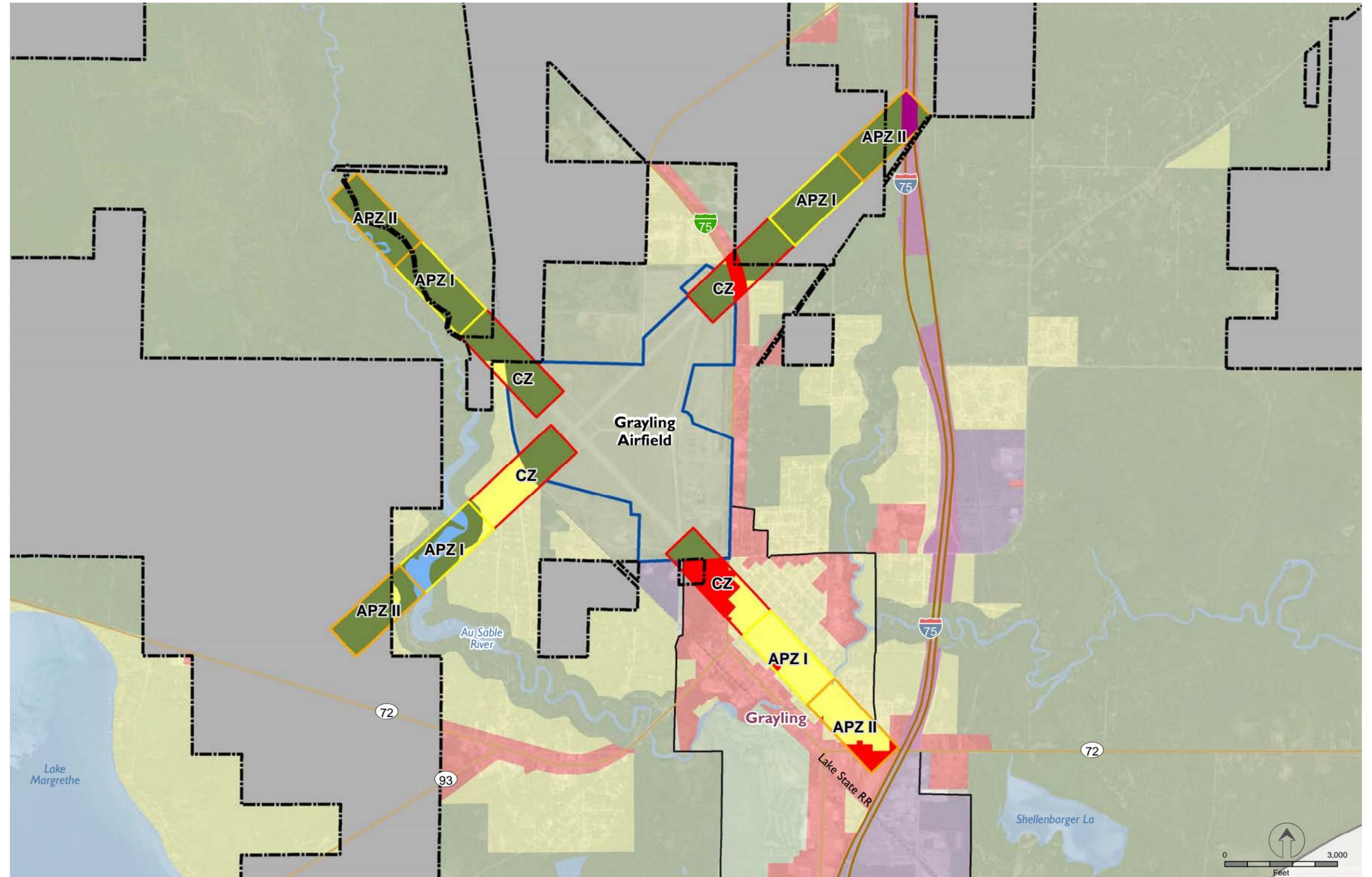
Figure 2.18 | Camp Grayling JMTc Cantonment/North Camp Land Use in Noise Contours



Zoning in APZs

The majority of the APZ for the Grayling AAF falls within the jurisdiction of the Grayling Township and the City of Grayling. Within those areas that fall into the APZs, 63 percent are categorized as natural resource/open space, and 31 percent are classified as some form of residential or commercial. Residential zones make up 24 percent, or approximately 175 acres. The commercial and residential zones that fall within the APZ and CZ areas cover the densest area of the City of Grayling, meaning a large number of residents could potentially be exposed to a potential accident scenario.

Figure 2.19 | Camp Grayling JMTC Incompatible Use – Zoning in APZs



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|--------------------|---------------------------|------------------------------|-------------|
| Camp Grayling JMTC | Air Accident Zones APZ I | Zoning Commercial | Residential |
| Grayling Airfield | Air Accident Zones APZ II | Industrial | Water Body |
| City of Grayling | Clear Zone (CZ) | Natural Resources/Open Space | |

Figure 2.20 | Camp Grayling JMTC Zoning Distribution in APZs

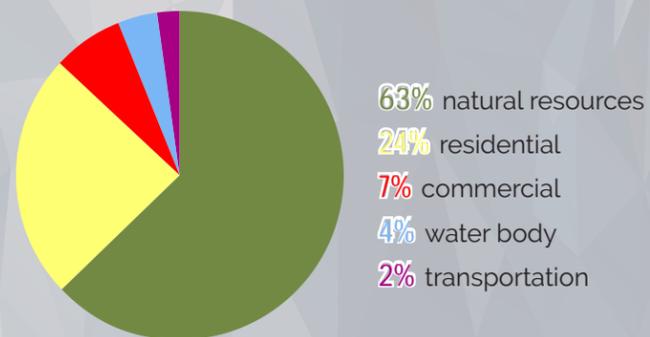
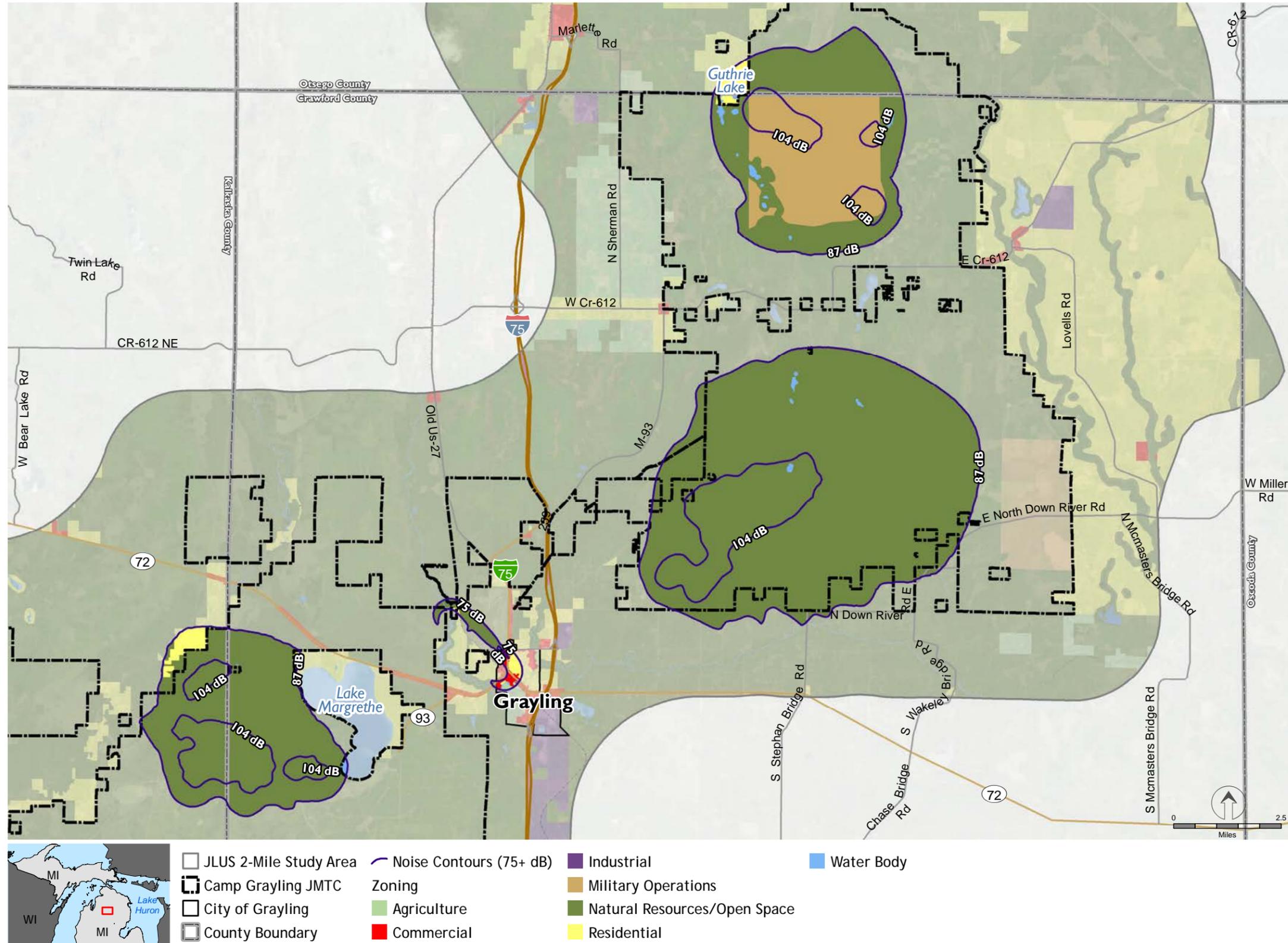


Figure 2.21 | Camp Grayling JMTC Incompatible Use – Zoning in Noise Contours



The Guthrie Lakes residential area lies inside the Range 40 noise contours.

Zoning in Noise Contours

A large majority, 86 percent, of the areas that fall within the 75+ dB contours are zoned as natural resources/open space. Because of the limited development in this zone, human exposure to unhealthy decibel levels is likewise limited. Exceptions include the residential areas surrounding the Guthrie Lakes, residential zones in eastern Kalamazoo County, and portions of the City of Grayling. While these areas comprise only 2 percent of the 75+ dB areas, there is potential for the detrimental effects of the noise to be felt, and mitigation will need to occur in these areas.

In the worst case, residences are just 500 feet from the range boundary, 2,800 feet from established artillery firing points and approximately 1 mile from the impact area. That is too close for sound to dissipate to a reasonable level for a residential area.

Figure 2.22 | Camp Grayling JMTC Zoning Distribution in Noise Contours

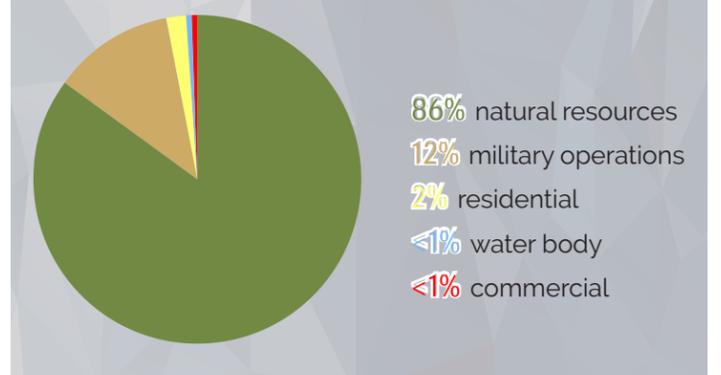


Figure 2.23 | Guthrie Lakes Zoning in Noise Contours

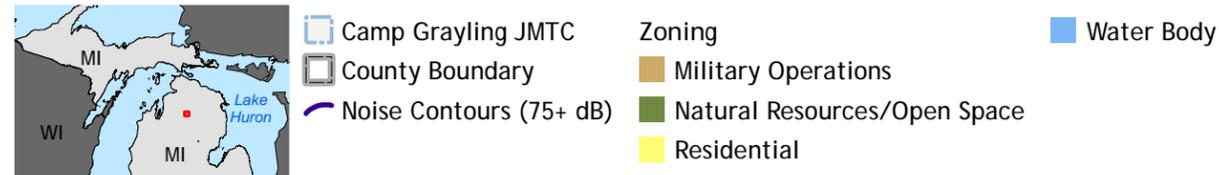
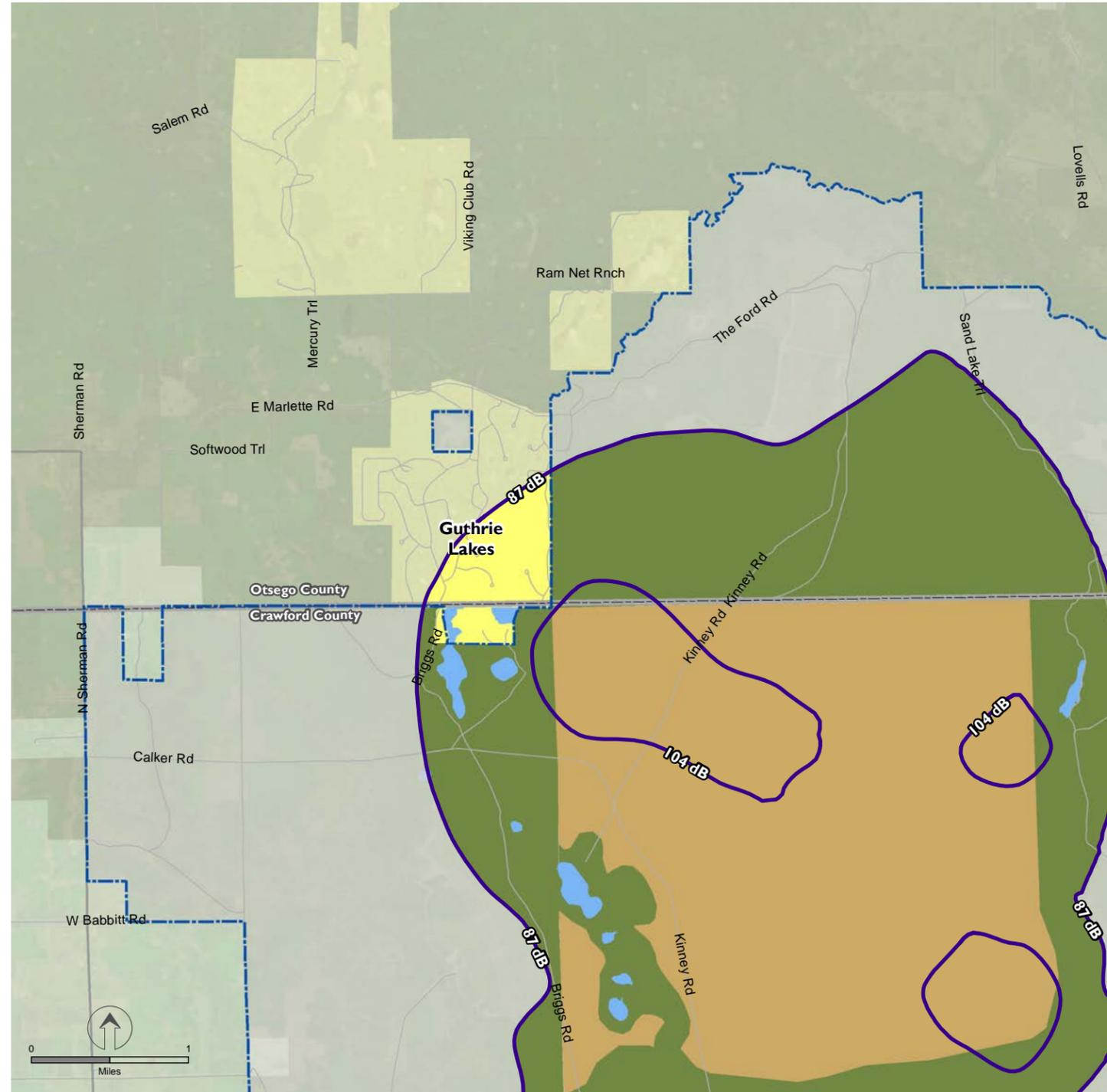
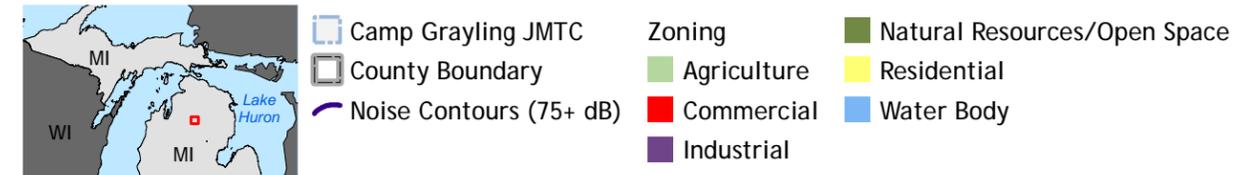
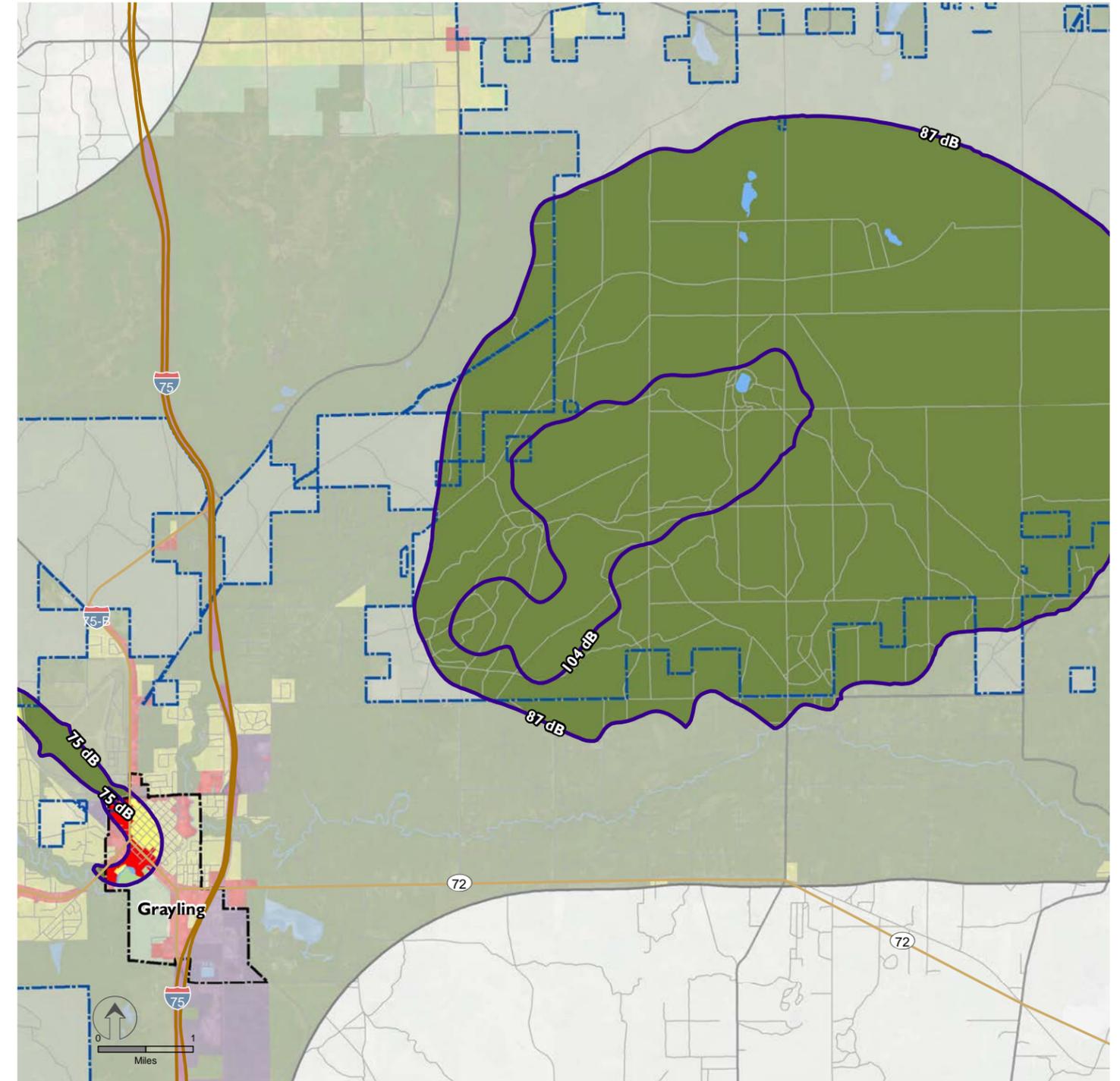


Figure 2.24 | Camp Grayling JMTc Cantonment/North Camp Zoning in Noise Contours



2.2 Camp Grayling JMTC Public Participation

The public participation process for Camp Grayling JMTC involved a suite of TC/PC meetings, stakeholder meetings, community survey, working group meetings, and one-on-one stakeholder interviews. The initial TC/PC meeting for Camp Grayling JMTC took place on April 24, 2017, at the University Center in Gaylord, Michigan. During this meeting, participants discussed expanding the TC list, approved the project work plan, and coordinated logistics for the tours.

The Camp Grayling JMTC installation tour for TC/PC members took place on June 5, 2017. The purpose of the tour was to provide TC and PC members with a more detailed understanding of the Camp Grayling JMTC operations, procedures, and facilities.

On June 6, 2017, TC and PC members met at Grayling Township Hall for a facilitated issues identification discussion. Through this meeting, TC and PC members identified an initial list of strengths, weaknesses, opportunities, and threats (SWOT) related to the Camp Grayling JMTC. Community stakeholders met the evening of June 6, 2017, at the Kirtland Health Sciences Center to engage in a similar issues identification discussion using the SWOT method. The JLUS project team advertised for this meeting in the Crawford County Avalanche and local radio stations. In addition, TC and PC members used their internal outreach mechanisms, such as email distribution lists and websites, to promote the meeting. During the meeting, the JLUS project team presented the JLUS process and facilitated an issues identification discussion. Section 2.3 provides more detail on this process and the results.

After the initial stakeholder meetings, the JLUS project team conducted a series of one-on-one interviews with key stakeholders. Sixty stakeholders participated in the interview process. In addition to interviews, the JLUS project team sought broader stakeholder input through a survey made available on the NEMCOG website for 3 months. A copy of the survey questions is available in Appendix B, as part of the Public Participation Plan. Members of the TC and PC used their existing outreach mechanisms, such as websites and newsletters, to help the JLUS project team promote participation in the survey. NEMCOG also provided information to the Crawford County Avalanche and local radio stations. Subsequent news articles and radio coverage promoted participation in the survey. Stakeholders submitted nearly 200 survey responses.

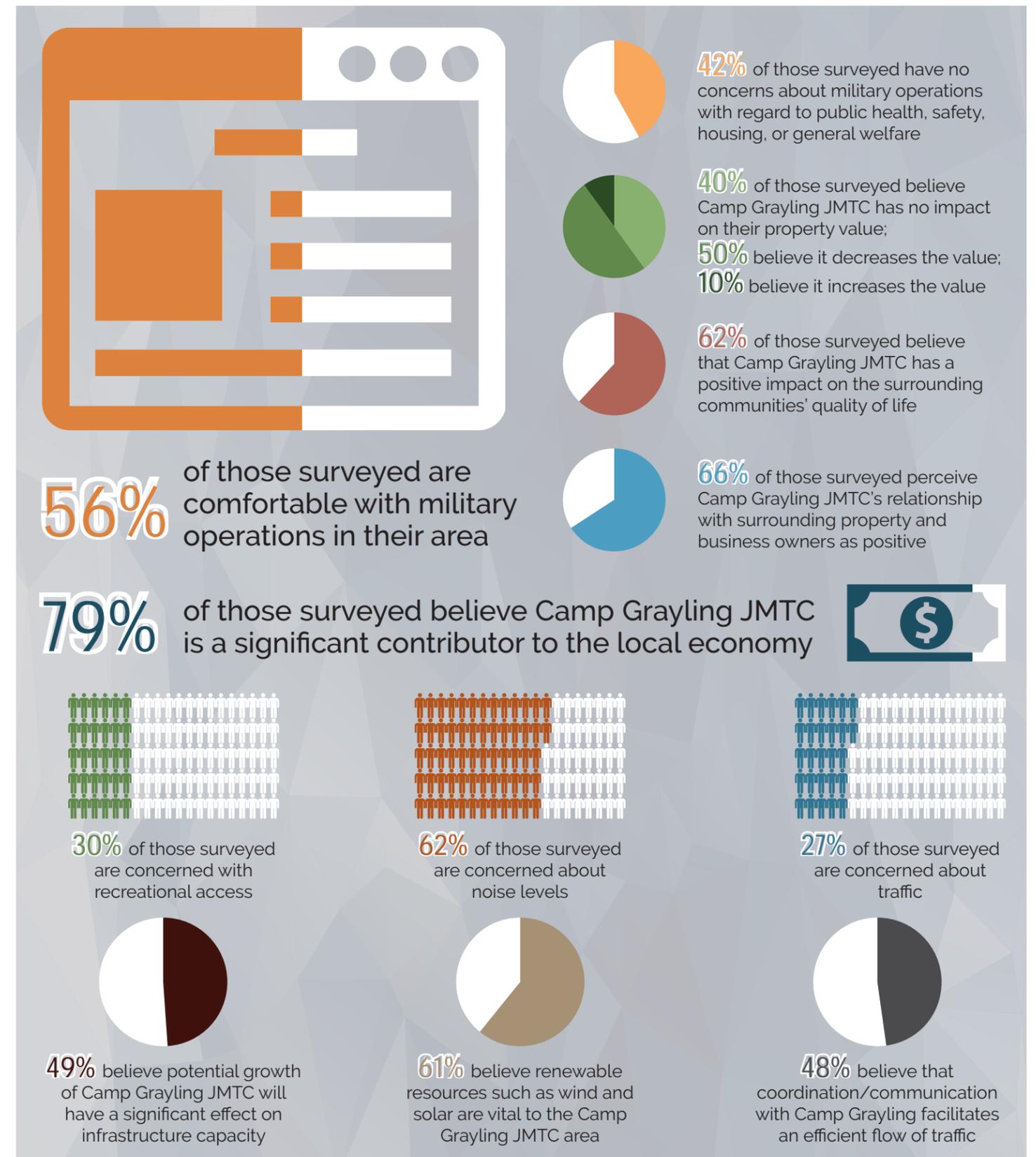
The survey results for Camp Grayling JMTC are presented in Figure 2.25. Overall, the survey responses indicate that a majority of stakeholders sharing their perspective are comfortable with the operations at Camp Grayling JMTC and believe it is a significant contributor to the local economy and has a positive impact on the quality of life of surrounding communities. Stakeholders responding to the survey have a greater concern about noise from Camp Grayling JMTC (62 percent) than recreational access (30 percent) or traffic (27 percent).

Stakeholder input from the SWOT analysis, the one-on-one interviews, and the survey helped the JLUS Project Team understand the comprehensive universe of issues and prioritize those issues for further strategy development. The second JLUS project stakeholder meeting for Camp Grayling JMTC took place October 10, 2017, at Camp Grayling JMTC. This community update and input meeting focused on reviewing the JLUS process steps, status, SWOT results, and identification of possible strategies to deal with priority issues identified by stakeholders. Additional news articles and radio coverage discussed this meeting and continued to promote participation in the online community survey.

Additional TC and PC meetings took place in November and December 2017 and continued through the spring of 2018. During these meetings, TC and PC members discussed JLUS project status and action items, data needs, and next steps.

Additional stakeholder meetings and working group sessions, both in-person and via conference calls, took place during 2018 to address details of the recommended strategies for each of the priority issues. During these meetings, stakeholders provided feedback on the strategies, identifying key information that will assist with successful implementation over time. The strategies and associated recommendations and challenges identified by the JLUS project team with input from stakeholders are described in more detail in Section 4.

Figure 2.25 | Survey Highlights





JLU stakeholders participate in a SWOT analysis during the June discussion meetings.

Figure 2.26 | Camp Grayling JMTc SWOT Results



(Items in the smallest font size got less than 5 votes.)

2.3 Camp Grayling JMTc Issues Overview

2.3.1 Issue Definition Process

The first opportunity for the public and project stakeholders to share thoughts on their proximity to Camp Grayling JMTc was at a series of discussion meetings on June 6, 2017. There, the consultant team led TC and PC members through an issues collection exercise to gather input. These issues could be positive or negative.

The issues were sorted into four categories: strengths, weaknesses, opportunities, and threats, and then meeting participants voted on which issues mattered the most to them. Later that same day, the consultant team led area residents through the same exercise at a public meeting. The results of that analysis can be seen in Figure 2.26, Camp Grayling JMTc SWOT Results. Larger font size indicates issues that received the most votes. Detailed results are provided in Appendix C. Additional notes and input were gathered during the meetings, as well as during individual interviews with stakeholders.

All of the input from stakeholders, the TC and PC, and the online survey was considered when drafting the final list of

issues. The survey was closed on November 30, 2017, with over 200 responses.

Along with stakeholder feedback, a large trove of data from NEMCOG and other local sources was considered, including demographic data, existing studies, and geographic information systems (GIS) data on land use and other facets of the region.

Six overarching categories emerged:

- ▶ Military Operations
- ▶ Noise
- ▶ Environmental
- ▶ Transportation and Infrastructure
- ▶ Community Partnerships
- ▶ Economic Development

All of the issues raised fell into one of those categories, which are described in more detail on the following pages.

Figure 2.27 | Camp Grayling JMTc Issues Analysis Process

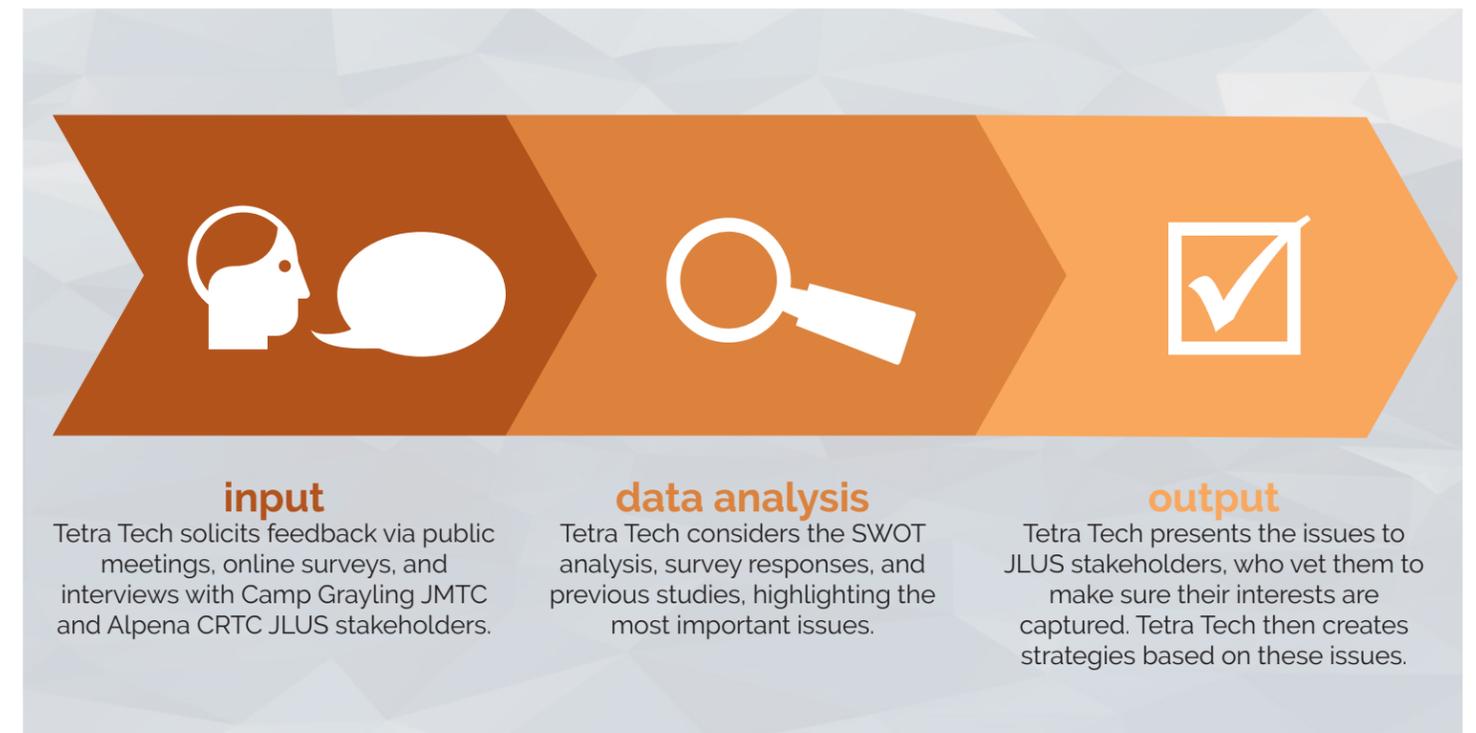


Table 2.2 | Camp Grayling JMTC Issues

ISSUE ID	DESCRIPTION	SOURCE
Noise		
1a	Impact of Aircraft Noise on Communities	SWOT
1b	Tree Cutting Reduces Noise Buffer	Survey
Military Operations		
2a	Flight Path over Homes	SWOT
2b	Noise and Vehicular Disruption from MATES	SWOT
2c	Noise and Vibration from Night Training	Survey
2d	Population Growth may Encroach on the Mission	Survey
Environment		
3a	PFOS and PFOA Contamination of Groundwater	SWOT
3b	Impacts/Effects on Groundwater and Drinking Water	SWOT
3c	Impacts/Effects on Surface Water Systems	SWOT
3d	Base Effects on Health of Wildlife Populations	SWOT
3e	Wildfire Management	SWOT
3f	Resource Use and Sustainability	SWOT
Transportation/Infrastructure		
4a	Effects of Growth on Utilities	Survey
4b	Improve Internet Access	SWOT
4c	Poor Cellular Reception	SWOT
4d	Traffic	Survey
4e	Recreational Access	Survey
4f	Poor Road Condition	SWOT
Community Partnerships		
5a	Communications/Education	SWOT
5b	Public Relations/Community Involvement	SWOT
Economic Development		
6a	Effect on Property Value Mostly Perceived as Neutral or Positive	Survey
6b	Significant Contributor to Local Economy	SWOT
6c	Economic Incentivizing and Monitoring	SWOT

For a complete list of issues, see Appendix C, SWOT Results.



Military personnel train on many different types of aircraft, vehicles, and weapons systems at Camp Grayling JMTC.

2.3.2 Camp Grayling JMTC Noise and Military Operations Issues

Noise issues are generated by military operations including ground activities at the Camp Grayling JMTC ranges and air activities throughout the region stretching from the Canadian border to the north, the middle of Lake Huron to the east, and to Camp Grayling JMTC to the west. This vast area supports all manner of military activities necessary for training military personnel in preparation for combat. There are primarily three types of military airspace:

- ▶ **MILITARY OPERATIONS AREAS (MOAS):** These lie in what is considered low-altitude airspace below 18,000 feet MSL. This type of airspace does not restrict commercial or private air traffic but pilots are warned that the area (when activated) can contain high-speed military aircraft conducting potentially dangerous tactical maneuvers that may endanger non-participating aircraft.
- ▶ **AIR TRAFFIC CONTROLLED ASSIGNED AIRSPACE (ATCAA):** This is above 18,000 feet MSL. Air traffic in Class-A airspace is controlled by regional Air Route Traffic Control Centers, preventing interaction between military aircraft performing potentially dangerous activities and non-participating aircraft.
- ▶ **RESTRICTED AIRSPACE:** This extends from the surface up through low-altitude airspace and often well into high-altitude airspace. Air traffic is restricted in these areas to military aircraft under the control of a military organization conducting separation services of the various ground-borne and air activities.

In fiscal year (FY) 2017, the MOAs were activated and used in relatively small amounts of time. When not activated, they are considered open airspace for use by any and all commercial and private pilots. The annual hours recorded for those SUA are listed in Table 2.3, Airspace Use.

Table 2.3 | Airspace Use

AIRSPACE	HOURS ACTIVE	HOURS USED
Pike East MOA	129	104
Pike West MOA	242	189
Steelhead MOA	493	313
Lumberjack ATCAA	156	140
Garland ATCAA	211	181
Firebird ATCAA	156	140
Molson ATCAA	0	0
Steelhead ATCAA	228	193

These hours are out of the total available hours in the year (24 hours per day, 365 days per year) of 8,760. Although military training operations must be conducted at all hours and in all conditions in order to properly train, these are considered low usage totals.

Issue 1a: Impact of Aircraft Noise on Communities

Low-level aircraft operations — ones that would create the greatest noise issues for residents — occur throughout the area, near launch and recovery sites like airports and airfields and along specially designated aircraft routes called military training routes (MTRs). Proximity to these locations increases the level of noise and subsequent disruption including shockwave vibrations.

These activities are inherent in military training and are a vital component to the U.S. defense, which is why these activities are typically established in locations far separated from residential neighborhoods. City and county zoning regulations often establish buffer zones surrounding ranges and airfields not only to provide a sound barrier but also for safety reasons.

Military ranges that have high concentrations of air activity and those that fire live munitions have a protected airspace above them referred to as an RA. These are established by the Federal Aviation Administration (FAA) to protect these activities from non-participating aircraft and to protect ground activities from falling debris, wayward munitions, or accidental aircraft failure. The RA over Camp Grayling JMTC contains two sections, referred to as R-4201A and R-4201B.

It is a condition of the establishment of these areas that they be over property owned by the military or the U.S. Government. Alternatively, small portions may be privately owned if a conditional use lease agreement has been established between the land owner and the government. The R-4201B, which overlies the impact area of the range, is over a large swath of land (approximately 24,000 acres) that is not owned by the government, including the housing community in Guthrie Lakes.

This has allowed for private residences to be built very close to the range and noise-causing military training activities; too close for any reasonable degree of noise dissipation from those activities with little terrain or vegetation in between to dampen or reduce shockwave vibration.

Being within RA allows pilots to begin operations that are considered potentially hazardous to the public including arming weapons for strafing or bombing runs, flying at altitudes very low to the ground, conducting tactical aerial ma-



Logging activity in the area.

neuvering such as aerial interdiction, dropping chaff and flares, laser targeting, etc. Conducting these activities over public or private land is inconsistent with FAA criteria and military protocol.

Guthrie Lakes resides within the noise contour 70 dB day/night average sound level (ADNL). Housing is typically restricted to areas registering below 65 ADNL. The range and the impact areas are well-established, and necessary functions of the range and military training activities and are impractical to relocate. It is unclear how these incompatible functions came to be located in such close proximity. Yet, both exist and both are likely to remain. The only solution to reduce the impact is sound mitigation. Residents can improve insulation values in their homes, and more vegetative cover can be added around homes to reduce the shockwave effect.

Issue 1b: Tree Cutting Reduces Noise Buffer

Trees and thick vegetation are good tools to help reduce noise and shockwave vibrations emanating from the range. Mixed broadleaf plantings at least 25 feet thick can reduce noise levels by up to 10 dB. Conifers would be needed for the same effect in the winter months.

These assets are most effective when located around the home rather than nearer the noise source, as the noise from a bomb blast or artillery fire does not hug the ground; rather, it radiates up into and through the atmosphere. Cloud cover can even cause a perceived increase in noise level. To be effective, trees would need to hug the structure being protected from above as much as from the sides, which is not advised, as it leads to increased danger from fires and for roof damage.

Figure 2.28 | Camp Grayling JMTC Noise

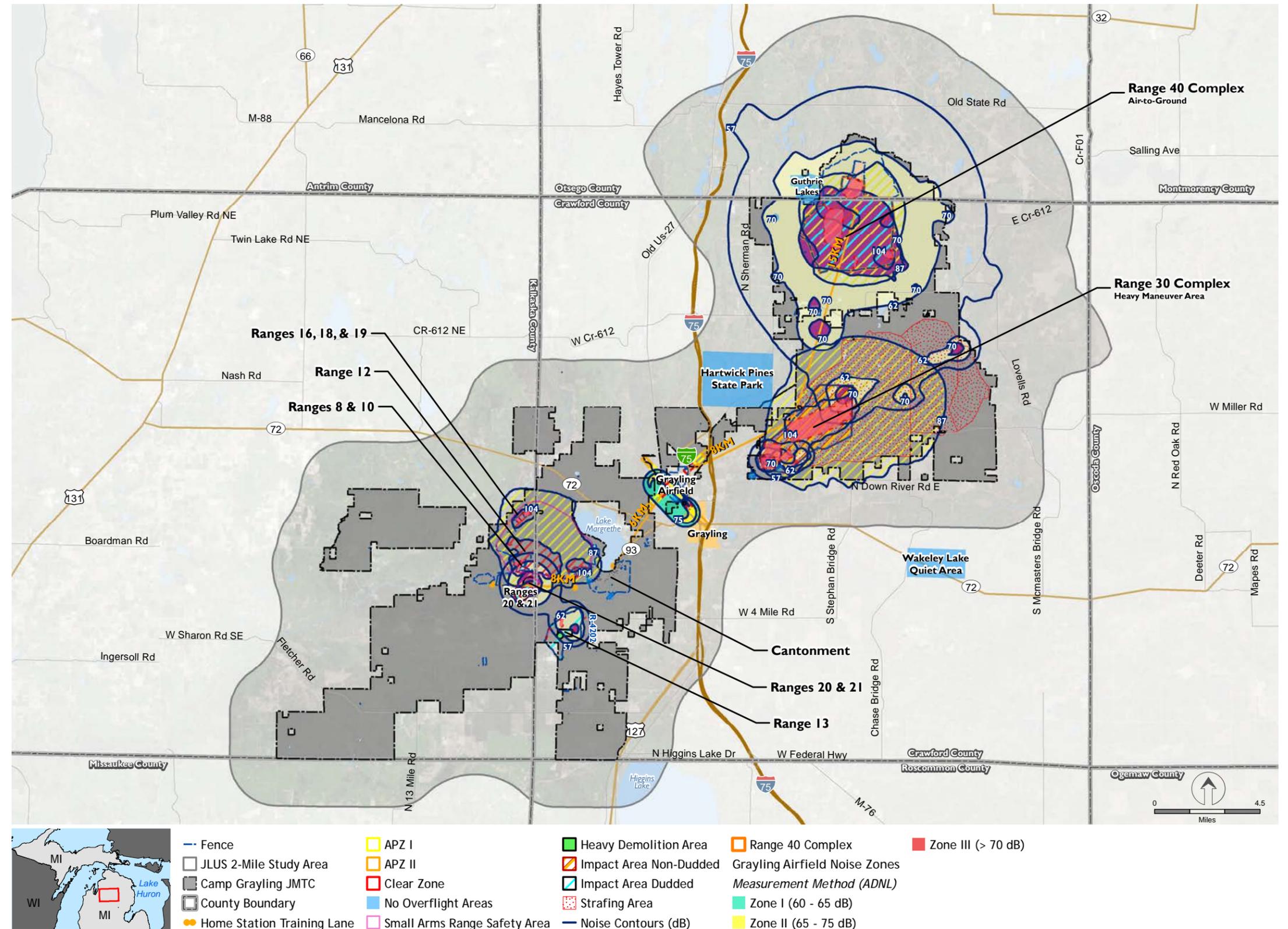


Figure 2.29 | Guthrie Lakes Noise

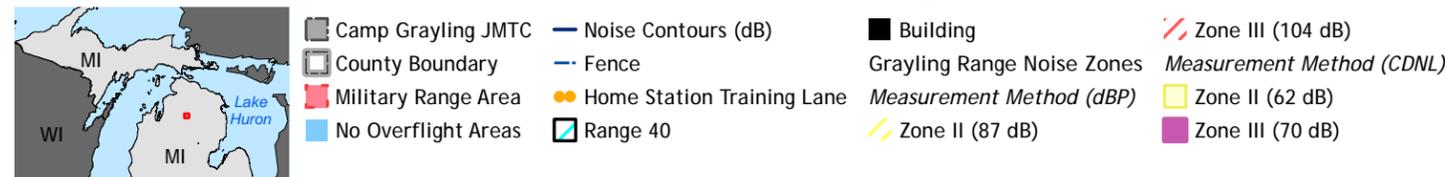
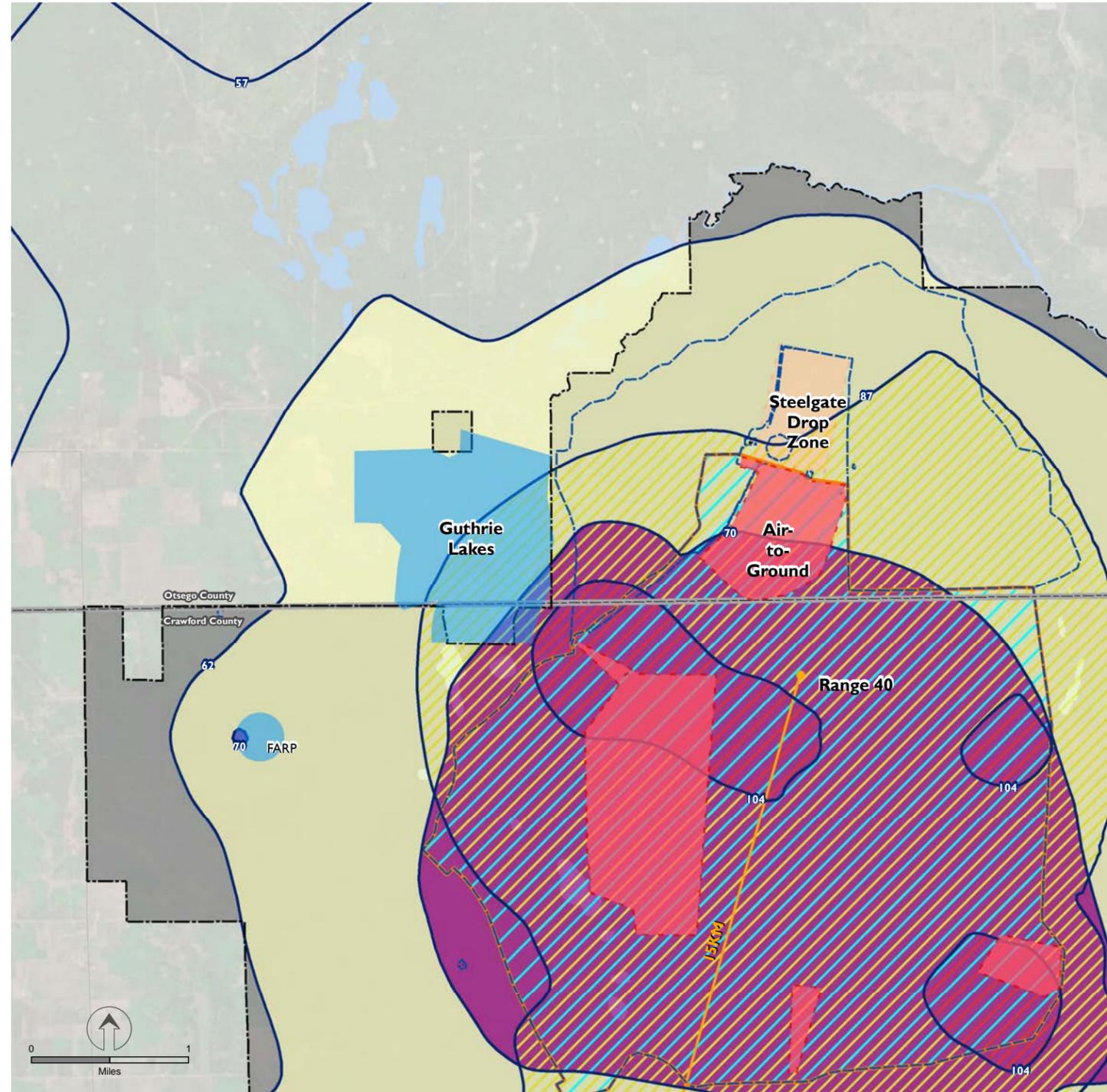
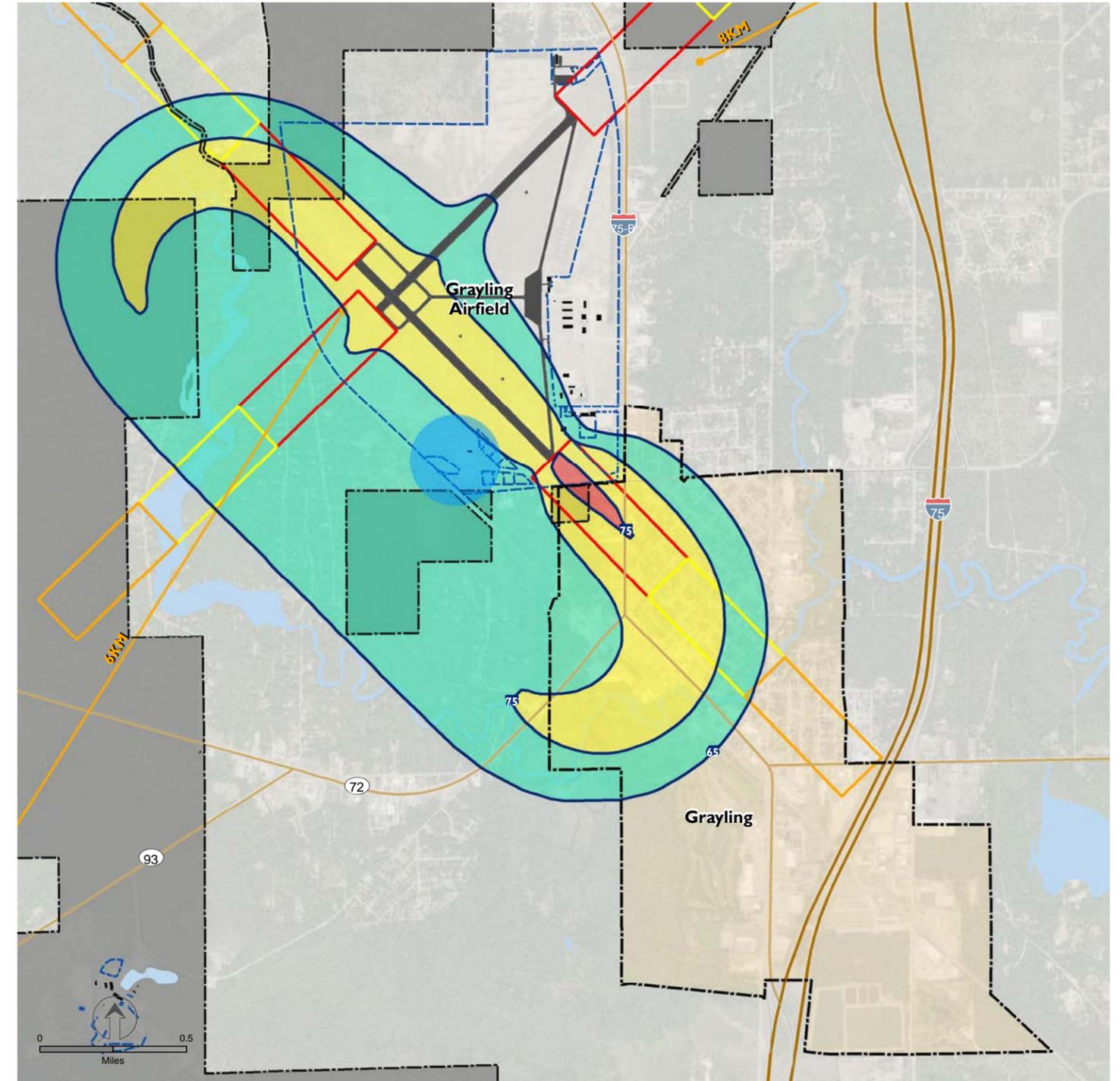


Figure 2.30 | City of Grayling Noise



Placing vegetation near the impact area is inconsistent with safe range management because of the high potential for wildfires ignited from munition blast. It also degrades the usefulness of the range in visual targeting and scoring. Vegetation near firing points could slightly reduce sound vibration at lower levels.

Issue 2a: Flight Paths Over Homes

Most rotary-wing air traffic in the area is conducted out of Grayling AAF. This is a necessary component of training in that equipment, and personnel arrive at Camp Grayling JMTc and are transported to and from the range for training activities.

An unfortunate past development mishap was allowing private neighborhood housing to be built directly under the primary runway end of Grayling AAF (Runway 32), which is the primary egress point toward the range.

This neighborhood sits within the APZ. See Figure 2.33 for a more detailed view. APZs are delineated areas near civilian and military airports that define the highest level of potential for aircraft-related accidents. Typically, these areas are zoned by cities to restrict use to agriculture, parking, or other non-densely populated uses. Subsequently, these areas also typically have the highest noise levels, here above 65 dB ADNL. Housing is typically restricted to areas registering below 65 dB ADNL. Although the majority of traffic is transient general aviation, the airport is military owned and operated. As such, CZs, APZs, and other restrictions for this airport are established by Unified Facilities Criteria (UFC) 3-260-01, Airfield and Heliport Planning and Design.

Even more alarming, first responders and law enforcement are located within the CZ. The CZ area is restricted from all objects fixed or mobile. If an accident occurred, it could potentially take out both the police department and the fire department.

It is possible that flights could be redirected to the other runway (5-23), which does not have a similar land use condition at its runway ends. However, that runway is in poor condition and would need to be repaved at considerable expense. It also lies perpendicular to the prevailing winds, making it more dangerous to use and potentially reducing its availability during certain climatic conditions.

Alternatively, operations requiring load transfers to the range could be conducted from the primary runway (14-32) heading northwest (from Runway 14) then circling around toward the range. Again, this is subject to prevailing winds and climatic conditions and also takes a longer route, which requires additional time and fuel.

Figure 2.31 | Camp Grayling JMTc Military Operations

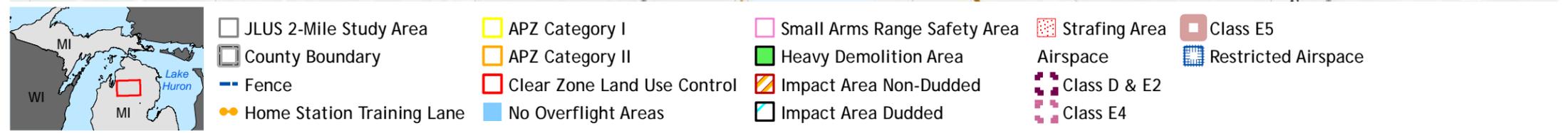
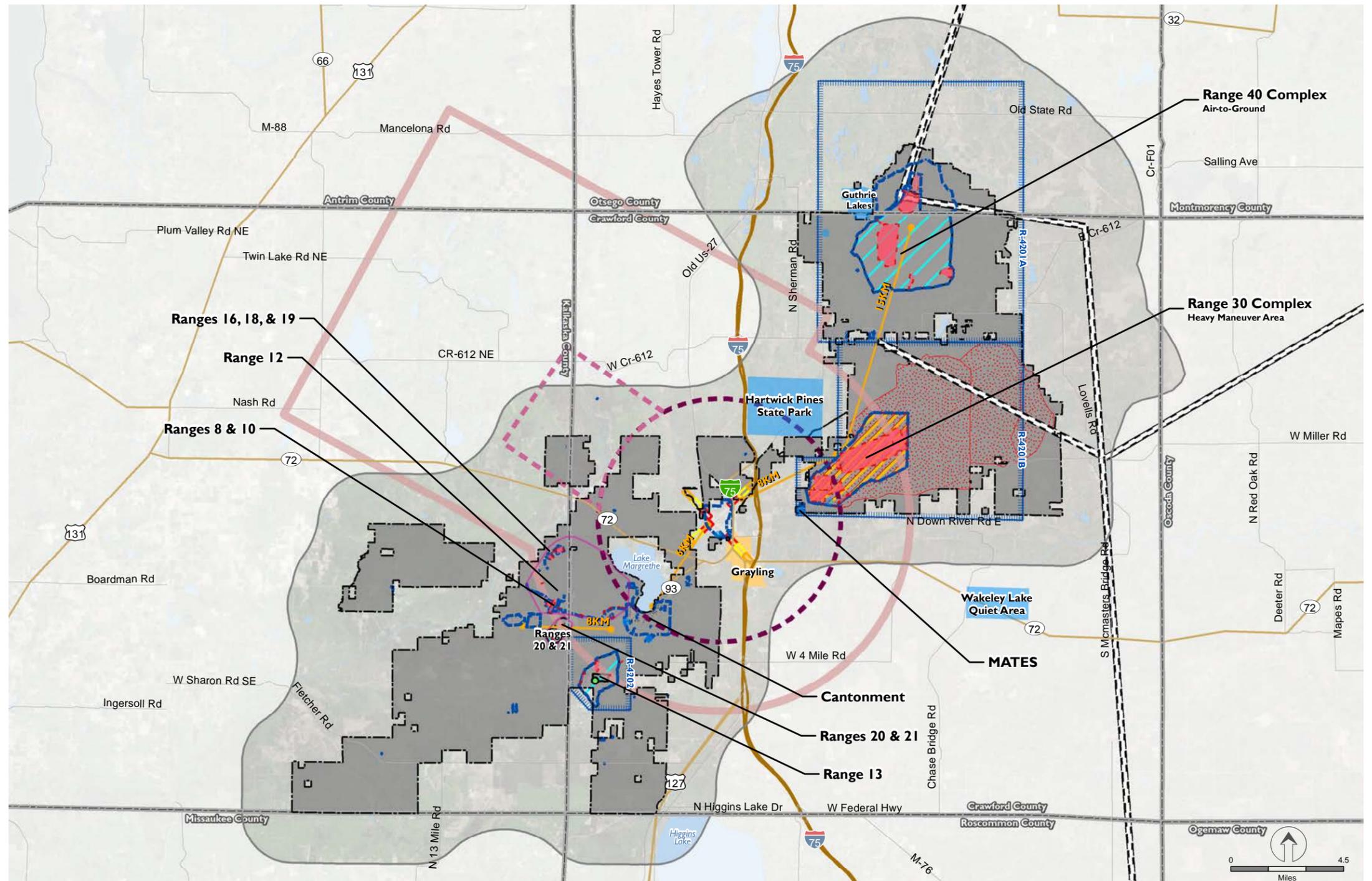


Figure 2.32 | Guthrie Lakes Military Operations

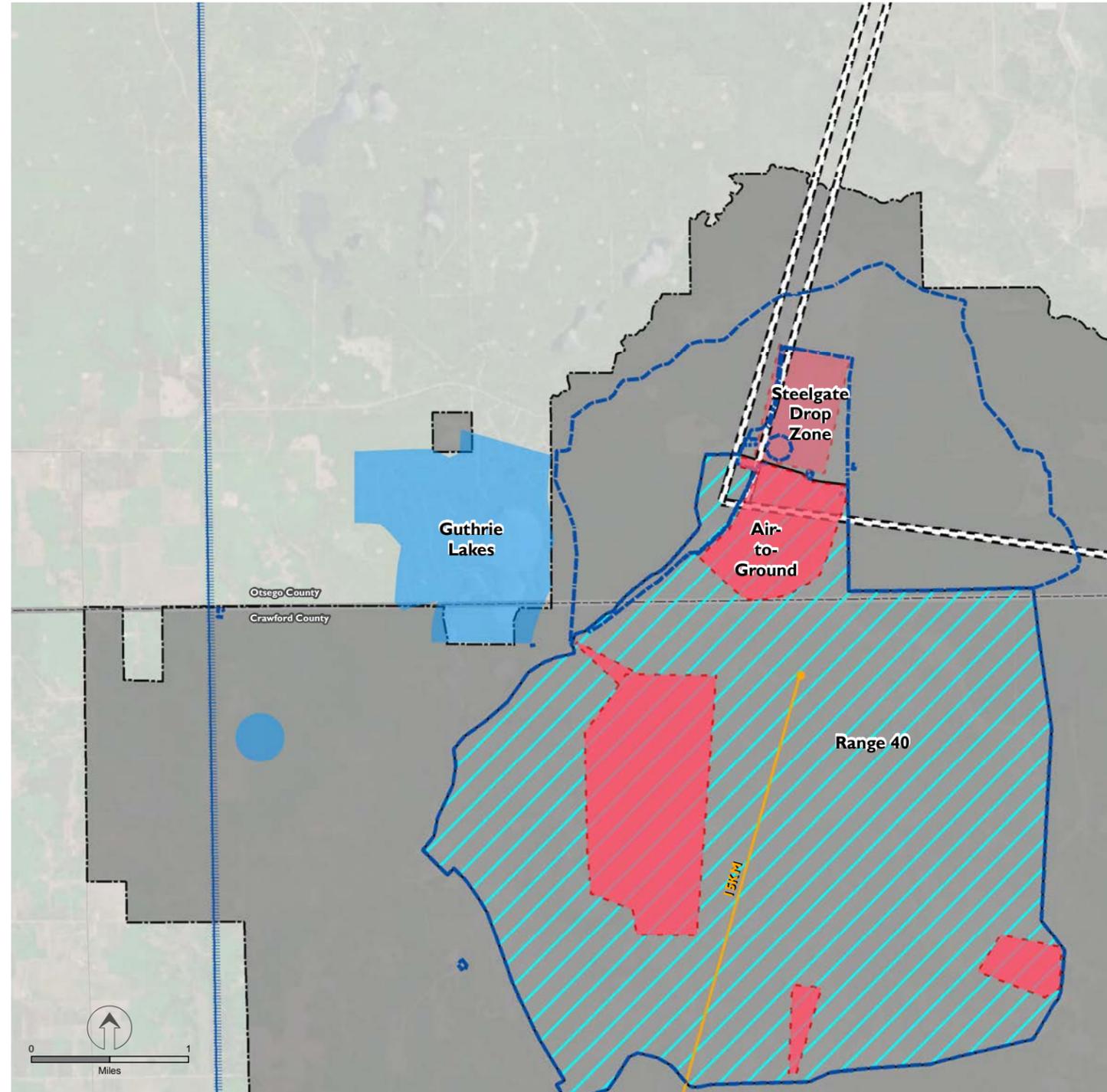
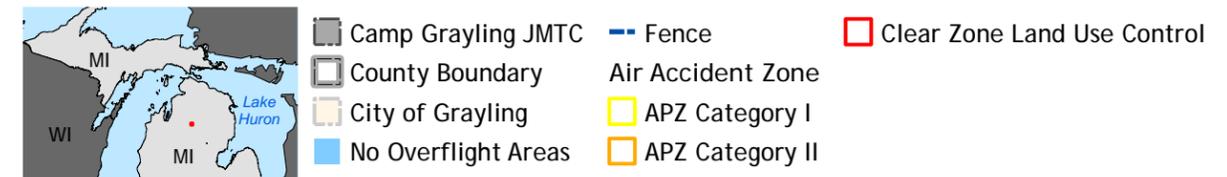
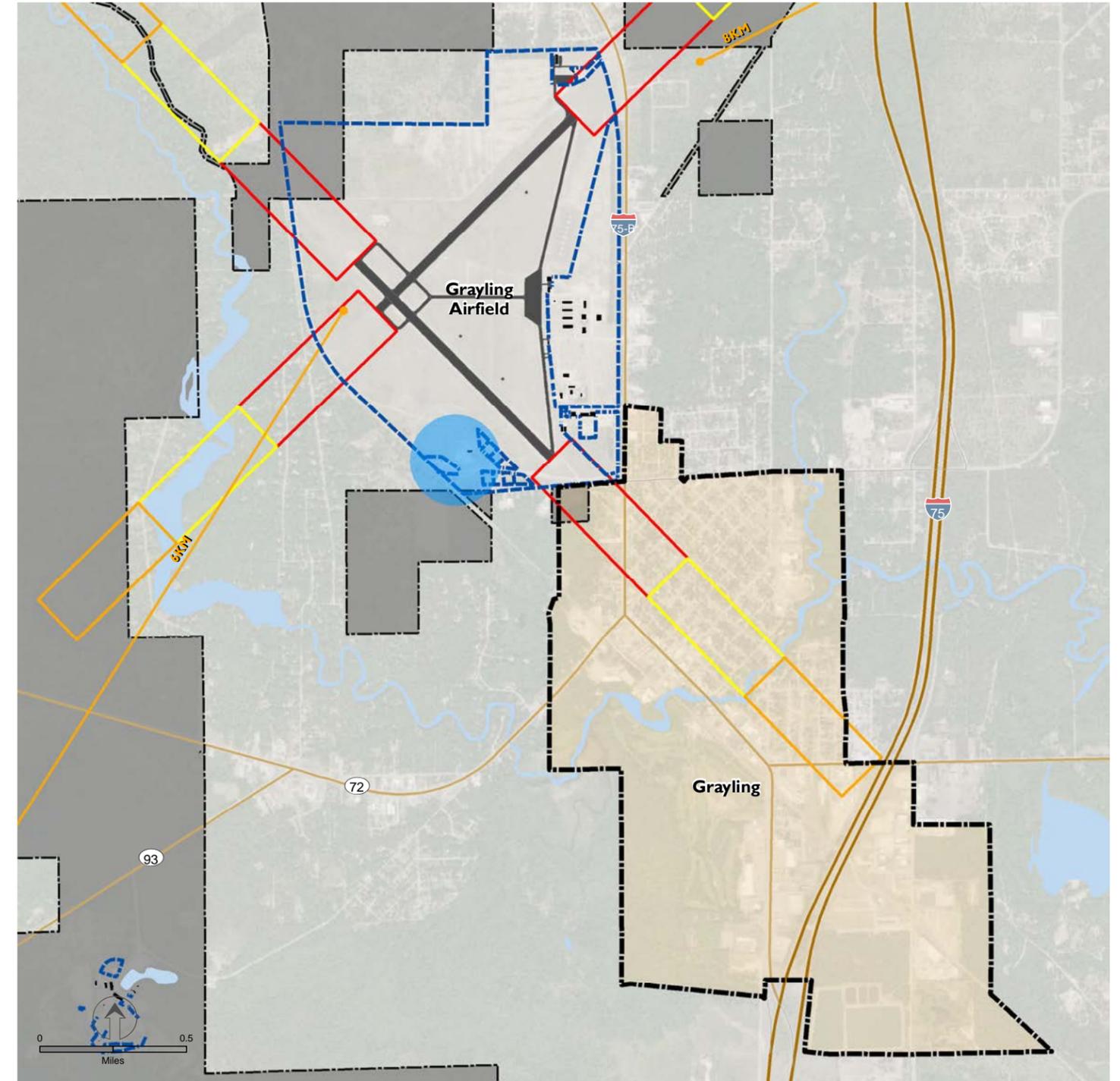


Figure 2.33 | City of Grayling Military Operations





U.S. Marines from Echo Company, 4th Reconnaissance Battalion, 4th Marine Division, Marines Forces Reserve, check their gear after conducting an exercise into Lake Margrethe at Camp Grayling JMTC. Source: Alpena CRTC Public Affairs

Issue 2b: Noise and Vehicular Disruption from MATES

The MATES is an activity that naturally generates noise, although significantly less than munitions firing or aircraft activity noise generators. Current noise contour maps do not have any contours associated with the area surrounding the MATES, with a minimal noise level registration of 60 ADNL. The Range 30 complex immediately adjacent is recorded at 87 ADNL, likely associated with firing activities.

The MATES is located in the southwestern corner of the northeastern portion of Camp Grayling, about 3 miles north-east of the City of Grayling. The public and private property surrounding the MATES is sparsely populated, being primarily forested land. The closest residence is one-third of a mile to the west along W. North Down River Road. There are additional houses in increasing density as one moves farther to the west toward the city of Grayling. The highest concentration of homes is at the intersection of W. North Down River Road and N. Wilcox Bridge Road. There are also a few homes approximately 0.75 mile away to the east at the corner of W. North Down River Road and S. Headquarters Road.

Vehicular activity is unavoidable in this area, as the purpose of the MATES is vehicle and equipment repair and storage. The road it resides on (W. North Down River Road) is the connector accessway between the facility and Camp Grayling JMTC to the southwest, where the majority of transient equipment comes into the area for training, either via the airfield or the railhead. It unfortunately runs through the city of Grayling. No other alternative routes of travel are feasible.

Issue 2c: Noise and Vibration from Night Training

Night time operations are crucial to successfully executing asymmetrical warfare, consistent with that being conducted in the Middle East. Training for those operations is, therefore, highly important. Disruption to residents is related to the proximity of the residences to those activities.

Mitigation tactics for the noise caused by those activities is the same as described for daytime noise issues. Vegetative cover located close to the structure and increased insulation for sound attenuation are the most effective deterrents. It could also be possible for military training schedules to be posted, which would give residents the opportunity to plan for the event, although that would not reduce the disruption.

Issue 2d: Population Growth May Encroach on the Mission

Encroachment is a constant and pervasive issue with military training ranges and airfields. Safety and noise buffers should be established through property acquisition surrounding these assets. In lieu of that and because fiscal constraints make it unlikely to occur, cities, counties, and townships should establish zoning regulations that prevent the further development (allowance) of residential properties installations.

A safe buffer zone distance from ranges, installation, and airfield property boundaries is one consideration addressed in this plan. This area could be used for agriculture or other non-populated functions. Industrial activities are a better choice than residential, community, institutional, or

educational activities. As military training requirements to provide for large force and multi-force exercises increase, it should be an accepted fact that all the land area within the boundary could be utilized for training activities.

2.3.3 Camp Grayling JMTC Environmental Issues

Issue 3a: PFOS/PFOA Contamination of Groundwater

Contamination of groundwater and drinking water from wells from perfluoroalkyl and polyfluoroalkyl substances (PFAs, also known as PFCs), is the top environmental concern for both Camp Grayling JMTC and Alpena CRTC. The principal contamination source in the Camp Grayling JMTC area is considered to be perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) contamination from use of now discontinued aqueous film forming foam (AFFF) fire suppressants. On the national level, PFA/PFC compounds are emerging unregulated contaminants of concern with suspected but largely unknown negative human health effects. As of November 27, 2017, eight of 386 area wells tested for PFOS-PFOA by the Michigan Department of Environmental Quality (MDEQ) exceeded the Environmental Protection Agency (EPA) concentration limit of 70 parts per trillion (ppt). In addition, filters were provided to approximately 90 nearby homes.

MIARNG, funded through the National Guard Bureau (NGB), is managing a monitoring and analysis program in collaboration with concurrent monitoring, control (including filters), groundwater modeling, and remediation efforts by a number of state agencies. The MDEQ is conducting residential, business, school, and community water-supply well sampling. The MDEQ is also in the process of investigating the quality of groundwater beyond the perimeter of the Camp Grayling JMTC airfield by collecting groundwater samples from borings conducted at several locations from a monitoring well network planned for the near future. Information about the contaminants, forms to request well testing, and options for homeowners whose wells have been found to contain the substances, may be found on the state web site: <https://www.michigan.gov/pfasresponse>.

Public meeting feedback indicates some residents are finding it difficult to get clear and timely responses from the MDEQ for well testing and for other services like filter distribution. The MDEQ plans to develop and publish a plume map once the investigation is further along to provide a more complete and accurate description of the situation.

Many residents do not use or have regular internet access, so nondigital forms of communication (mailers, hotline phone number) should continue to be emphasized to ensure all residents are fully informed. During public comment, several residents requested more frequent use of local radio, television, and newspapers to not only advertise public meetings but also to convey basic information about the base and issues affecting the public. The latest content from monitoring and control programs should be updated for informational fliers. Concern over how wells are selected for testing was frequently raised at the public meetings.

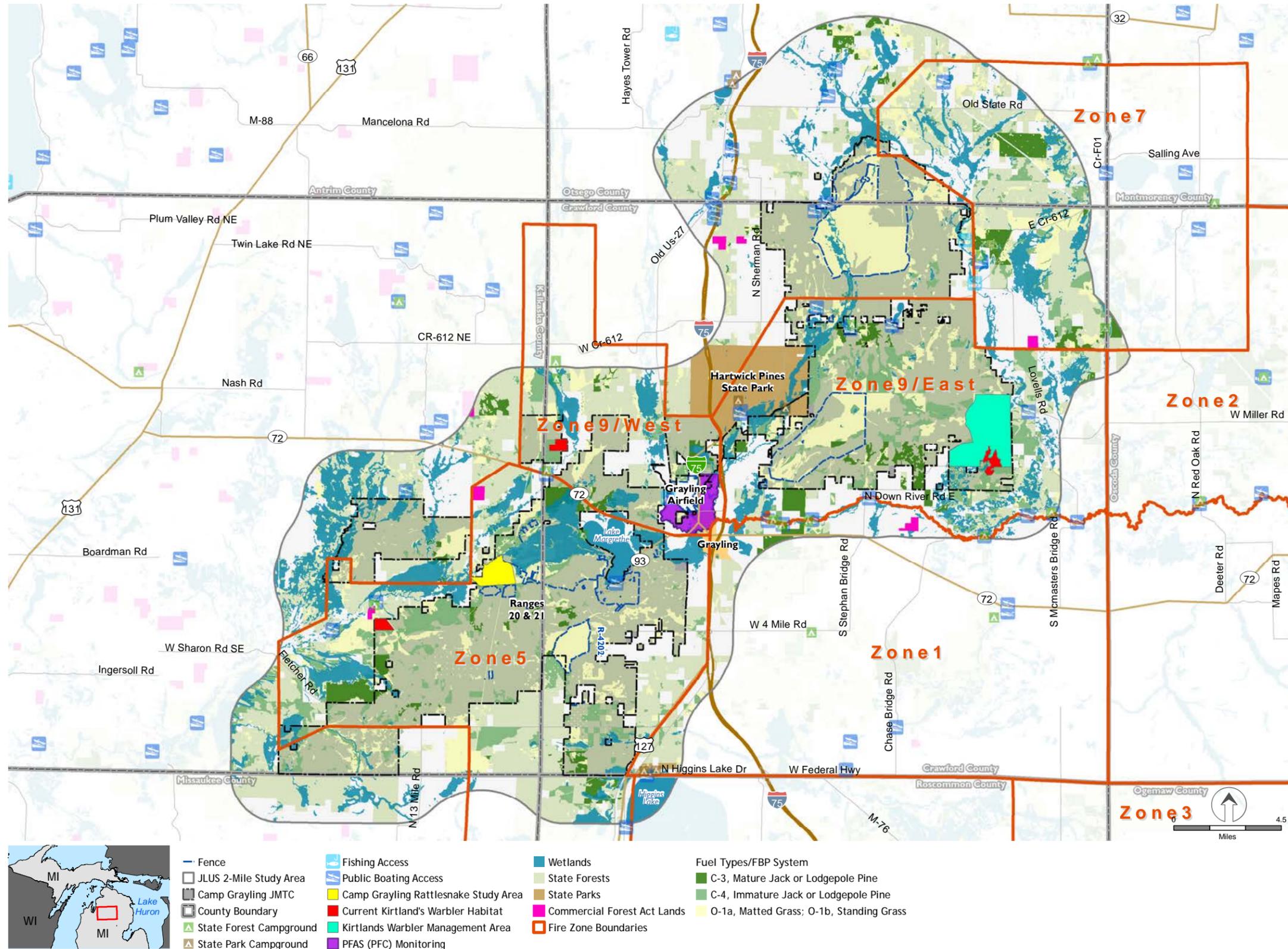
Governor Rick Snyder issued Executive Directive No 2017-4 for a PFAS Action Team. In November 2017, the governor directed the leaders of the MDEQ, the Michigan Department of Health and Human Services (MDHHS), MDMVA, and the Michigan Department of Agriculture and Rural Development (MDARD) to immediately establish a Michigan PFAS Action Response Team. The team has been assigned to direct the implementation for the state's action strategy to research, identify, and establish PFAS response actions related to the discovery, communication, and migration of PFAS to the extent practicable.

PFOS/PFOA Information

More information is available at <https://www.michigan.gov/pfasresponse>

If any resident has additional questions regarding this issue, the MDEQ Environmental Assistance Center can be contacted at 1-800-662-9278 or email deq-assist@michigan.gov. Representatives may be reached to assist with your questions Monday through Friday, 8:00 AM to 4:30 PM.

Figure 2.34 | Camp Grayling JMTC Environmental



Issue 3b: Impacts and Effects on Groundwater and Drinking Water

The aquifers that provide potable water for residents near Camp Grayling JMTC are vulnerable to contamination. The depth to groundwater in some areas is as little as 9 feet. Remediation efforts have been required to treat fuel spills and other areas where groundwater was compromised, and a system to protect potable water in the cantonment area was put in place in 2001. In addition to fuels, oils, solvents, and hydraulic fluids are among the hazardous materials generated at Camp Grayling JMTC, which are disposed by the Defense Reauthorization and Marketing Office (DRMO). Environmental managers could consider providing educational materials on the newer Michigan Part 201 rules govern criteria for the groundwater-surface water interface (GSI) in addition to standing rules on groundwater criteria. Spills and environmental emergencies are reported to the MDEQ using the 24-hour Pollution Emergency Alerting System (PEAS) Hotline (800) 292-4706 or by contacting the MDEQ District Office (Alpena and Grayling area) at 989-731-4920. The public can view spills on Michigan's waterways using the Water Resources Division MiWaters Database: <https://miwaters.deq.state.mi.us/nsite/>.

Issue 3c: Impacts and Effects On Surface Water Systems

The negative effects of sediment and runoff on surface water quality within Camp Grayling JMTC watersheds are a high priority for the installation and surrounding communities. Traffic from military operations and industries can contribute to erosion and runoff at road/stream crossings. Regulation 200-1 prohibits military activity within 400 feet of streams and water bodies, with the exception of activities on established roads and trails, unless there is prior authorization. An industrial stormwater permit for runoff is held by Camp Grayling JMTC.

Public comment reveals potential for misperceptions that installation operations such as tank maneuvers are degrading seasonal or secondary roads when in actuality roads are being degraded by commercial logging vehicles. Camp Grayling JMTC has funded several road/stream crossing improvement projects led by Huron Pines and the Crawford County Road Commission to prevent excess sediment from entering the AuSable River watershed. Effects of erosion and runoff can be measured through bioassessment sampling around the installation. Formal bioassessments of Michigan rivers and streams are conducted by the MDEQ through the Surface Water Assessment Section Procedure 51 monitoring program that evaluates macroinvertebrate community, fish community, and habitat quality, and reports on trends in watershed health. MDEQ Procedure 51

Figure 2.35 | Guthrie Lakes Environmental

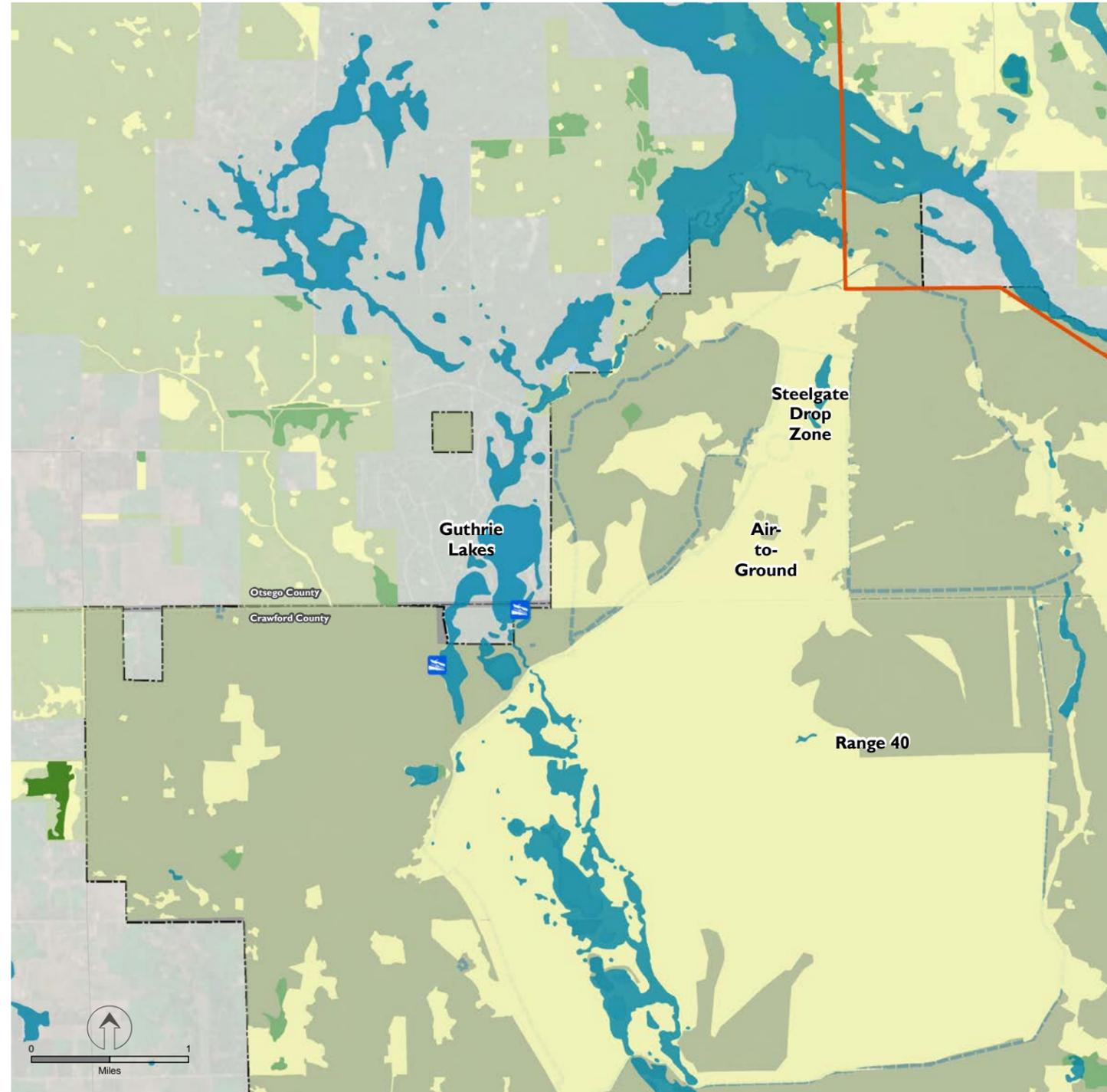
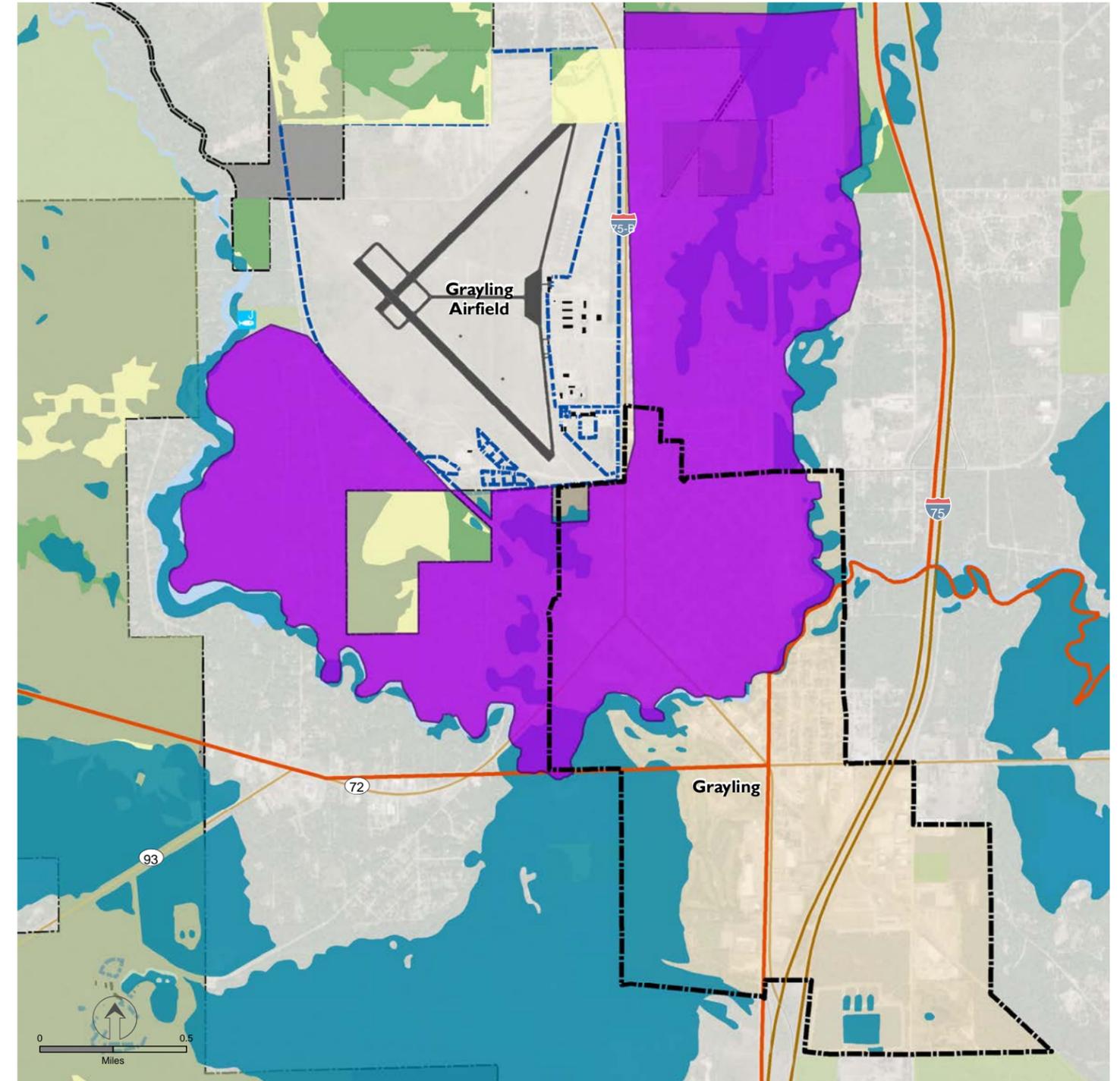


Figure 2.36 | City of Grayling Environmental



data can supplement local and concentrated data generated through citizen volunteer monitoring and conservation organization research.

The Michigan Clean Water Corps (MiCorps) is a network of volunteer water quality monitoring programs that supplement MDEQ efforts in collecting and sharing water quality data for use in water resources management and protection programs. MiCorps is administered by the Great Lakes Commission under the direction of the MDEQ and in partnership with the Huron River Watershed Council, Michigan Lake and Stream Associations, and Michigan State University. MiCorps comprises the Volunteer Stream Monitoring Program and the Cooperative Lakes Monitoring Program, which provide training and support for quality assurance, reporting, and communications among member organizations. The MiCorps website has an online searchable database with monitoring data for selected waterbodies. Aquatic macroinvertebrate survey data, an indicator of stream ecology health, are available for select streams in study area watersheds such as the AuSable River. Monitoring data for lakes includes basic water chemistry and indicators of nutrient pollution that cause eutrophication and algal blooms. The database also contains invasive species survey data and several technical studies and reports available for download on the MiCorps website.

Organizations such as the AuSable River Restoration Committee, the Upper Manistee River Restoration Committee, and various Trout Unlimited Chapters, and Section 319 funded watershed management plans conducted by Huron Pines have contributed to restoration of many erosion sites along area waterways. Camp Grayling JMTc maintains strong relationships with these and many other local groups to help watchdog and maintain water quality in the area.

Data on water quality and aquatic ecology in the area exist from many governmental and non-governmental organizations. Questions about specific topics like fish population health, site contamination, or trends in ecological health can often be addressed from multiple sources. Sources of existing and ongoing water quality and aquatic ecology survey, assessment, and monitoring data in the area include MDEQ Procedure 51 biological and ecological trend monitoring; Part 201 contamination sites; MDEQ probabilistic water quality monitoring sites; Environmental Protection Agency (EPA) National Rivers and Streams and National Lakes Assessments survey sites; 303(d) Impaired Waters and Total Maximum Daily Loads (TMDL); National Pollutant Discharge Elimination System (NPDES) discharge permit locations; and various data from conservation organizations, citizen-based monitoring studies and lake associations. Stakeholders, developers, planners, and citizens could benefit from a clearinghouse that summarizes conditions and



Hiking trail in the Red Pines Natural Area on Camp Grayling. (Source: MDNR)

provides links and references to various agencies and organizations that conduct aquatic research. A webpage hosted on the installation or collaborative organization website could consolidate multiple resources into a coherent story while providing links to further information.

Issue 3d: Effects on the Health of Wildlife Populations

Maintaining habitat for wildlife is important for retaining the environmental quality of the area. Surveys for wildlife have been conducted several times at Camp Grayling JMTc, including 1993-1995 and 2004. Among the flora and fauna identified, one plant and two animal species are protected by the Endangered Species Act of the State of Michigan (Public Act 203 of 1974 as amended) and/or the Federal Endangered Species Act of 1973. In addition, the bald eagle is protected by the Bald and Golden Eagle Protection Act.

Camp Grayling serves as the breeding habitat for the Kirtland's warbler, an endangered bird, which nests in the jack pine forests in the area. Camp Grayling has a permanent Kirtland's warbler management area, where suitable nesting habitat is maintained through planned rotation cuttings. Threatened species on the installation include Houghton's goldenrod and the rarely seen Eastern Massasauga Rattlesnake, the only venomous snake in Michigan. Camp Grayling researchers have led detailed surveys of Massasauga populations for over 10 years.

There is also the Red Pines Natural Area on Camp Grayling where military activity is prohibited. The Grayling Forest Management Unit (FMU) currently has two areas designated for Pine Barrens management, a rare ecosystem typically inhabited by many threatened and endangered species, such as the Kirtland's Warbler.

Maintaining unfragmented habitat is difficult because of the requirements of operation. Research such as the Lake Margrethe watershed management plan (funded by the NGB) and planned cooperative research with the Michigan Natural Features Inventory to expand on biological survey data and mapping can contribute to sustainable land use planning decisions that benefit the installation and the community. Sponsoring and pursuing future grant-funded biological surveys and watershed management planning in cooperation with conservation organizations like Huron Pines can augment biological data maintained by state and federal agencies and support Camp Grayling JMTc's environmental stewardship.

▶ **PAST WILDLIFE WORK:**

- ▶ Radio-telemetry studies of federally listed Eastern Massasauga Rattlesnake movement (regular between 2002-current)
- ▶ Monitoring of Kirtland's Warblers and their habitat at specific site at North Camp
- ▶ Identification and monitoring of snake fungal disease in Eastern Massasauga Rattlesnakes
- ▶ Flora/fauna surveys in 1990s and early 2000s for Land Condition Trend Analysis and Integrated Natu-

ral Resources Management Plan (INRMP) updates

- ▶ Acoustic surveys for federally listed Northern Long-eared Bat
- ▶ Swimmer's Itch risk in Lake Margrethe

▶ **CURRENT WILDLIFE WORK:**

- ▶ Mitigating military and rattlesnake interactions using translocation (finishing 2018)
- ▶ Snake fungal disease monitoring
- ▶ Kirtland's Warbler surveys
- ▶ Targeted flora/fauna survey for INRMP update (finishing 2018)
- ▶ Openings enhancement: firing point plant management and food plots (multiyear)

▶ **UPCOMING WILDLIFE WORK:**

- ▶ Weeklong spring surveys to estimate abundance/size of Eastern Massasauga Rattlesnake population (multiyear study)
- ▶ Radio-telemetry study of Wood and Blanding's Turtle habitat use (both under review for federal listing); beginning 2018

▶ **COLLABORATIONS:**

- ▶ National Wild Turkey Federation and MDNR: Collaborating with MDMVA to manage firing points; planting of plant species for game animals provides wildlife food source which, mostly importantly, reduces fire risk and improves vegetation growth management on military firing points
- ▶ Kirtland's Warbler Conservation Team: monitoring populations and habitat of Kirtland's Warbler
- ▶ Others: MDNR, Michigan Natural Features Inventory, U.S. Fish and Wildlife Service, Huron Pines, DLZ Associates, Purdue University, and many other groups and individuals

Issue 3e: Wildfire Management

Wildfires have occurred fairly frequently within Camp Grayling JMTc boundaries and surrounding areas. According to the Adaptation Planning for Climate Resilience document published by the MIARNG in 2016, Camp Grayling JMTc averages over 100 fires annually, caused in part by the training conducted there. Environmental managers at Camp Grayling anticipate that coming effects of climate changes such as higher temperatures will contribute to increased wildfire risk.

The devastation of forests by the emerald ash borer, oak wilt, and gypsy moths also adds to the risk of potentially catastrophic wildfires. The area has a large amount of jack pine forest, which is a high-risk volatile fuel type contributing to a history of frequent small fires and large catastrophic fires, such as the 1990 Stephan Bridge fire that burned almost 6,000 acres in 5 hours and caused \$5.5 million in damage. A handful of wildfires have jumped the installation boundaries in the Range 40 area in the past 10 years.

The MDNR Grayling FMU is responsible for wildfire control and management, including on lands leased by the NGB. A key forestry management tool is prescribed burns, which may cause concern if they are perceived as wildfires.

Each year approximately 5,000 acres in Camp Grayling are subject to prescribed burns. The Grayling Unit has two areas designated for Pine Barrens management. Pine Barrens is a rare ecosystem that is typically inhabited by threatened and endangered species within volatile stands of jack pine. The North Camp Grayling Pine Barrens Management Plan designed to restore 5,120 acres of pine barrens within Camp Grayling is awaiting approval from the NGB and MDNR Divisions before prescribed harvesting and burning practices are instituted.

MDNR is working with Camp Grayling JMTC to develop an integrated wildfire management plan that should be finalized by 2020.

Facilitating public communications about management plans through open houses and outreach will help residents understand wildfire risk and MDNR and NGB forestry management plans.

Issue 3f: Resource Use and Sustainability

Concepts and goals from Camp Grayling waste reduction strategies can be communicated to study area residents to convey Camp Grayling's commitments to environmental stewardship and to demonstrate investments in protecting shared natural resources while maintaining energy and water security. Features of the U.S. Army Net Zero Initiative strategy narratives could be adapted to enhance the installation strategy message. A communications campaign facilitated through press releases posted to the installation website and directed to local media are facilitation options, along with potential broadcast news stories about the waste reduction program.

2.3.4 Camp Grayling JMTC Transportation and Infrastructure Issues

Issue 4a: Effects of Growth on Utilities

Camp Grayling JMTC has a 5-year plan to become a self-sufficient installation, and the camp has diligently worked toward net-zero status and sustainability goals. (See Issue 3f, Resource Use and Sustainability.) Future growth would be accommodated with adaptations, as necessary, to the existing infrastructure. Wind electricity generation machines, also known as wind funnels, were installed starting in 2015 and are expected to power about half the buildings on the installation. Water is provided through wells of the City of Grayling; wastewater is treated on site.

The surrounding area is serviced by Consumer Energy and Great Lakes Energy as well as DTE Energy (formerly Mich-Con), which provides three-phase electrical service. Many homes in the area are serviced by private wells. Water and sewer utilities in the City of Grayling are managed by the City. In Crawford County, there is a permitting system for private wells and septic systems, which is regulated by the District Health Department.

Construction of water and wastewater infrastructure near 4 Mile Road is ongoing to support the construction of an Arauco North America particleboard plant, which is expected to begin production in late 2018. The infrastructure development is funded through a \$3.1 million grant and \$4.1 million in loans. In December 2017, the Beaver Creek-Grayling Townships Utility Authority and C2EA, Inc., received approval from the Grayling Charter Township Board of Trustees to partner for the planning and development of infrastructure in this area.

A motion to allow for construction of a wastewater treatment facility was also passed by the board.

The City of Grayling also recently received a \$1.5 million grant to replace a sewer main, which was installed in the 1970s. Work is anticipated to begin in 2018.

Efforts to fund and replace additional aging infrastructure are ongoing.



Sign welcoming visitors to the City of Grayling.

Issue 4b: Improve Internet Access

Internet service is limited in and around Camp Grayling because of its rural location. Cable, digital subscriber line (DSL), and wired internet options are available for residents and businesses with speeds ranging from 5 megabytes per second (mbps) to 100 Mbps. Otsego County has a fiber internet option through Winn Telecom, but the coverage area is small. Within the township of Grayling, the average download speed is only 16.53 mbps, according to data from broadbandnow.com. This is 66.5 percent slower than the average for Michigan and 156.8 percent slower than the national average.

As a state, the Michigan 21st Century Infrastructure Commission has set the following goals for internet access:

- ▶ All residents and businesses have access to a fixed broadband connection with a download speed of at least 25 mbps and an upload speed of 3 mbps by 2020 and a download speed of at least 100 mbps by 2024.
- ▶ All areas of the state (geographic) have access to a mobile broadband connection with a download speed of at least 10 mbps by 2020 and at least 25 mbps by 2024.
- ▶ Internet service has become vital as commercial, edu-

cation, medical, and government activities occur more frequently online.

- ▶ All community anchor institutions (such as schools and libraries) have access to a fixed broadband connection with download and upload speeds that meet the minimum recommended speeds for their sector by 2024.

In other areas of the state, Great Lakes Energy is conducting a feasibility study to deploy fiber internet service. If the study supports it, a pilot project is planned for the Petoskey district that could be rolled out to other areas in Michigan.

In Alpena, the city council approved a "Wired City" fund and has developed a successful campaign to improve internet infrastructure in the city, including installation of fiber optics cables. This model could be utilized in areas like the City of Grayling.

Issue 4c: Poor Cellular Reception

Cellular phone reception has increased in recent years, but the rural location of the Camp Grayling area poses a challenge. Although Federal Communications Commission (FCC) data shows 3G or better coverage availability by three providers as of 2016, users report many dead spots or weak signal locations throughout the area. Most recently, the SBA Communications Corporation constructed a cell phone tower on Camp Grayling in 2013. AT&T has shown interest in acquiring a lease for a tower in the area.

Issue 4d: Traffic

The most recent Grayling Area Transportation Study was published in 2008.

Michigan Department of Transportation (MDOT) data indicates small increases in annual average daily traffic (AADT) and commercial annual average daily traffic (CAADT) numbers from 2015 to 2016 on the state and federal highways and interstates in the Camp Grayling area, with the exception of a large increase in AADT in one section of the I-75 Business Loop south of the junction with M-72. That segment also had the largest AADT of 24,849.

Summer tourist traffic is a concern for local residents, especially as popular events often overlap. Convoys related to training at Camp Grayling can also cause traffic issues and may increase if the mission and number of exercises at the camp increase. This is exacerbated by the existing partial diamond interchange at I-75 and North Down River Road, as it forces some traffic to travel through the city of Grayling to access the interstate.



Recreational pathway through the Grayling area.

Issue 4e: Recreational Access

The region is largely composed of forested land, making it an ideal location for outdoor recreation, including hiking, canoeing, hunting, and fishing. Much of Camp Grayling JMTc is open to the public for recreational purposes when not in use for military training.

The MDNR maintains control of logging, mineral extraction, fishing, and hunting on lands leased to the military. However, there is a 14,000-acre area of Camp Grayling where hunting is not allowed, as the area is deemed a game refuge by the terms of the land grant. The MDVA controls recreation access in this area, which is referred to as the Hanson Reserve Lands. Hunting is also not allowed for safety reasons in some areas of Camp Grayling.

Public service announcements from Camp Grayling are released on a weekly basis via the Grayling Regional Chamber of Commerce website and other venues with information regarding access and military operations.

Public Act 288, which was signed by Governor Rick Snyder in 2016, requires the inventory and mapping of all state forest

Figure 2.38 | Camp Grayling JMTc Road Conditions

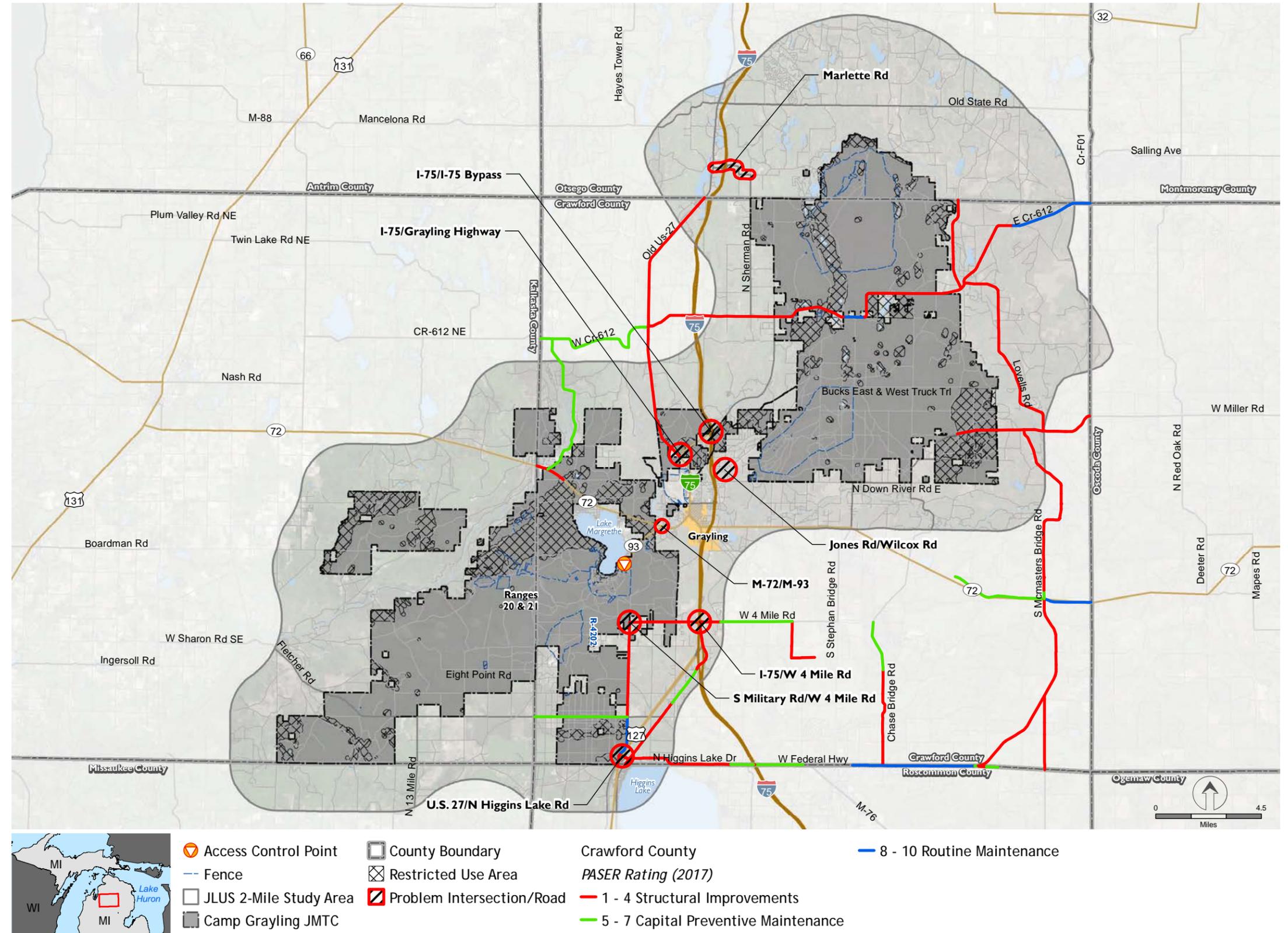


Figure 2.39 | Camp Grayling JMTc Road Conditions – North

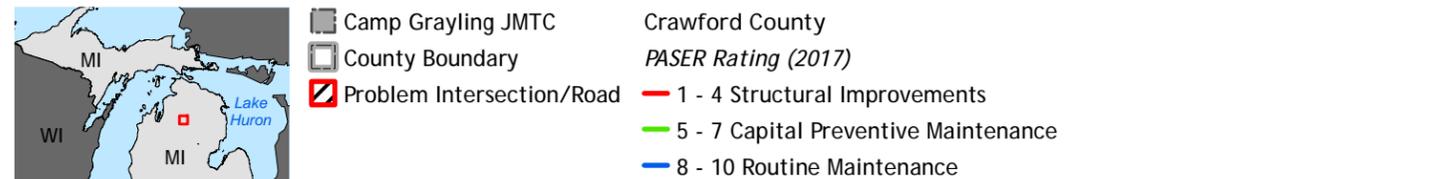
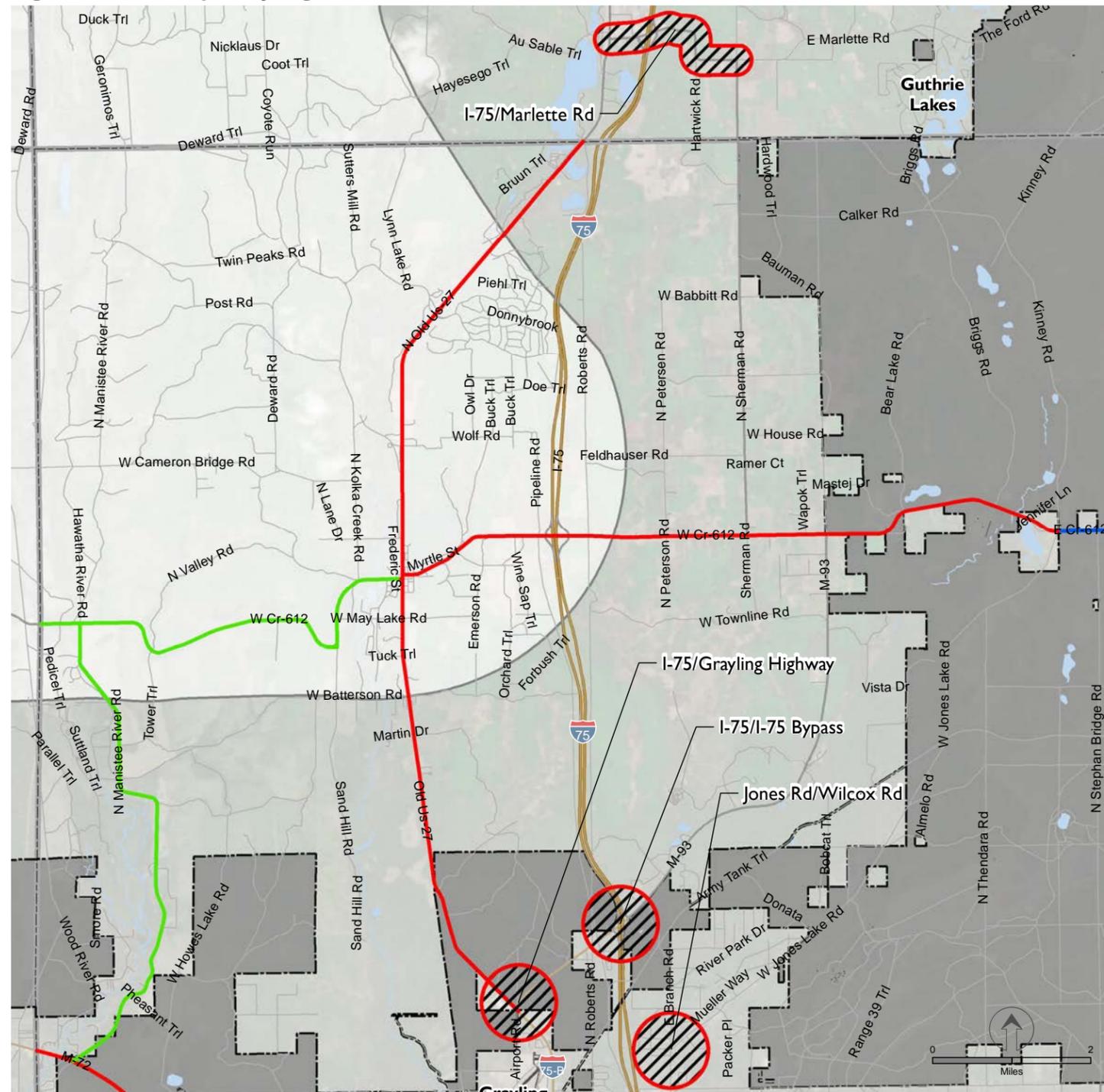
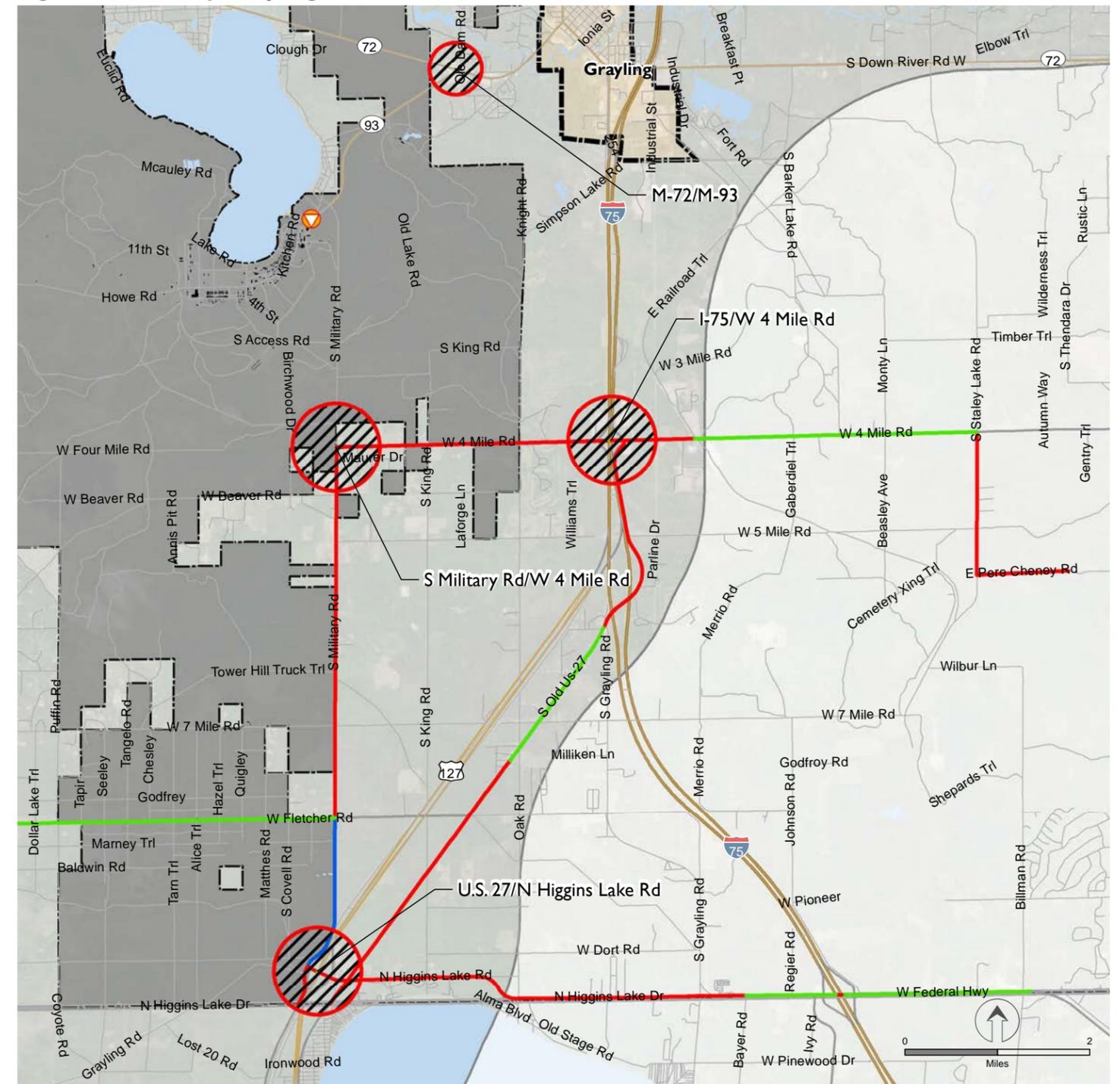


Figure 2.40 | Camp Grayling JMTc Road Conditions – South



roads in addition to changes in rules for off-road vehicles (ORVs). This process was completed in the northern Lower Peninsula in 2017, and maps of these roads, including designations of those open and closed to ORVs, are available on the MDNR's website and will be updated annually. Camp Grayling JMTC collaborated with the MDNR for this effort.

Among the land use objectives in the 2014 Grayling Charter Township Master Plan is maintaining road end access sites for public use on rivers and lakes. The master plan also outlines a river protection land use category.

Issue 4f: Poor road condition

Increases in traffic are expected to accelerate the deterioration of roads around Camp Grayling JMTC, and there is particular concern for side roads and dirt roads, which are susceptible to damage from heavy traffic. Maintenance for trail roads, some of which will be newly opened to ORVs, is not funded.

On Camp Grayling JMTC, among those roads noted in need of repair is Headquarters Road. Most major roads around the installation, including Military Road, the western portion of 4 Mile Road, Old US-27, portions of Federal Highway, M-144, and East North Down River Road, are considered in poor condition, with Pavement Surface Evaluation and Rating (PASER) marks of 1-4. Ratings of 1 and 2 indicate failed roads that require reconstruction, while ratings of 3 and 4 indicate that structural renewal is needed.

Traffic to and from the camp contributes to road condition degradation. Much of the equipment brought in for training exercises is transported by rail to Camp Grayling JMTC; however, equipment brought in by truck impacts traffic in and around the installation.

Increased logging traffic is expected to contribute to road damage, as is traffic created by new commercial development, particularly in the 4 Mile Road area. The logging industry does provide funding to the state for road maintenance, which is passed down to the counties, though the amount has not increased in recent years.

Public comments collected through surveys and public meetings revealed a general lack of understanding of the amount of damage caused by military and logging traffic through the area; a public education campaign may help.

Funding has been identified as the primary hindrance to road improvement projects throughout the state. The Crawford County Road Commission's 2017-18 budget identifies \$9,945,075 in anticipated revenues and \$9,899,757 in proposed expenditures.

Crawford County Proposed Projects

- ▶ 2018 Proposed Projects:
 - ▶ 4 Mile Road: from the west side of I-75, ease 1.34 miles (\$1.2 million [M])
 - ▶ Wakeley Bridge Road: from Wakeley Bridge, northerly to the intersection of North Down River road, 2.35 miles (\$531,000 [K])
 - ▶ South Grayling Road: from Dort Road, northerly to the first curve, .50 miles (\$135K)
 - ▶ County Road 502: from the south county line, north 1.5 miles to Dry Lake Road (\$130K)
 - ▶ North Higgins Lake Drive: from Military Road to Old 27, 2,100 feet (\$55K)
 - ▶ County Road 612: County Road 612 over Big Creek, Bridge rehabilitation (\$166K)
- ▶ 2019 Proposed Projects:
 - ▶ Old US 27 (Hulbert Road north 3.16 miles)
 - ▶ County Road 502: from Dry Lake Road, north to M-18, 1.55 miles
 - ▶ South Grayling Road: from Fletcher Road to 7 Mile Road, 1.0 mile
- ▶ 2020 Proposed Projects:
 - ▶ Old US-27 (Otsego County Line south 3.16 miles)
- ▶ 2021 Proposed Projects:
 - ▶ Twin Bridge Road: from County Road 612, north 4.01 miles
- ▶ 2022 Proposed Projects:
 - ▶ Military Road: Fletcher Road, north to 4 Mile Road, 3.7 miles

MDOT Proposed Projects

- ▶ Rehabilitate a 6.07-mile section of M-72 from the Kalkaska/Crawford County line to M-93 in 2019

Crawford County Recent Projects

- ▶ 2015
 - ▶ Hartwick Pines Road from M-93 to County Road 612, completed with Millage Money
 - ▶ North Down River Road from Stephen Bridge Road west 2.5 miles, completed with Millage Money
- ▶ 2016
 - ▶ Sherman Road from County Road 612 North, approximately 1.4 miles
 - ▶ County Road 612 between Petersen Road and Sherman Road, approximately 1,800 feet
 - ▶ County Road 612 from Jones Lake Road to K.P. Lake Road, 0.90 mile
 - ▶ North Down River Road from MATES east, 1.7 miles
- ▶ 2017
 - ▶ Wakeley Bridge – culvert/bridge deck
 - ▶ 4 Mile Road (Oak Road to I-75 southbound ramp, 0.81

miles)

- ▶ Sherman Road (Otsego County Line south 1 mile)
- ▶ Wakeley Bridge Road – culvert/bridge deck
- ▶ South Grayling Road – curves (between Fletcher Road and approximately Dort Road)

MDOT Recent Projects

- ▶ I-75 Business Loop bridge, 2016
- ▶ M-72 bridge, 2016

2.3.5 Camp Grayling JMTC Community Partnerships Issues

The JLUS process emphasizes the importance of a community-driven planning process which relies on partnerships among Camp Grayling JMTC, communities, and local stakeholders. The JLUS survey results indicated that 62 percent of those participating in the survey believe that Camp Grayling JMTC has a positive impact on the quality of life of surrounding community residents. However, the JLUS process did reveal that stakeholders see communications, public relations, and education as issues that could be improved and, possibly, increase the perspective that Camp Grayling JMTC has a positive impact on quality of life for surrounding community residents.

Issue 5a. Communications/Education

Camp Grayling JMTC has an ongoing public relations effort, implemented by a dedicated community relations specialist. Communicating with stakeholders in surrounding communities, as well as to MIARNG leadership in Lansing and to other stakeholders throughout Michigan, is a critical function of this position. The community relations specialist is one of the principal points of contact for inquiries about what happens at Camp Grayling JMTC when community members have questions or concerns. Although the role of community relations specialist is critical to community partnerships, comprehensive documentation about standard operating procedures for this position has not historically existed. As a result, changes in staffing have affected the efficacy of communication with community partners. Gaps in institutional knowledge about key communication channels, processes, and relationships with community and media partners, can create challenges for new community relation specialists as they fill the position.

The current community relations specialist uses a variety of communication channels to share information with key

stakeholders. These communication channels used to distribute information on Camp Grayling JMTC training operations and other programs include email, Camp Grayling JMTC Facebook page, the quarterly Camp Grayling Impact newsletter distributed in both electronic and print, and, to a limited extent, the Camp Grayling JMTC webpage on the MIARNG website maintained in Lansing. When conducting an internet search for Camp Grayling JMTC information, the main MIARNG website is the most official website provided. However, the information provided on this website for Camp Grayling is limited. The community relations specialist is working with Lansing to update the website information to include new leadership. The process for updating website information is slow as a result of coordinating changes through Lansing. Communications requirements from Lansing may preclude a faster process, but it is imperative that the existing website provide key contact information and a link to more regularly updated information on Camp Grayling JMTC, such as the dedicated Camp Grayling JMTC Facebook page.

One issue stakeholders consistently raised during the one-on-one interviews and community meetings is a desire for improved communications with Camp Grayling JMTC. An important communications effort is to update surrounding communities about the weekly range firing schedule. The Camp Grayling JMTC community relations specialist sends out this weekly schedule via an email distribution list. The list includes homeowners and business associations, local elected officials, residents, and media contacts. The weekly range firing schedule is then shared by these stakeholders on various websites such as the Grayling Regional Chamber of Commerce, social media accounts such as the Twitter feed for UpNorthVoice, and email distribution lists such as those maintained by homeowners associations. However, many stakeholders are not aware that Camp Grayling JMTC has an email distribution list intended to distribute this information; there is no information on the Camp Grayling JMTC website or social media accounts on how to request to be added to this email list. Individual residents who don't belong to a homeowners association might not know the email distribution list exists and might not have the information necessary to get on the distribution list. The Camp Grayling JMTC community relations specialist is taking steps to ensure more stakeholders are made aware of this email distribution list and have the opportunity to request to be added to the list.

In addition to circulating the firing range schedule via email, Camp Grayling JMTC has cultivated strong relationships with local media that help distribute this information. Blarney Stone Broadcasting operates radio station WQON Q100.3, covering central northern Michigan, and is partnering with Camp Grayling JMTC to provide listeners with regular up-



Stakeholders participate in a JLUS issue discovery meeting in June 2017.

dates about Camp Grayling operations. WQON recently invited the Camp Grayling community relations specialist and commander to provide daily updates on Northern Strike to listeners. The listener response to the updates was positive, leading WQON to suggest partnering with Camp Grayling JMTTC to provide weekly updates throughout the year. The community relations specialist identified a challenge in having local print media, such as the Crawford County Avalanche, include Camp Grayling weekly firing range schedules and other information that would be of interest to local readers.

According to the community relations specialist, the job gets easier with improved stakeholder education. Identification and reporting of unexploded ordnance (UXO) is one area where Camp Grayling JMTTC sees a need for development and implementation of an education program in partnership with surrounding communities. A program on UXO would help community members know what to do if they come across historic UXO on public lands to ensure public safety.

Issue 5b. Public Relations and Community Engagement

Public relations and community engagement is another key component of the Camp Grayling JMTTC community relations specialist's role. This aspect of the position can be demanding, particularly with only one full-time community relations specialist. The recent groundwater contamination concerns have generated a need for increasing community

relations capacity, although these positions will not be permanent.

Camp Grayling JMTTC receives a variety of requests for group tours and involvement in community events, such as local parades. Information for stakeholders on how to make these requests is sparse. Often the requests are in the form of an email to the community relations specialist. The community relations specialist attempts to fulfill these requests as much as possible, although there are instances where not enough lead time is provided to fulfill the request. More comprehensive information on how to make these requests and the lead time necessary would possibly allow Camp Grayling JMTTC to approve a greater number of requests and expedite the process.

Despite the existing level of community engagement, stakeholders interviewed for the JLUS project often mentioned a desire to have the Camp Grayling JMTTC facilities more accessible to the public. Camp Grayling JMTTC has received inquiries about opening a visitor interpretative center on-site that would allow the public to experience some of Camp Grayling JMTTC without having to request a tour. At the present time, the Crawford County Historical Society Museum in Grayling has a photo display of the history of Camp Grayling in the museum annex.

The strategies to address the issues related to public relations, communications, education, and community involvement are available in Section 4.



Museum in downtown Grayling.

2.3.6 Camp Grayling JMTTC Economic Development Issues

Issue 6a: Effect on Property Value Mostly Perceived as Neutral or Positive

A key economic development issue raised by stakeholders through the JLUS process focused on the impact of Camp Grayling JMTTC on surrounding property values. Stakeholders participating in the survey are split on the perception of how Camp Grayling affects property values: 50 percent of stakeholders participating in the survey feel that Camp Grayling JMTTC decreases property values, 40 percent feel it has no effect, and 10 percent feel it increases property value. News articles covering town halls held by MDEQ and Camp Grayling JMTTC on groundwater contamination from the Camp Grayling JMTTC airfield indicate residents' concerns about declining property values. Through the community meetings, stakeholders shared stories with the JLUS project team of concerns about home sales due to noise from training operations and real estate agents not being fully transparent with prospective homebuyers about impacts from Camp Grayling. Increased transparency on potential issues related to Camp Grayling JMTTC operations such as noise and wildfire could help with managing the perception of the impact on property values.

Issue 6b: Significant Contributor to Local Economy

Improving economic development in the communities around Camp Grayling JMTTC is a priority issue identified by stakeholders through the JLUS project, as well as Project Rising Tide – an initiative to provide at-risk communities with economic development tools. Of the stakeholders that participated in the JLUS project survey, 82 percent feel that Camp Grayling JMTTC is a significant contributor to the local economy. This perception is validated by information presented in the March 2017 Economic Development Study for the City of Grayling prepared through Project Rising Tide. According to the study, Camp Grayling directly spends \$16 million annually in the City of Grayling and attracts over 10,000 soldiers and their families for training during summer, which represents significant military tourism.

Locally contracted services represents a portion of the \$16 million spent annually in the City of Grayling. Camp Grayling JMTTC entered into a contract with the Grayling Fire Department to provide fire services. Through the one-on-one interviews during the JLUS process, stakeholders raised the issue that the current level of service offered through the existing contract might not be adequate given wildfire threats and increased population due to Camp Grayling JMTTC training operations. If a need for increased fire protection services due to Camp Grayling JMTTC can be quantified and verified, the data would support increasing contractual services which would lead to additional jobs for Grayling Fire Department.

Issue 6c: Economic Incentivizing and Monitoring

Commitment to spending Camp Grayling JMTc funding at locally owned businesses varies depends on leadership. There are no policy requirements or spending goals for locally-owned businesses for goods and services that are not subject to federal contracting requirements. Therefore, these decisions are subject to the commitment of the leadership at Camp Grayling JMTc, which changes on a regular basis.

While it is understood that military tourism, defined as soldiers coming to Camp Grayling JMTc and the family members that visit surrounding communities to accompany them during training, likely has a significant positive impact on the economy of Grayling and other surrounding communities, it is challenging to quantify the extent of the economic impact and share that information with the public. Through Project Rising Tide, the City of Grayling has identified creating and maintaining a relationship with Camp Grayling JMTc as an economic imperative for the city and its businesses. A mechanism to track the impact of military tourism on the local economy would assist Grayling and other communities in better understanding: 1) how much soldiers and their families spend while training at Camp Grayling and 2) factors that affect trends in military tourism annually and over time.

One factor that influences military tourism and integration of Camp Grayling JMTc trainees into surrounding communities is adequate transportation. Soldiers training at Camp Grayling JMTc do not have access to private vehicles for transportation into Grayling and other communities. Camp Grayling JMTc often invites local food trucks to set up within the Camp Grayling JMTc, but for soldiers to leave, they must rely on public transportation provided by Crawford County Transportation Authority (Dial-A-Ride). Stakeholders participating in the JLUS process mentioned that the early closing hours for Dial-A-Ride make it difficult for soldiers training at Camp Grayling JMTc to go into Grayling and other communities. Stakeholders also identified the challenge of the Dial-A-Ride schedule in the Grayling Economic Development Study developed through Project Rising Tide; however, the study offered no specific recommendations to address this challenge. Improved public transportation is key to improving the integration of Camp Grayling JMTc into surrounding communities as a way to increase economic contributions from military tourism.



Top: Crawford County building in Grayling.

Far Left: An overlook near Guthrie Lakes.

Left: Grayling City Hall and police department.