Environmental Assessment

Final Report

Roben-Hood Airport

Big Rapids, Michigan

Report prepared by

Mead & Hunt

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Chapter 1.0 Purpose and Need

1.1 Introduction

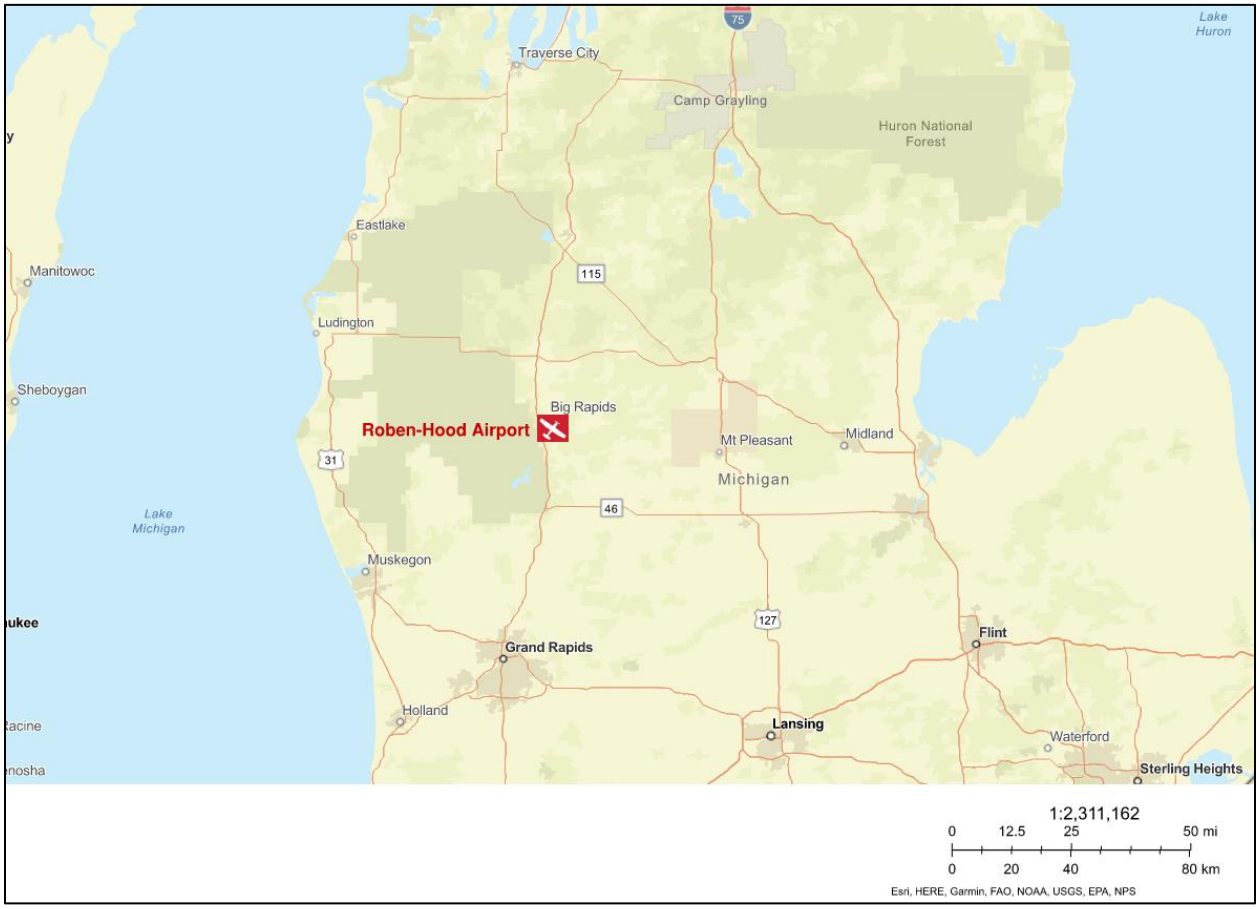
The Roben-Hood Airport (RQB or Airport) is a public-use, general aviation airport owned and operated by the City of Big Rapids. The Airport is within Big Rapids Township, Mecosta County, in Central Michigan (**Figure 1.0 Location Map**). Locally, RQB is approximately two miles northwest of downtown Big Rapids, approximately 57 miles north of Grand Rapids, and approximately 89 miles south of Traverse City (**Figure 1.1 Vicinity Map**).

Figure 1.0 Location Map

Source: US Environmental Protection Agency (USEPA) NEPAssist Tool with labeling by Mead & Hunt, 2023

RQB provides Mecosta County and the Big Rapids region access to the national air transportation system. As a gateway community to Northern Lower Michigan, visitors from across the United States use RQB for both recreational and business purposes. Tourist attractions including nationally recognized golf resorts and hunting lodges draw numerous visitors each year. RQB supports the air transportation demands of the

Figure 1.1 Vicinity Map



Source: USEPA NEPAssist Tool with labeling by Mead & Hunt, 2023

staff, students, and visitors of Ferris State University, a public university located in Big Rapids and the area's largest employer. RQB also supports the air transportation needs of the industrial base of the Big Rapids region that is comprised of businesses providing products and services across the United States and around the world.

The Federal Aviation Administration (FAA) includes the Airport in the National Plan of Integrated Airport Systems (NPIAS). This designation is indicative of its significance in the national air transportation system. The 2023-2027 NPIAS classifies RQB as a nonprimary local airport. At the state level, the Michigan Department of Transportation Office of Aeronautics (MDOT AERO) classifies the Airport as a Tier I, general aviation airport. Tier I airports represent facilities that are essential and critical to support the state airport system goals and should be developed to their full and appropriate extent.

Two paved runways support aircraft operations at RQB. Runway 9/27, the primary runway, is 4,300 feet long by 75 feet wide and oriented in an east-west direction. Runway 14/32 is the crosswind runway and is 2,699 feet long and 75 feet wide, oriented in a northwest-southeast direction. Taxiway A provides access between Runway 9/27 and the terminal apron, while Taxiway B connects the approach ends of Runways 27 and 14. The Airport occupies 629 acres and includes a terminal building, numerous hangars, and self-

serve fuel facilities. **Figure 1.2 Existing Airfield Configuration** illustrates the airfield configuration and property boundary of RQB.

Runway 9/27 and Runway 14/32 are equipped with Medium Intensity Runway Lighting (MIRL). Both approach ends of Runway 9/27 are equipped with Runway End Identifier Lights (REILs). In addition, the approach end of Runway 27 is equipped with a 4-light Precision Approach Path Indicator (PAPI), while the approach end of Runway 9 is equipped with a 2-light PAPI. The Airport owns and maintains all navigational aids (NAVAIDs) on airport property. For additional maps and information on the Airport including its history, existing facilities, and the role it plays in the community and the region, see **Chapter 3.0 Affected Environment & Environmental Consequences.**

1.2 State Block Grant Program

Michigan is one of 10 states that administers Airport Improvement Program (AIP) grants under the FAA's State Block Grant Program (SBGP). The SBGP, authorized under 49 U.S.C. § 47128, and 14 C.F.R. Part 156, allows the state of Michigan to assume environmental review responsibilities for FAA AIP grants in the state. Under the program, Michigan manages annual AIP grants that go to airports classified as "other than primary" airports, which includes RQB.

Under the SBGP, the state of Michigan provides funding and oversight for this proposed project at RQB along with the responsibility for evaluating the potential environmental impacts of the project, consistent with the *National Environmental Policy Act of 1969* (NEPA).

Additional funding for the project will also be coming from an earmark grant and Bipartisan Infrastructure Law (BIL) funds.

1.3 Section 163 Review

As part of this project, the Airport coordinated with the FAA regarding review and applicability with respect to Section 163 of the *FAA Reauthorization Act of 2018* (Section 163). In general, Section 163 limits the FAA's review and approval authority of an Airport Layout Plan (ALP) to those portions of the ALP that:

1. Materially impact the safe and efficient operation of aircraft at, to, or from the airport;
2. Adversely affect the safety of people or property on the ground adjacent to the airport as a result of aircraft operations; or
3. Adversely affect the value of prior federal investments to a significant extent.

When an Airport submits an ALP change, requests a change in land use from aeronautical to non-aeronautical, or requests to dispose of airport-owned land, the FAA must determine whether the proposal is subject to FAA approval authority, as defined and/or limited by Section 163. A Section 163 determination frames the required NEPA analysis and may limit the FAA's authority to review a proposed project.

Figure 1.2 Existing Airfield Configuration

Source: Mead & Hunt, 2023

As the current project would require a change to the Airport's ALP, the FAA reviewed RQB's proposed action and determined that it retains ALP approval authority for all components of the proposed project under criteria #1 and #2, listed above. The FAA's ALP approval authority for the proposed project would be considered a Federal Action and all project actions listed in **Section 1.4 Airport Proposed Project Action** would be subject to NEPA. The Airport's current ALP can be found in **Appendix A Airport Layout Plan**.

1.4 Airport Proposed Project Action

The Airport proposes to extend Runway 9/27 by 700 feet, which would change the runway's existing length from 4,300 feet to 5,000 feet. RQB also proposes to change the designation of Runway 9/27 under the project. Runway designations are determined by their magnetic compass headings truncated to the nearest 10 degrees. Due to the Earth's shifting metal core, the magnetic field shifts over time. RQB's Runway 9/27 (90 degrees and 270 degrees) more closely aligns to 10/28 now and will be redesignated as Runway 10/28 during this project. Therefore, this Environmental Assessment (EA) will hereafter refer to Runway 9/27 as Runway 10/28.

The proposed project includes the following project components:

- Extend Runway 10/28 700 feet at the approach end of Runway 10 to provide 5,000 feet of runway length.
- Relocate/reconstruct the REILs at the approach end of Runway 10.
- Relocate/reconstruct the PAPI at the approach end of Runway 10.
- Clear, grade, and restore the Runway Safety Area (RSA) and Runway Object Free Area (ROFA) at the approach end of Runway 10.
- Clear obstructions in the Runway 10 approach.

The Airport's proposed actions include:

- Unconditional approval of the ALP displaying all components of the Proposed Action.
- Approval of an application for federal assistance, under the AIP, for eligible components of the Proposed Action.

The construction of these improvements will be covered in detail as a part of the Preferred Alternative in **Chapter 3.0 Affected Environment & Environmental Consequences**. For additional discussion on the Preferred Alternative selection process, see **Chapter 2.0 Alternatives Considered**.

1.5 Purpose and Need for the Proposed Action

The FAA and MDOT AERO's purpose and need is to provide compliant safety areas that meet design standards once the runway is extended. Safety areas include surfaces such as the RSA, ROFA, and the Runway Protection Zone (RPZ). The joint purpose and need will be a part of the proposed project as FAA compliant safety areas will be included in the design of the Preferred Alternative. See **Section 2.2 Safety Area Definitions and FAA Design Standards** found in **Chapter 2.0 Alternatives Considered** for a description of safety areas and applicable design standards.

The Airport's purpose and need is to provide a facility that meets the demands of existing and future users by extending Runway 10/28 to 5,000 feet (700-foot extension). The following sections fully develop the purpose and need statement.

1.5.1 Purpose of the Proposed Action

The purpose of the proposed action is to improve operational utility of the Airport by meeting the takeoff and landing runway length requirements of an increasing number of demanding aircraft types that currently operate at the Airport and are anticipated to increase operations in the future.

1.5.2 Need for the Proposed Action

The proposed action is needed because Runway 10/28, at its current length, limits the Airport's ability to serve existing and future users. RQB has experienced growth in operations from users who are operating an increasing number of aircraft types with more demanding runway length needs. These users have identified the need to make concessions to passenger, cargo, and fuel loads on a continual basis to operate at the Airport because the length of Runway 10/28 does not meet aircraft demands at maximum takeoff weight (MTOW).

To document and justify the need to provide a longer primary runway for current and future users of the Airport, the FAA and MDOT AERO evaluated a memorandum titled *Roben-Hood Airport Runway 9/27 Extension – Runway Justification Study Update* (Justification Study Update) that was completed in 2022 and is found in **Appendix B Runway Justification Study Update**.

The Justification Study Update was a continuation of a planning effort that the City of Big Rapids initiated in 2013 to identify the runway length necessary to support existing and anticipated demand at RQB. The intent of the Justification Study Update was to document and justify the need for a longer runway at RQB and recommend a runway length that would meet the demands of existing and future users. Based on a review of historical activity and interviews with users, the report identified the types of aircraft with more demanding runway length needs that currently operate at RQB. The report then projected the number of operations by those aircraft and other aircraft the Airport could expect to support in the future if Runway 10/28 were extended.

The Justification Study Update provided numerous examples of local businesses, institutions, and resort visitors that either conduct aircraft operations currently at RQB on a limited basis due to the insufficient runway length or conduct operations at other less-convenient airports in the region with longer runways. One of these businesses is Big Rapids Products, a supplier of metal stampings and assemblies, which has its headquarters and three manufacturing plants in Big Rapids. The example of Big Rapids Products is provided below to illustrate the needs of RQB's users.

In 2015, Big Rapids Products, who had based a turboprop Daher-Socata TBM 700 at RQB, replaced this aircraft with an Embraer Phenom due to changes in demand for aviation. Big Rapids Products based this aircraft at the Cherry Capital Airport (TVC) in Traverse City, Michigan, located 83 miles away (1-hour, 20-minute drive) due to the runway length needs of this aircraft exceeding the available length of Runway 10/28. As a result, RQB immediately lost operating revenue from fuel sales and hangar rent

due to the relocation of Big Rapids Products' Embraer Phenom 300 and continues to lose substantial revenue annually for each year the aircraft is not based at RQB.

Since then, Big Rapids Products' demand for aircraft operations further changed, and they purchased a Bombardier Challenger 604 in 2018 to replace the Phenom 300. The Challenger 604 requires a minimum of 6,780 feet of runway length to depart at MTOW on an 86-degree Fahrenheit day at an elevation of 1,000 feet mean sea level (MSL). While this runway length demand far exceeds the existing 4,300-foot length of Runway 10/28, Big Rapids Products typically operates this aircraft at takeoff weight and temperature conditions that require much less runway length.

Big Rapids Products reported that it conducts approximately 30 operations annually with its Challenger 604. If the Airport were to extend the runway, Big Rapids Products indicated that it would base the aircraft at RQB and anticipates conducting 50 to 100 operations each year because of increased convenience of access to the aircraft.

Other users interviewed for the Justification Study Update indicated they also would increase business jet operations at RQB if the Airport extended Runway 10/28 to at least 5,000 feet. For details regarding information provided by these users during the runway justification process, see **Appendix B Runway Justification Study Update.**

Table 1-1 RQB Current and Anticipated Operations by Users provides a summary of the various users of RQB interviewed for the Justification Study Update, the type of aircraft they operate, the aircraft's MTOW, current operations at RQB, and anticipated operations at RQB if Runway 10/28 is extended. In total, if the Airport extended Runway 10/28, annual operations would increase from approximately 330 operations to approximately 860 operations.

Since 2013, planning efforts such as the Justification Study Update have demonstrated that at least 5,000 feet of runway length is needed to support the demands of users of RQB. A benefit of a 5,000-foot runway length is that users would avoid or reduce the need to make passenger, cargo, and/or fuel concessions with existing and future jet aircraft types conducting operations at RQB. Another benefit is a reduction in flight delays and cancellations related to the presence of water, snow, and ice on the runway, which increases takeoff and landing distances.

Additionally, a greater runway length would increase the margin of safety for aircraft to take off and land when low visibility / ceiling heights, inclement weather, and nighttime conditions are present. This would reduce the need for flights to be delayed or cancelled. The air transportation needs of the surrounding area would also be better served by eliminating the need for area businesses, institutions, and visitors to travel great distances to use other airports in the region that offer runway lengths longer than 4,300 feet.

Table 1-1 RQB Current and Anticipated Operations by Users

User	Aircraft Type	Maximum Takeoff Weight	N-Number	Current Ops*	Ops if Rwy 9/27 Extended^
Primary Users					
USC Utility Supply and Construction Company	Citation CJ4@ / Phenom 300@	17,110 lbs. / 17,968 lbs.	N823SF#@	175+	200
Big Rapids Products	Challenger 604@	48,200 lbs.	N322LV@	30	100
Ferris State University	Phenom 300@	17,968 lbs.	N373QS@	20	252
	Citation Sovereign@	30,000 lbs.	N306QS@		
	Gulfstream G150	26,100 lbs.	N285GA		
	Hawker 800	28,000 lbs.	N348AJ		
	Learjet 40@	21,000 lbs.	N799WW@		
	Learjet 45@	21,500 lbs.	N2022L		
	Learjet 70	21,500 lbs.			
	Challenger 350@	40,600 lbs.	N789QS@		
	Challenger 300	38,850 lbs.	N712BH		
	Challenger 604@	48,200 lbs.	N150BB@		
	Challenger 650	48,200 lbs.			
	Embraer 120@	26,433 lbs.	N121CZ@		
	Dornier 328 Jet	34,524 lbs.	N407FJ	4	24
	ERJ-145XR@	52,131 lbs.			
	Gulfstream IV	73,200 lbs.	N198GS	0	24
	Gulfstream V	90,500 lbs.	N90JE		
Primary Users Subtotal				**229**	**600**
Additional Users					
Spectrum Health Big Rapids Hospital	Learjet 45@	21,500 lbs.	N302RV	10	20
Yoplait (General Mills)	Cessna 750	36,100 lbs.	N750GM	12	20
Haworth	Gulfstream G450	73,900 lbs.	N888HH	4	10
BlueTriton Brands (formerly Nestlé Waters North America)	Challenger 600	41,100 lbs.	N606RP	8	12
Sanctuary Ranch Two Hats Ranch	Citation Bravo	14,800 lbs.	N497PF	40	68
	Citation CJ4@	17,110 lbs.	N94JW@		
	Learjet 45@	21,500 lbs.	N979DR		
	Gulfstream IV	73,200 lbs.	N198GS		
	Gulfstream G550	91,000 lbs.	N550RP		
Tullamore Golf Resort	Beechjet 400A	16,100 lbs.	N599TM	24	60
	Falcon 900EX	49,000 lbs.	N611TX		
	Challenger 600	41,100 lbs.			
	Embraer Legacy 450	35,759 lbs.	N417FX		
Gotion, Inc.	(various)			0	72
Additional Users Subtotal				**98**	**262**
TOTAL				**327**	**862**

Notes: * = Current operations conducted regardless of airport used
^ = Operations that would occur at RQB if Runway 9/27 were extended
+ = Annual average
# = Tail number of owner's King Air 250 based at RQB. Owner desires to purchase jet aircraft.
@ = Aircraft operated @ RQB

Source: Mead & Hunt, Inc.; FAA Aircraft Characteristics database (2023)

1.6 Summary of Existing and Projected Operations

According to the FAA 2022 Terminal Area Forecast (TAF), the Airport had the following activity levels in 2021:

- 4,040 total operations
    - 2,020 itinerant operations
    - 2,020 local operations
- 20 based aircraft

The TAF projects total operations will remain flat at 4,040 operations through 2050. However, as shown in **Table 1-1 RQB Current and Anticipated Operations by Users**, annual operations by numerous businesses, institutions, and resort visitors are anticipated to increase if the Airport extends Runway 10/28.

1.7 Required Environmental Review

Federal financial participation in projects through the *Airport and Airway Improvement Act of 1982*, requires environmental review under NEPA. An EA is a document prepared under NEPA that evaluates the effects of a proposed action on the surrounding natural, social, and economic environments.

This EA is prepared under the requirements of Title V of Public Law 97-248 of the *Airport and Airway Improvement Act of 1982*, NEPA, and FAA Order 5050.4B, *National Environmental Policy Act Implementing Instructions for Airport Actions* (April 2006). This EA also meets the requirements of FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, dated July 2015.

The intent of this EA is to provide the environmental documentation necessary to assist local, state, and federal officials and stakeholders in the evaluation of the proposed action at RQB. This EA evaluates the proposed action and a full range of alternatives that may meet the purpose and need. The analysis also identifies and discusses measures to avoid, minimize, and mitigate possible environmental impacts. MDOT AERO and the FAA must evaluate this EA under NEPA and, if the project does not have the potential for significant impacts, a Finding of No Significant Impact (FONSI) may be issued, or if it does have significant impacts, they must prepare an Environmental Impact Statement (EIS).

Chapter 2.0 Alternatives Considered

2.1 Introduction

As previously discussed in **Chapter 1.0 Purpose and Need**, the state of Michigan administers the Airport Improvement Program (AIP) grants under the Federal Aviation Administration's (FAA) State Block Grant Program (SBGP). Under the SBGP, the Michigan Department of Transportation Office of Aeronautics (MDOT AERO) is responsible for evaluating the potential environmental impacts of projects under its authority, consistent with the *National Environmental Policy Act of 1969* (NEPA).

As the representative of the FAA for this project, MDOT AERO is responsible for complying with the policies and procedures of NEPA, Council on Environmental Quality (CEQ) regulations, FAA Order 1050.1F*, Environmental Impacts: Policies and Procedures*, and other related environmental laws, regulations, and orders applicable to federal actions.

In accordance with the CEQ regulations found in 40 Code of Federal Regulations (CFR) Part 1500 (2020), an environmental review process requires that reasonable alternatives for the proposed action be identified and evaluated, although there is no requirement for the inclusion of any specific number or range of alternatives. This also aids the FAA in fulfilling its additional duty to identify the agency's preferred alternative as defined in 40 CFR § 1502.14(d). For alternatives that were considered but eliminated from further study, an explanation of why such alternatives were eliminated from further consideration in accordance with 40 CFR § 1502.14(a) is required. Additionally, pursuant to Section 1502.14(c), the environmental document must include an analysis of the No Action Alternative as a baseline against which to compare the impacts of the Proposed Action and any alternatives being considered.

FAA Order 1050.1F requires a discussion of alternatives that are reasonable and meet the purpose and need of the proposed action. The alternatives discussion should include:

- A list of alternatives considered, including the Proposed Action and the No Action alternatives.
- A concise statement explaining why any initial alternative considered was eliminated from further study because they were not considered reasonable or did not meet the purpose and need.
- A statement identifying a Preferred Alternative if one has been identified.

This chapter documents different options that may reasonably meet the purpose and need of the proposed project at the Roben-Hood Airport (RQB or Airport), as explained in **Chapter 1.0 Purpose and Need**. It should be noted that preliminary costs for build alternatives are provided in 2023 dollars; however, comprehensive costs will be developed during the final design of the Preferred Alternative.

See **Appendix B Runway Justification Study Update** for aircraft types that operate at RQB and the number of current and anticipated operations the Airport can expect if Runway 10/28 is extended. The

Runway Justification Study Update also helped in developing build alternatives to meet the project's purpose and need for a greater length on Runway 10/28.

The following alternatives are presented and discussed in this chapter:

- No Action Alternative – Maintain Existing 4,300 Feet of Runway Length
- Build Alternatives:
  - Alternative 1 – Extend 700 Feet at the Approach End of Runway 28
  - Alternative 2 – Extend 200 Feet at the Approach End of Runway 28 and 500 Feet at the Approach End of Runway 10
  - Alternative 3 – Extend 700 Feet at the Approach End of Runway 10 (Preferred Alternative)

2.2 Safety Area Definitions and FAA Design Standards

Safety areas and design standards, as defined by the FAA in Advisory Circular (AC) 150/5300-13B, *Airport Design* are important in evaluating potential alternatives because they are a controlling factor for each runway end and for determining potential impacts. No alternative will be considered technically feasible and therefore reasonable if it does not meet the safety area standards and design requirements outlined in this section, per 40 CFR § 1508.1(z). This section includes a definition of the different safety areas important to this project and required by FAA design standards.

Runway Safety Area (RSA): The RSA is a two-dimensional graded area surrounding the runway surface and is constructed to enhance the safety of airplanes in the event of an unintended excursion from the runway's paved surface. This area must be:

- Cleared and graded with no potentially hazardous humps, ruts, depressions, or other surface variations.
- Adequately drained to prevent water accumulation.
- Capable, under normal (dry) conditions of supporting snow removal equipment, rescue and firefighting equipment, and occasional aircraft passage without causing structural damage to the aircraft.
- Free of objects, except for those that need to be in the RSA because of their function, and then, to the extent practical, mounted on low impact (frangible) structures.

Runway Object Free Area (ROFA): A ROFA is a two-dimensional ground surface surrounding a runway. The ROFA clearing standards preclude above-ground objects protruding above the elevation of the nearest point of the RSA, except those required to be within the ROFA for navigation, ground maneuvering, aircraft taxi, and aircraft holding purposes. No other objects are permitted.

Runway Protection Zone (RPZ): The RPZ is a trapezoidal shaped area centered on the extended runway centerline and extended off each runway end. The function of an RPZ is to enhance the protection of people and property on the ground and prevent incompatible land uses. The FAA encourages airports to control the land within an RPZ and clear the areas of incompatible objects and activities.

To determine potential RPZ impacts of the proposed project, a separate technical report (RPZ Analysis) was completed for Runway 10/28 and is found in **Appendix C Runway Protection Zone Analysis**. The RPZ Analysis report evaluated three build alternatives to determine incompatible land uses, ways to minimize potential impacts of incompatible land uses, and mitigate the risk to people and property within each build alternative's RPZ.

2.3 No Action Alternative – Maintain Existing 4,300 Feet of Runway Length

The No Action Alternative assumes that no action would be taken to address the operating needs of the Airport's existing and anticipated users as identified in **Chapter 1.0 Purpose and Need**. Under this alternative, RQB would remain in its current state, and the existing 4,300 feet of length for Runway 10/28 would be maintained.

The No Action Alternative does not meet the project's purpose and need of providing an air transportation facility that meets the takeoff and landing runway length requirements of an increasing number of demanding aircraft types that currently operate at the Airport and are anticipated to increase operations in the future.

Although the No Action Alternative does not meet the purpose and need of the proposed project, it is included as required by 40 CFR § 1502.14(c) to serve as a baseline of comparison to the environmental impacts associated with the other alternatives and is, therefore, retained for analysis and carried forward for review.

2.4 Alternative 1 – Extend 700 Feet at the Approach End of Runway 28

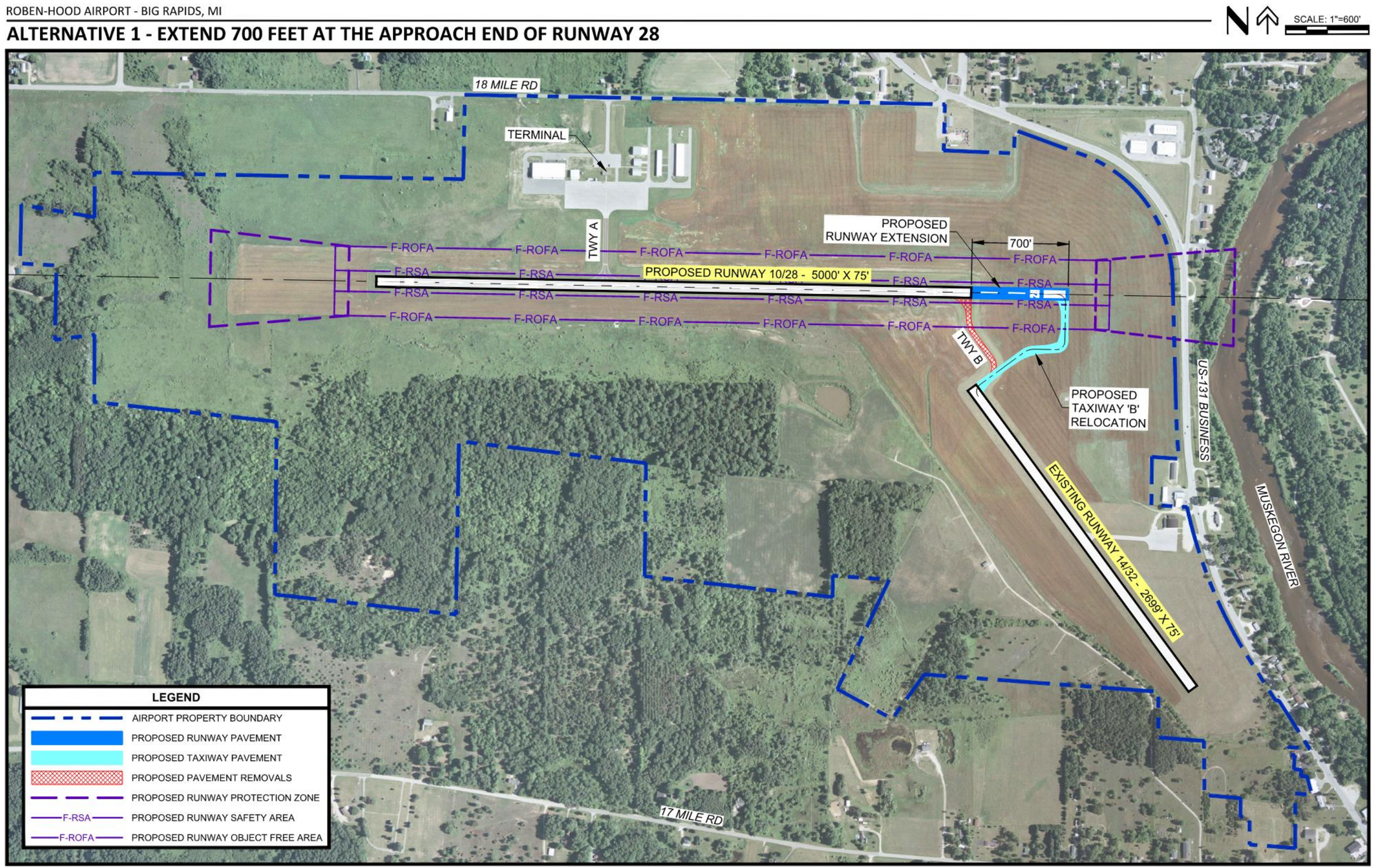
Under Alternative 1, Runway 10/28 would be extended 700 feet to the east at the approach end of Runway 28 to provide 5,000 feet of available runway length, which would meet the needs of existing and future Airport users (**Figure 2.0 Alternative 1 – Extend 700 Feet at the Approach End of Runway 28**).

To accommodate this extension, existing Taxiway B would be closed, and a new routing with associated edge lighting would be constructed to align with the relocated Runway 28 threshold. All applicable safety areas, navigational aids (NAVAIDs), lighting, and signage would be relocated to match the proposed runway extension and would meet FAA design standards. This alternative would cause a temporary closure of the Airport.

As previously mentioned, a separate RPZ Analysis evaluated land uses within the relocated RPZ off the end of Runway 28. The analysis found that Business Route US-131 as well as a building occupied by Silvernail Realty would be located within the relocated RPZ. Generally, roads and buildings within an RPZ are undesirable and should be relocated outside of the RPZ if possible. Also, a portion of the relocated RPZ would lie outside of the RQB property boundary. No RSA or ROFA impacts are anticipated with the 700-foot extension of Runway 28 to the east.

Unlike the other build options, this alternative does not require the removal of tree obstructions. Due to falling topography as ground elevation declines towards the Muskegon River, trees are below the Federal

Figure 2.0 Alternative 1 – Extend 700 Feet at the Approach End of Runway 28



Source: Mead & Hunt

Aviation Regulations (FAR) Part 77 Imaginary Surfaces, Threshold Siting Surface (TSS), Light Signal Clearance Surface (LSCS), Obstacle Clearance Surface (OCS), as well as the Michigan State Licensing Surface.

Implementation of Alternative 1 has the potential to increase aircraft noise impacts to residences east of the Muskegon River, which flows east of RQB. Residences in this area are directly under the arrival/departure path of aircraft at the approach end of Runway 28. Under this alternative, an extension of the runway to the east would lower the flight paths of aircraft over these areas, which increases the potential for aircraft noise impacts.

The total cost of Alternative 1 is estimated to be $4.4 million. This alternative is the second-most expensive build option due to the need to relocate Taxiway B.

Advantages of this alternative:

- Meets the project's purpose and need.
- Avoids the need for tree obstruction removals.

Disadvantages of this alternative:

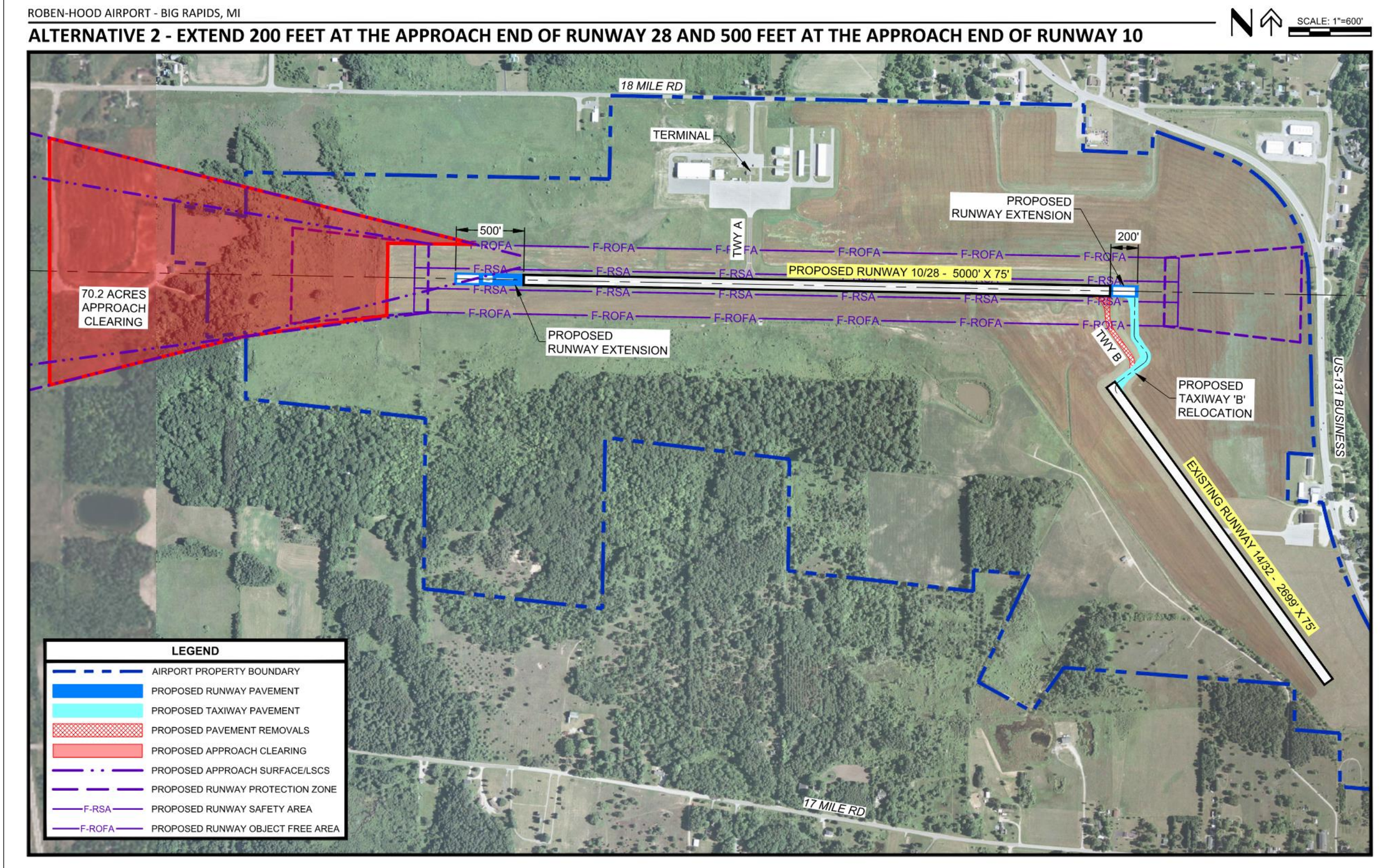
- Requires relocation of Taxiway B and associated edge lighting, which increases the project cost.
- Requires the Airport to be closed during construction.
- Incompatible land uses within the relocated RPZs.
- Relocated RPZs extend off Airport property.
- Potential residential noise impacts at the approach end of Runway 28.
- Second-most expensive of the build alternatives.

Although Alternative 1 meets the project's purpose and need, it is not considered a reasonable alternative because it does not satisfy safety area requirements, has the potential for aircraft noise impacts, and is the second-most expensive of the build options.

2.5 Alternative 2 – Extend 200 Feet at the Approach End of Runway 28 and 500 Feet at the Approach End of Runway 10

Alternative 2 proposes a 200-foot extension at the approach end of Runway 28 and a 500-foot extension at the approach end of Runway 10. The extensions on both ends would make the overall length of the runway 5,000 feet, which would meet the needs of existing and future Airport users (**Figure 2.1 Alternative 2 – Extend 200 Feet at the Approach End of Runway 28 and 500 Feet at the Approach End of Runway 10)**.

Figure 2.1 Alternative 2 - Extend 200 Feet at the Approach End of Runway 28 and 500 Feet at the Approach End of Runway 10



Source: Mead & Hunt

Like Alternative 1, the existing Taxiway B would be closed under this alternative, and a reconfigured Taxiway B with associated edge lighting would be constructed to align with the new Runway 28 threshold. All applicable safety areas, NAVAIDs, lighting, and signage at both runway ends would be relocated to match the proposed runway extensions and would meet FAA standards. This alternative would cause a temporary closure of the Airport during construction.

The approach and departure RPZs at the approach ends of Runways 10 and 28 would shift the same distances as the runway extensions. Unlike Alternative 1, the RPZ Analysis showed there would be no incompatible land uses within the relocated RPZs, and the RPZs would remain within existing Airport property boundary. No RSA or ROFA impacts are expected with this alternative.

At the Runway 10 end, where topography increases in elevation to the west, existing and potential tree obstructions identified as penetrations to the FAR Part 77 Imaginary Surfaces, TSS, LSCS, OCS, and Michigan State Licensing Surface are in the approach and would require removal for implementation of this alternative. These tree removals would occur within an approximately 70-acre area and would increase the project cost for this alternative.

At the Runway 28 end, no tree removals are anticipated due to falling topography as ground elevation declines towards the Muskegon River. Trees in the Runway 28 approach are below the FAR Part 77 Imaginary Surfaces, TSS, LSCS, OCS, and Michigan State Licensing Surface.

Potential environmental consequences of implementing Alternative 2 include aircraft noise, wetlands, farmlands, and threatened and endangered species. The proposed runway extension at the approach end of Runway 28, although shorter than the extension proposed under Alternative 1, would have the same potential to increase aircraft noise impacts to residents in the vicinity of RQB due to the lower flight paths of aircraft over residential areas.

A field delineation by a qualified biologist was completed in May 2023 as part of a NEPA compliant environmental review. This field delineation found that regulated wetlands to the west of the approach end of Runway 10 may be impacted with the extension of the runway at this end. Any potential impacts would require a Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 303 Wetland Permit and the purchase of wetland credits from an approved EGLE wetland bank.

Also, a preliminary review of farmland classification maps from the U.S. Department of Agriculture's (USDA) National Resources Conservation Service (NRCS) shows the presence of farmland classified as "All Areas are Prime Farmland," "Prime Farmland if Drained," and "Farmland of Local Importance" at the approach end of Runway 10.

Finally, wooded areas west of the approach end of Runway 10 where tree removals would be required provide potential roosting and breeding habitat for the U.S. Fish and Wildlife (USFWS)-designated endangered Northern Long-eared Bat and the proposed endangered Tricolored Bat. See **Chapter 3.0 Affected Environment & Environmental Consequences** for information and maps of delineated

wetlands, farmlands, threatened and endangered species, and other environmental resources in the project area.

Operationally, an extension of the runway at both ends as proposed in Alternative 2 would have a major impact on aircraft operations. This is because when construction occurs, a temporary reduction in runway length will be needed to provide adequate safety areas. Likewise, it requires a considerable reduction in runway length that would limit most users while work is being performed and would require a temporary closure of the Airport.

With a preliminary cost estimate of nearly $5.0 million, Alternative 2 would be the most expensive option due to the need to relocate Taxiway B and associated edge lighting, construct extensions and relocate NAVAIDs at both runway ends, remove tree obstructions, and mitigate potential wetland impacts.

Advantages of this alternative:

- Meets the project's purpose and need.

Disadvantages of this alternative:

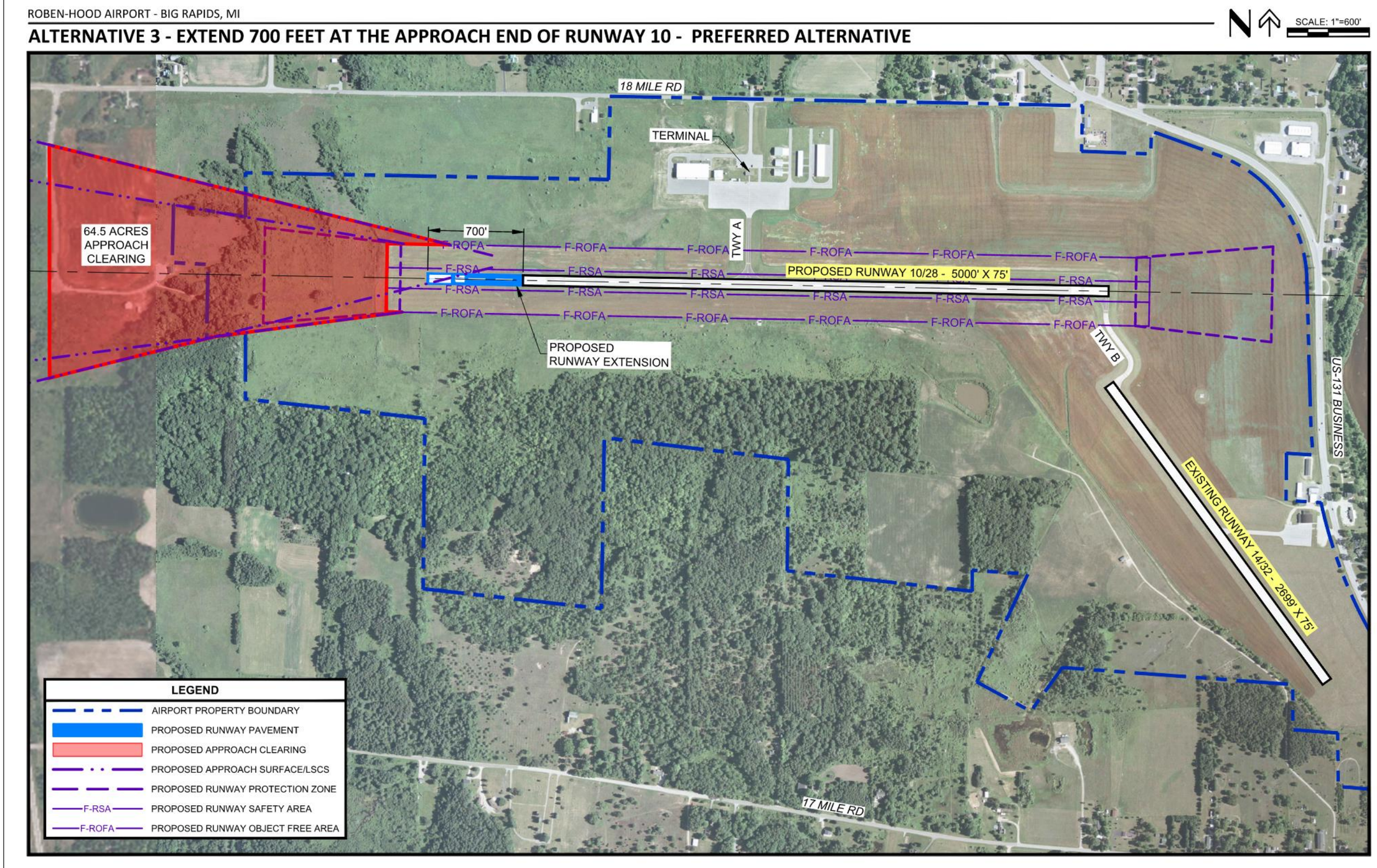
- Requires relocation of Taxiway B and associated edge lighting.
- Requires tree obstruction removals at the approach end of Runway 10.
- Potential residential noise impacts at the approach end of Runway 28.
- Potential wetland impacts at the approach end of Runway 10.
- Potential farmland impacts at the approach end of Runway 10.
- Potential impacts to endangered and proposed endangered bat species.
- Considerable disruptions to aircraft operations during construction, including temporary closure of the Airport.
- Most expensive of the build alternatives.

Alternative 2, despite meeting the project's purpose and need, is not considered a reasonable alternative since it would have the greatest potential for environmental impacts, would greatly disrupt aircraft operations during construction, and would be the most expensive option to implement.

2.6 Alternative 3 – Extend 700 Feet at the Approach End of Runway 10 (Preferred Alternative)

Alternative 3 proposes to achieve a runway length of 5,000 feet with the construction of a 700-foot extension at the approach end of Runway 10 (**Figure 2.2 Alternative 3 – Extend 700 Feet at the Approach End of Runway 10)**. This alternative, like Alternatives 1 and 2, would meet the runway length requirements of the demanding aircraft types that currently operate at RQB and are anticipated to increase operations in the future. All applicable safety areas, NAVAIDs, lighting, and signage would be relocated to match the proposed runway extension and would meet FAA design standards.

Figure 2.2 Alternative 3 – Extend 700 Feet at the Approach End of Runway 10 (Preferred Alternative)



Source: Mead & Hunt

Since the runway extension is proposed at the approach end of Runway 10, Alternative 3 would not require a relocation of Taxiway B and its associated edge lighting. This would reduce this alternative's construction cost. Under this alternative the Airport would remain open during construction.

The runway extension would shift the RPZ 700 feet to the west at the approach end of Runway 10. Like Alternative 2, this alternative avoids incompatible land uses within the relocated RPZ and keeps the area entirely on RQB property. The approach end of Runway 28 would see no changes to its existing arrival and departure RPZs. In addition, no RSA or ROFA impacts are expected with this alternative.

As with Alternative 2, implementation of this alternative would require removal of existing and potential tree obstructions within the Runway 10 approach. Tree removals would be required within an approximately 65-acre area.

Alternative 3 would have the similar potential environmental impacts on wetlands, farmlands, and threatened and endangered species as Alternative 2. Since no runway extension is proposed at the approach end of Runway 28, this is the only build alternative that avoids potential aircraft noise impacts to residential homes.

A preliminary review of farmland classification maps from the USDA NRCS also shows the presence of farmland classified as "All Areas are Prime Farmland," "Prime Farmland if Drained," and "Farmland of Local Importance" at the approach end of Runway 10.

The temporary impacts to aircraft operations during construction of this alternative would be similar to Alternative 1, which also focuses construction at a single runway end, but less than under Alternative 2, where construction would occur at both runway ends. No temporary closure of the Airport is anticipated during implementation of Alternative 3.

Alternative 3's estimated cost is nearly $3.9 million and is the least expensive of the build alternatives. Cost savings are achieved because Taxiway B and its associated edge lighting would not require relocation and construction of the runway extension would occur at a single runway end.

Advantages of this alternative:

- Meets the project's purpose and need.
- Avoids relocation of Taxiway B and associated edge lighting.
- Avoids temporary closure of the Airport.
- Avoids potential residential noise impacts at the approach end of Runway 28.
- Least expensive of the build alternatives.

Disadvantages of this alternative:

- Requires tree obstruction removals at the approach end of Runway 10.
- Potential wetland impacts at the approach end of Runway 10.
- Potential farmland impacts at the approach end of Runway 10.
- Potential impacts to endangered and proposed endangered bat species at the Runway 10 end.

Alternative 3 is a reasonable alternative because it meets the project's purpose and need, avoids potential aircraft noise impacts to residential areas in RQB's vicinity, minimizes impacts to aircraft operations during construction, and is the least expensive of the build options.

2.7 Comparison of Alternatives

Table 2-1 Summary of Alternatives Comparison provides an overview of each build alternative. Categories of interest are presented for each build alternative with the No Action Alternative shown for comparison purposes. Only categories reasonably expected to be impacted by the project were included in the comparison table. For a detailed discussion of potential environmental impacts of the No Action Alternative and Preferred Alternative, see **Chapter 3.0 Affected Environment & Environmental Consequences**.

2.8 Selection of the Preferred Alternative

After a thorough analysis of the advantages and disadvantages of each alternative, the alternative that best meets the project's purpose and need is Alternative 3 as shown in **Figure 2.2 Alternative 3 – Extend 700 Feet at the Approach End of Runway 10 (Preferred Alternative)**.

Although all three build alternatives meet the project's purpose and need, Alternative 3 offers several advantages over the other alternatives. First, it is the only alternative that does not require relocation of Taxiway B or an Airport closure during construction. Also, since it proposes an extension at the approach end of Runway 10, it is the only alternative that avoids potential residential noise impacts. Lastly, it would be the least expensive of the alternatives to implement.

Alternative 3 would have potential impacts to wetlands, farmlands, and threatened and endangered species similar to Alternative 2, but these are easily addressed through a combination of permits, Best Management Practices, regulatory mitigation requirements, and tree removal restriction dates to avoid impacts to protected bat species.

Implementation of Alternative 1 would result in incompatible land uses within the relocated RPZs at the approach end of Runway 28 as well as a portion of the RPZs extending off Airport property. With a full 700-foot extension to the east, this alternative would potentially cause noise impacts to existing residential areas and require the Airport to be closed during construction. Although Alternative 1 is the only option that avoids the requirement for the removal of tree obstructions, it would still be the second-most expensive of the alternatives to implement.

Alternative 2's critical disadvantages are potential noise impacts to residential homes and substantial impacts to aircraft operations including closure of the Airport during construction. This alternative is the most expensive of the build alternatives.

Alternative 3 is considered the most reasonable alternative based on the analysis presented above. As a result, Alternative 3 is carried forward in this EA for additional analysis, public comment, and agency review.

Table 2-1 Summary of Alternatives Comparison					
Category	**Criteria**	**No Action Alternative**	**Alternative 1**	**Alternative 2**	**Alternative 3 (Preferred Alternative)**
Meets Project Purpose and Need	Provides 5,000 ft of Runway Length for Current and Future Users	**No**	**Yes**	**Yes**	**Yes**
Implementation Factors	Requires Relocation of Taxiway B	**No**	**Yes**	**Yes**	**No**
	Requires Tree Obstruction Removals	**No**	**No**	**Yes**	**Yes**
	Potential RPZ Impacts	**No**	**Yes**	**No**	**No**
	Requires Airport Closure During Construction	**N/A**	**Yes**	**Yes**	**No**
Environmental Impacts	Potential Noise Impacts to Residential Areas	**No**	**Yes**	**Yes**	**No**
	Potential Impacts to Wetlands	**No**	**No**	**Yes**	**Yes**
	Potential Impacts to Farmlands	**No**	**No**	**Yes**	**Yes**
	Potential Impacts to Threatened & Endangered Species	**No**	**No**	**Yes**	**Yes**
Green and red shading represent the highest (red) or lowest (green) intensity of impact when compared to the other build alternatives within a specific category.					
Source: Mead & Hunt, Inc.					

Chapter 3.0 Affected Environment & Environmental Consequences

3.1 Introduction

This chapter of the Environmental Assessment (EA) describes the resources that may be affected by the Preferred Alternative and the No Action Alternative. This chapter also presents an analysis of the reasonably foreseeable direct, indirect, and cumulative impacts of the Preferred Alternative when compared with those of the No Action Alternative, as well as mitigation measures to avoid or minimize such impacts. Each resource category listed below includes first a summary of the regulatory setting and then an analysis of the topic relative to the Preferred Alternative and the No Action Alternative, as well as any suggested mitigation plans. **Table 3-8 Mitigation Summary of the Preferred Alternative** at the end of this chapter provides a summary of impacts and mitigation associated with the Preferred Alternative.

To help identify measures to first avoid, then minimize, and lastly mitigate impacts of the Preferred Alternative, the Roben-Hood Airport (Airport or RQB), the Michigan Department of Transportation Office of Aeronautics (MDOT AERO), and the Federal Aviation Administration (FAA) provided assistance and guidance.

Figure 3.1 Direct Study Area provides a map of the study area used to determine the direct impacts from the construction of the Preferred Alternative. Direct impacts are defined as effects occurring at the same place and time. Direct impacts can be caused by activities such as earth moving, runway and taxiway construction, and obstruction removals.

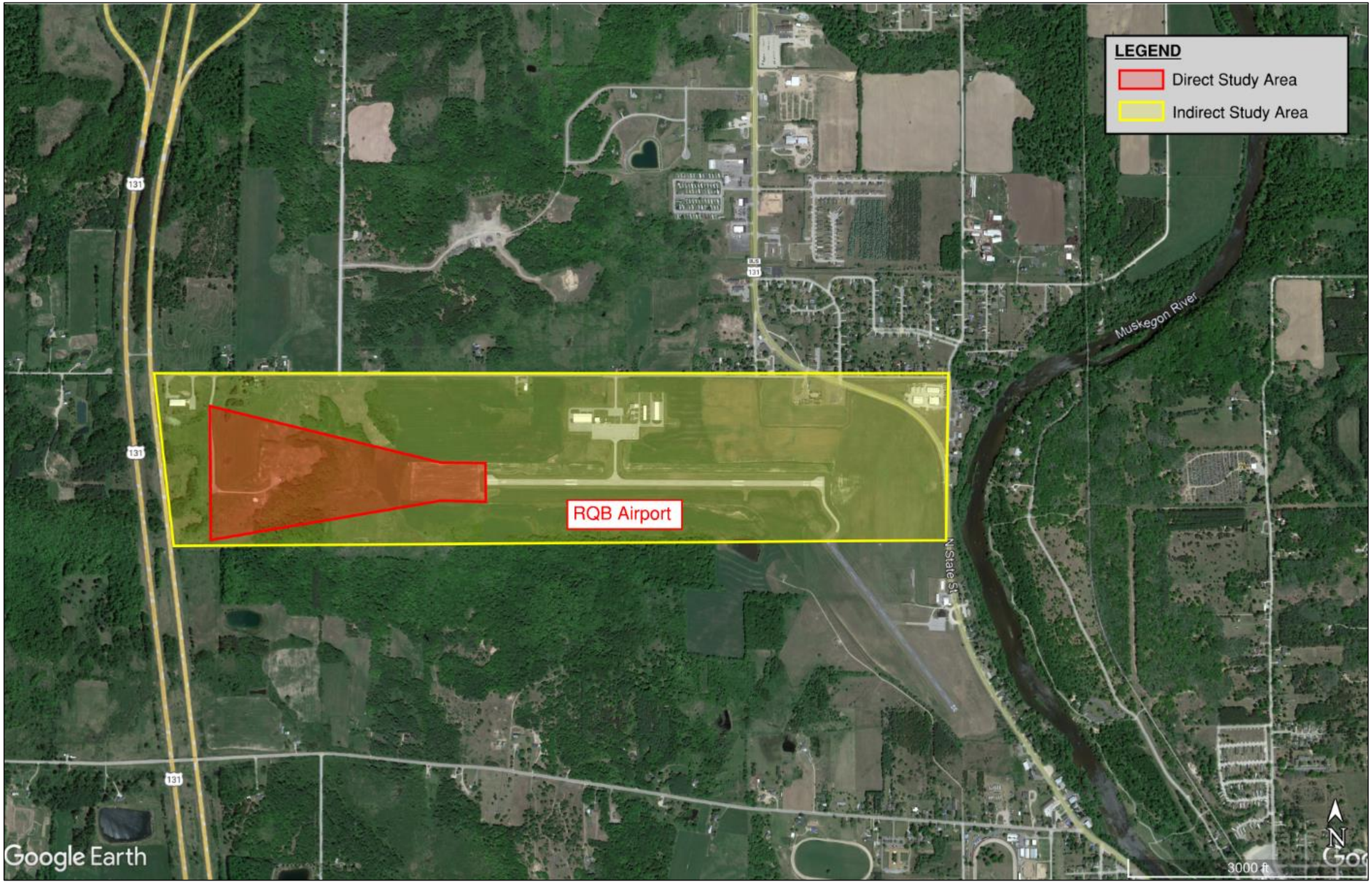
Figure 3.2 Indirect Study Area provides a map of the study area used to determine indirect impacts from the construction of the Preferred Alternative. Indirect effects are caused by actions that occur later in time or are farther removed in distance but are still reasonably foreseeable. Stormwater runoff over time degrading local water resources is an example of indirect impacts.

As described in previous chapters, the Airport proposes to extend Runway 10/28 700 feet at the approach end of Runway 10. This would provide 5,000 feet of usable runway length for existing and future users of the Airport. For a detailed discussion of the Preferred Alternative, see **Chapter 2.0 Alternatives Considered**. For additional details and justification of why the project is needed, see **Chapter 1.0 Purpose and Need**.

Figure 3.1 Direct Study Area

Source: 2023 Google Earth with labeling by Mead & Hunt, Inc.

Figure 3.2 Indirect Study Area



Source: 2023 Google Earth with labeling by Mead & Hunt, Inc.

As described in **Chapter 1.0 Purpose and Need**, the Airport's proposed project includes the following components:

- Extend Runway 10/28 700 feet at the approach end of Runway 10 to provide 5,000 feet of runway length.
- Relocate/reconstruct the Runway End Identifier Lights (REILs) at the approach end of Runway 10.
- Relocate/reconstruct the Precision Approach Path Indicator (PAPI) at the approach end of Runway 10.
- Clear, grade, and restore the Runway Safety Area (RSA) and Runway Object Free Area (ROFA) at the approach end of Runway 10.
- Clear obstructions in the Runway 10 approach.

3.2 Early Agency and Public Coordination

Resource agencies and Native American tribes with potential jurisdiction over or interest in the proposed action were contacted at the beginning of the project and given the opportunity to comment on the proposed action. A copy of the distribution list, early coordination letters, and maps sent to each agency and organization and their response letters are found in **Appendix D – Early Agency & Tribal Coordination**. Specific information and direction received from responding agencies is noted and addressed in the appropriate resource sections below where applicable.

Upon issuance of the Draft EA, the document was made available for public and agency review and comment for over 30 days. Following the public review period, a Public Hearing was advertised and held with a court reporter in attendance to record public comments. Written comments from the regulatory agencies and the public were considered and incorporated into the Final EA where appropriate. See **Appendix M – Public and Agency Review of the Draft EA** for details of the Public Hearing, public and agency comments received, and Airport responses.

3.3 Current Airport Environment and History

RQB is a general aviation airport located in Central Michigan, approximately two miles northwest of downtown Big Rapids and approximately 57 miles north of Grand Rapids. The Airport is located entirely within Big Rapids Charter Township, although it is owned and operated by the City of Big Rapids.

3.3.1 Airport History

The Harry K. Kunzie American Legion Post purchased 77 acres of a local farm on July 8, 1930, to serve as an airfield. Although the land was bought in 1930, groundbreaking did not occur until 1935, with the opening of the Airport occurring in 1936.

The Airport began operations as Mecosta County Airport with two grass runways – Runway 14/32 in its current configuration though shorter, and another intersecting Runway 3/21. The Airport was later renamed in honor of two pilots from Big Rapids who served and died in World War I - Major Douglas Bennett Roben and Lt. Daniel George Hood.

In its early existence, RQB became a prominent training ground for aspiring pilots, as the location offered surrounding landmarks that made it ideal for flight instruction. In 1939, a flying club was established, which based some of the first aircraft at the Airport.

Throughout much of the 20th century, the Airport struggled to obtain funds for critical upgrades, since the City of Big Rapids was regularly addressing more pressing issues. By 1981, however, Runway 14/32 was paved and extended to approximately 3,500 feet in length. Between 1987 and 1993, Runway 10/28 was constructed, the crosswind Runway 14/32 was shortened to its current length of 2,700 feet, and a taxiway was constructed to connect the ends of the two runways. A terminal building and an apron connected to Runway 10/28 via a taxiway were also constructed at that time. Construction of hangars and other facilities occurred a few years later. Currently, a terminal building, private hangars, and self-serve fuel facilities are available for users of the Airport.

3.3.2 Existing Airport Facilities

The discussion of existing facilities includes both airside and landside infrastructure. Major facilities at the Airport include runways, taxiways, aprons, hangars, navigational aids (NAVAIDs), a terminal building, a fixed base operator (FBO), and fuel facilities. See **Figure 3.3 Existing Airport Layout Plan** for a graphic representation of airport facilities and their locations on Airport property.

The Airport's existing runways are designated as 10/28 and 14/32. Runway 10/28 is oriented in an east-west direction while Runway 14/32 is oriented northwest-southeast. Runway 10/28 is 4,300 feet long, 75 feet wide, and constructed of asphalt. Runway 14/32 is 2,699 feet long, 75 feet wide, and also constructed of asphalt. Both runways are reported to be in good condition on the FAA Form 5010-1, *Airport Master Record* (last inspection date of October 2021).

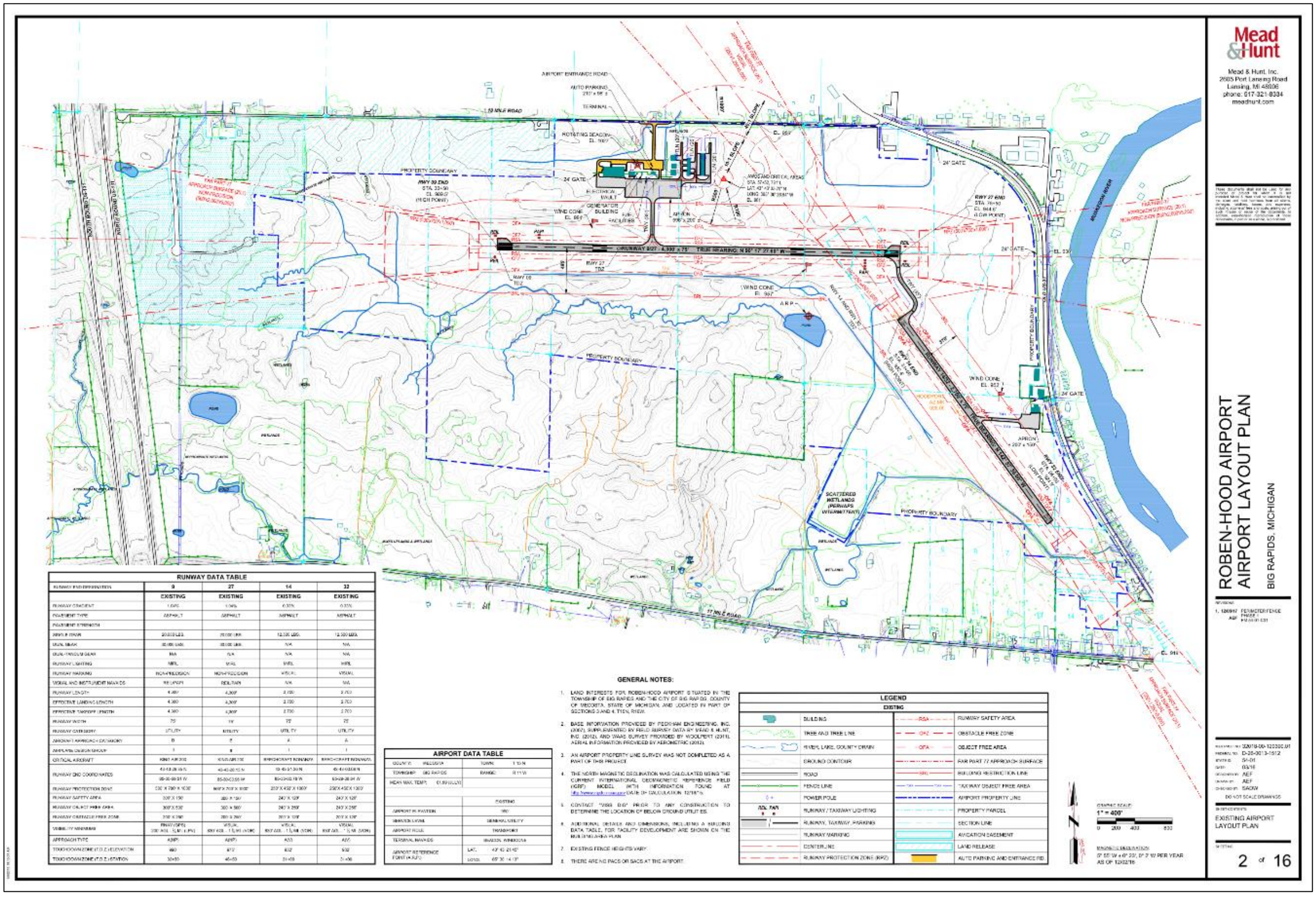
Two taxiways are located on the airfield. Taxiway A connects Runway 10/28 to the terminal apron, while Taxiway B provides access between Runway 10/28 and Runway 14/32. The terminal apron provides aircraft parking for the terminal building. Additional aprons support aircraft parking for several box hangars and T-hangars.

Visual NAVAIDs at RQB include:

- Rotating beacon
- Medium Intensity Runway Lights (MIRL) for both runways
- A 4-light PAPI at the approach end of Runway 28
- A 2-light PAPI at the approach end of Runway 10
- REILs at both ends of Runway 10/28.

In addition to visual NAVAIDs, the Airport is also equipped with an electronic NAVAID to help pilots navigate in inclement weather. The existing electronic NAVAID is a Global Positioning Satellite (GPS) approach for Runway 28.

Figure 3.3 Existing Airport Layout Plan



Source: Mead & Hunt, Inc.

The City of Big Rapids operates the FBO, which provides aviation services and facilities to Airport users including the following:

- Aviation fuel (self-serve)
- Aircraft parking (ramp or tiedown)
- Hangars
- Aircraft maintenance
- Aircraft parts
- Pilot supplies
- Courtesy transportation
- Computerized weather and flight planning
- Conference room
- Lobby
- Restrooms
- Pilot center

3.4 Air Quality

An air quality analysis is the measure of the condition of the air in terms of pollutant concentrations. Air quality is regulated out of concern for human health (especially the health of children, the elderly, and those with certain health conditions). Poor air quality can also affect crops and vegetation, as well as buildings and other facilities. The United States Environmental Protection Agency (USEPA) regulates air quality under the *Clean Air Act* (CAA) described in 42 U.S.C. §§ 7401- 7671q. The USEPA regulates pollutants to permissible levels via standards called National Ambient Air Quality Standards (NAAQS). In addition to the USEPA, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) also addresses air quality in the project area.

Areas which have concentrations of air quality criteria pollutants below the NAAQS are designated as "attainment areas." Areas with concentrations of these pollutants above the NAAQS are designated as "nonattainment areas." Nonattainment areas must implement plans to lower pollutant levels below designated standards. In addition, aviation-related federal projects planned for nonattainment areas may be required to conform to these plans, known as "General Conformity."

Mecosta County is in attainment for all criteria pollutants; therefore, the General Conformity rule does not apply to the proposed project.

Summary of Findings: Given Mecosta County's attainment status for all criteria pollutants and the temporary nature of construction emissions, the proposed action is not anticipated to cause or contribute to any violation of the NAAQS. Temporary air quality impacts, such as the creation of dust from ground disturbing activities, would result from implementation of the Preferred Alternative, but long-term impacts are not expected. No impacts to air quality would result from implementation of the No Action Alternative.

Since there are no long-term impacts anticipated, no specific mitigation is proposed. However, to further reduce the potential for temporary air quality impacts for both workers and the surrounding area, the following Best Management Practices (BMPs) should be considered during construction and tree removal activities under the Preferred Alternative where feasible:

- Use low-sulfur diesel fuel (less than 0.05 percent sulfur).
- Retrofit engines with an exhaust filtration device to capture diesel particulate matter before it enters

the construction site.

- Position the exhaust pipe so that the diesel fumes are directed away from the operator and nearby workers, thereby reducing the fume concentration to which personnel are exposed.
- Use catalytic convertors to reduce carbon monoxide, aldehydes, and hydrocarbons in diesel fumes. These devices must be used with low sulfur fuels.
- Use climate-controlled cabs that are pressurized and equipped with high efficiency particulate air (HEPA) filters to reduce the operator's exposure to diesel fumes. Pressurization ensures that air is moved from the inside to the outside. HEPA filters ensure that any incoming air is filtered first.
- Regularly maintain diesel engines, which is essential to keeping exhaust emissions low, and follow the manufacturer's recommended maintenance schedule. For example, blue/black smoke indicates that an engine requires servicing or tuning.
- Reduce exposure through work practices and training, such as turning off engines when vehicles are stopped for more than a few minutes, training diesel operators to perform routine inspections, and maintaining filtration devices.
- Purchase new vehicles that are equipped with the most advanced emission control systems available.
- With older vehicles, use electric starting aids as block heaters to warm the engine to reduce diesel emissions.

3.5 Biological Resources

Biological resources include plants (vegetation), animals (wildlife), and the habitats where they occur. Habitats are the resources and conditions that support the continuous existence of plants or animals in any particular area. Together, biological resources form ecosystems, which are dynamic and respond over time to changes in the environment, whether natural or human induced. Biological resources provide aesthetic, recreational, and socioeconomic values to society, as well as being valuable in their own right. Accordingly, federal and state laws and statutes exist to protect certain species and habitats of special importance.

Early agency coordination with federal and state regulatory agencies with interest or jurisdiction over biological resources in the project area was conducted at the onset of this project. Agency response letters are found in **Appendix D – Early Agency & Tribal Coordination**. For details on the biological resources in the project area, including U.S. Fish and Wildlife Service (USFWS) and EGLE consultation and additional analysis of each listed species listed below, see **Appendix E – Biological Resources**.

3.5.1 Endangered & Threatened Species

The *Endangered Species Act* (Act) of 1973 (16 U.S.C. §1531-1544) and subsequent amendments, require the conservation of federally listed threatened and endangered plant and animal species, and critical habitats in which they are found. A species is considered endangered if it is in danger of extinction throughout all or a significant amount of its range. Threatened species are defined as those that are likely to become endangered in the foreseeable future. The USFWS administers the Act primarily for land and freshwater species and designates critical habitat for species protected under the Act. Section 7 of the Act requires all federal agencies to consult with the USFWS, as applicable, before initiating any action that may affect a listed species or designated critical habitat.

Candidate species, which may be listed as threatened or endangered in the future, are not provided any statutory protection under the Act but conservation efforts are encouraged.

At the state level, EGLE protects threatened and endangered species from being taken or harmed during project activities under Part 365 of the Natural Resources and Environmental Protection Act (1994, as amended) (NREPA). An environmental review must be completed for the project area to identify whether any threatened and endangered species may be affected by project actions. EGLE may require permits if impacts are identified.

To determine the presence of threatened and endangered species and evaluate potential impacts from the proposed project at the federal and state level, a qualified biologist conducted a site visit from May 17-20, 2023, within an 87-acre Action Area shown in **Figure 3.4 Biological Resources Action Area**.

Action Area Description

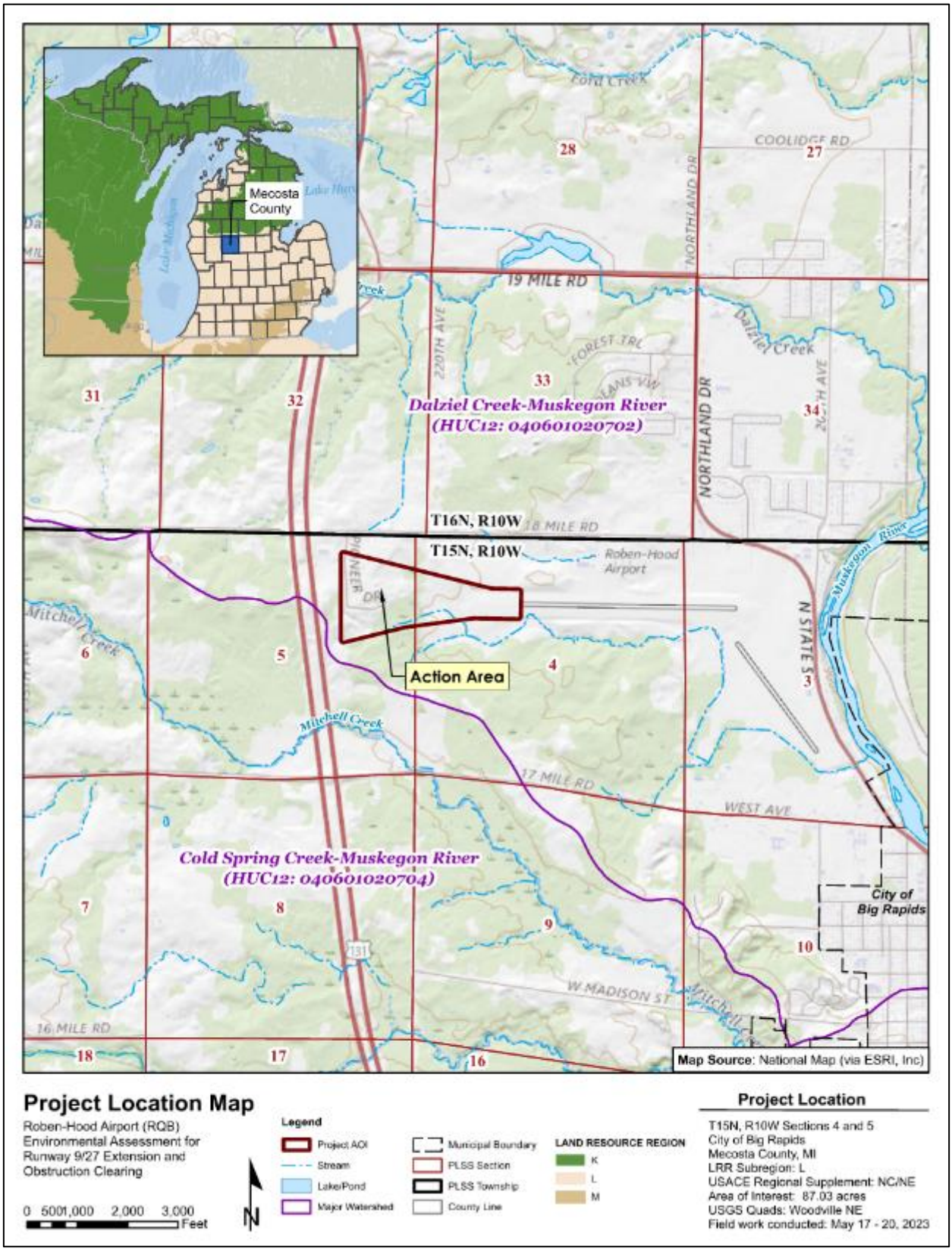
Located at the approach end of Runway 10 and extending to the west just past Pioneer Drive, the Action Area is dominated by a central core of a large scrub-shrub section supported by groundwater seepage and shallow concentrated flows, which is surrounded by gentle slopes on all sides. These areas of groundwater contact occur along the base of a gentle slope that follows an undulating path from north to south through the central section of the Action Area. Seepage and surface run-off drain to the center of the scrub-shrub-dominated core. A constructed ditch flows to the southeast out of the Action Area and then generally to the east via an unnamed intermittent tributary.

Forested areas surrounding the central core provide a contiguous expanse of mature forest in association with the shrubby center and consist of mature hardwoods including red maple, quaking aspen, green ash, and some black cherry. Suitable habitat for bats and potential nesting and perching habitat for migratory birds is present in these areas. Two other small patches of woods located in the western portion of the Action Area do not provide suitable habitat for bats in part due to their small size, isolation, and/or species composition.

Agricultural uses occur in the western portion of the Action Area and consist of row cropped fields. At the time of the site visit, the fields had not been planted. The Runway 10 RSA is actively maintained with regular mowing and consists of turf grasses and common forbs.

The Action Area is situated within the Dalziel Creek-Muskegon River Watershed. The Muskegon River, which flows southerly through the City of Big Rapids, is approximately 1.1 miles due east of the Action Area. No perennial streams flow through the Action Area and there are no mapped floodplains within the Action Area.

Figure 3.4 Biological Resources Action Area



Source: *Biological Resources Report, Proposed Runway 9/27 Extension and Obstruction Clearing, Roben-Hood Airport (RQB), Mecosta County, Big Rapids, MI*, prepared by Mead & Hunt, Inc., December 2023

Topography is highest along the western extent of the Action Area and dips gradually through gently sloping terrain to the lowest point at the end of Runway 10/28. Pioneer Drive, at the western edge of the Action Area, sits at 1,060 feet elevation at its highest point. The approach end of Runway 10 is at about 988 feet elevation, approximately 72 feet lower.

Summary of Findings: A review of threatened and endangered species information provided in the USFWS' Information for Planning and Consultation (IPaC) database for the Action Area identified five federally endangered, proposed endangered, threatened, or candidate species (**Table 3-1 USFWS Endangered and Threatened Species List**). The Monarch Butterfly is a candidate species and is not yet listed or proposed for listing. Consultation with USFWS under Section 7 of the ESA is not required for candidate species although project components may be considered or implemented to best support the monarch. USFWS proposes to list the Tricolored Bat (TCB) as endangered under the ESA and if finalized will extend the Act's protections to this species. Therefore, for the purposes of this EA, the TCB will be considered as protected under the ESA. Also shown on this list is the Rusty Patched Bumblebee, which is also considered a species of special concern by the state of Michigan.

Table 3-1
USFWS Endangered and Threatened Species List

Species Name	Common Name	Status
Myotis septentrionalis	Northern Long-eared Bat	Endangered
Perimyotis subflavus	Tricolored Bat	Proposed Endangered
Sistrurus catenatus	Eastern Massasauga Rattlesnake	Threatened
Lycaeides melissa samuelis	Karner Blue Butterfly	Endangered
Danaus plexippus	Monarch Butterfly	Candidate
Bombus affinis	Rusty Patched Bumble Bee	Endangered

Source: USFWS Information for Planning and Consultation (IPaC) Database

No critical habitat under USFWS jurisdiction was found in the Action Area. In addition, no federally listed species were observed during the site visit.

A review of the IPaC database was coupled with use of the USFWS-directed Michigan Endangered Species Determination Key (DKey), which provided recommended effect determinations for species within the Action Area. **Table 3-2 Recommended Effect Determinations from the Michigan Endangered Species Determination Key (DKey)** presents the recommended determinations. The USFWS verification letter is found in **Appendix E – Biological Resources**.

Table 3-2 Recommended Effect Determinations from the Michigan Endangered Species Determination Key (DKey)		
Common Name / Species Name	**Status**	**DKey Determination**
Northern Long-eared Bat *(Myotis septentrionalis)*	Endangered	NLAA*
Eastern Massasauga Rattlesnake *(Sistrurus catenatus)*	Threatened	NLAA*
Tricolored Bat (*Perimyotis subflavus*)	Proposed Endangered	No effect
Karner Blue Butterfly (*Lycaeides melissa samuelis*)	Endangered	No effect
Monarch Butterfly *(Danaus plexippus)*	Candidate	No effect

*NLAA=May affect, but not likely to adversely affect
Source: Michigan Endangered Species Determination Key (DKey)

A database search of the Michigan Natural Features Inventory (MNFI) requested from EGLE as part of a Transportation Preliminary Database Search also revealed no occurrences for state-listed threatened and endangered species. No Tier 1-designated Eastern Massasauga Rattlesnake habitat is within the proposed project area and no occurrences of Michigan Mussel Protocol Group 1/Group 2 listed mussels were identified.

The potential for impacts to threatened and endangered species within the Action Area and recommended mitigation (if any) are discussed below.

Northern Long-eared Bat

Suitable summer habitat for the Northern Long-eared Bat (NLEB) is present within the Action Area where tree removals are proposed. Forested areas along the gentle slopes of the scrub-shrub central core and a few isolated forest patches within the Action Area were field assessed according to guidelines presented in *Range-wide Indiana Bat & Northern Long-eared Bat Survey Guidelines*. Tree removals will be completed during recommended time periods appropriate for minimizing impacts to any potential bat populations. Specifically, any tree removal activities will be accomplished outside the summer roosting season (removals allowed after August 31 and before May 1) to minimize impacts to any potential NLEB bat populations. Therefore, the proposed action may affect, but is not likely to adversely affect the NLEB.

Tricolored Bat

The TCB are rare in Michigan and the MNFI does not show any occurrences of TCB in Mecosta County. Although there are no known hibernacula in the area, survey information and documentation are limited for this species. Suitable summer bat habitat is likely present within the Action Area though no oaks were observed during the field survey. The same process and guidelines used to assess conditions for the NLEB were followed for the TCB. Following the same recommendations for tree cutting within specific time frames for the NLEB (removals allowed after August 31 and before May 1) should limit incidental take of TCB. Therefore, the proposed action will have no effect on the TCB.

Eastern Massasauga Rattlesnake (EMR)

Although the Action Area does not fall within habitat known to be occupied by, or with high potential to be occupied by, the EMR, it is within the known range of the snake. Occurrences of the EMR have not been reported in Mecosta County.

Site conditions found within the highly managed areas on the airfield within the Action Area that are regularly mowed are not unsuitable habitat conditions for the EMR. Agricultural areas on the west side of the Action Area have a long history of farming with regular discing and planting. These areas are also unlikely to provide suitable habitat for the EMR.

The scrub-shrub center of the Action Area provides suitable habitat with open sunny areas for basking with tree cover for shade as needed. Uplands surround the wetland along the undulating forest edge which allows for foraging and other activities. This area may provide suitable habitat for the EMR.

Recommended BMPs for projects within the known EMR range will be implemented as follows:

- Use wildlife-safe erosion control materials.
- View the Michigan Department of Natural Resources' "60-Second Snakes: The Eastern Massasauga Rattlesnake" video and/or review the EMR fact sheet.
- Report any EMR observations (or any other threatened or endangered species) during project implementation.

Therefore, the proposed action may affect, but is not likely to adversely affect, the EMR. No additional mitigation is required.

Karner Blue Butterfly (KBB)

The Action Area is within the historical range of the KBB and Mecosta County is part of a recovery unit (Newaygo RU) designated in the KBB Recovery Plan. No lupine plants (the host plant) were observed during the field site assessment. Suitable herbaceous nectaring plants were not present within the Action Area in part due to the long history of vegetation maintenance activities on the airfield and agricultural activities in other parts of the Action Area. The central core of the Action Area is dominated by wetland shrubs and mature forest, which might provide some nectaring potential. Therefore, the Action Area provides limited potential habitat for the KBB. The proposed project will have no effect on the KBB.

Monarch Butterfly

The monarch butterfly is a candidate species and is not yet listed or proposed for listing. Consultation with USFWS under section 7 of the ESA is not required for candidate species. USFWS encourages opportunities to conserve the species if possible.

Rusty Patched Bumble Bee (RPBB)

The RPBB historically is associated with grasslands and tallgrass prairies of the Upper Midwest. This type of habitat provides nesting sites, overwintering sites, and nectar and pollen from an abundant array of forbs.

The Action Area is within the historical range of the RPBB, but suitable foraging and nesting habitat is not present in part due to the long history of vegetation maintenance activities on the airfield and agricultural activities in other parts of the Action Area. The central core of the Action Area is dominated by wetland shrubs and mature forest. Therefore, the Action Area provides limited potential habitat for the RPBB. The proposed project will have no effect on the RPBB.

The RPBB has not been observed or collected since the year 2000 in Mecosta County. Section 7 consultation and Incidental Take permits are not needed.

In addition to the field visit conducted in May 2023 to determine the presence of threatened and endangered species in the Action Area, USDA Wildlife Services provided correspondence during early agency coordination on the proposed project. In their comments, USDA expressed concerns regarding the construction of a runway extension in close proximity to areas on the west side of the Airport that are attractive to wildlife such as waterfowl, wading bird species, canine, deer, and other mammals. Recommendations included routine wildlife monitoring, removal of trees and grasses to give a clear view of the area, and monitoring deer populations on and around the airfield. These recommendations will be considered during final design of the Preferred Alternative. Early agency correspondence received from USDA Wildlife Services is provided in **Appendix D – Early Agency & Tribal Coordination**.

Endangered and threatened species impacts are not expected from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative.

3.5.2 Migratory Birds

The *Migratory Bird Treaty Act of 1918* (MBTA) described in 16 U.S.C. § 703 et seq and its amendments are the main driver for the protection of migratory birds in the United States. Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds,* also obligates all federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitats.

In a biological sense, a migratory bird is an avian that has a seasonal and somewhat predictable pattern of movement. Generally, migratory birds are defined as all native birds in the United States, except those non-migratory species such as quail and turkey that are managed by individual states.

Summary of Findings: The USFWS identified five bird species protected under the MBTA and the *Bald and Golden Eagle Protection Act* that may occur in the Action Area. These species include the Bald Eagle, Bobolink, Henslow's Sparrow, Upland Sandpiper, and Wood Thrush. The area

proposed for construction and land disturbance activities at the approach end of Runway 10 related to the runway extension is not a suitable habitat for the Upland Sandpiper, Henslow's Sparrow, or Bobolink, which are species preferring grassland habitats. This area is frequently mowed and consists of a mix of turf grasses and common forbs. Though the Wood Thrush prefers wooded environments, tree clearing activities will not occur during times of high probability of presence (July). The Action Area does not contain perching habitat for Bald eagles nor suitable bodies of water for feeding. Therefore, the proposed project will have no effect on species identified as Birds of Conservation Concern under the MBTA or on Bald Eagles.

Migratory bird impacts are not expected from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative. For details on migratory birds in the project area and USFWS correspondence, see **Appendix E – Biological Resources**.

3.6 Climate

Climate change and greenhouse gases are a growing concern for the aviation industry. Aircraft operations and the short-term emissions from construction equipment activity are considered the primary source of greenhouse gas emissions at an airport. Climate change is generally governed by the CAA (42 U.S.C. §§ 7408, 7521, 7571, 7661 et seq.).

Although there are no federal standards for aviation-related greenhouse gas emissions, it is well established that greenhouse gas emissions affect climate.[1] Where a proposed action would result in an increase in greenhouse gas emissions, the emissions should be assessed either qualitatively or quantitatively. There are no significance thresholds for aviation greenhouse gas emissions, and it is not required for a *National Environmental Policy Act* (NEPA) analysis to attempt to link specific climate impacts to a proposed action or alternative(s) given the small percentage of emissions that aviation projects contribute annually.

In terms of relative U.S. contribution, the U.S. General Accounting Office (GAO) reports that aviation accounts "for about 3 percent of the total U.S. greenhouse gas emissions from human sources," according to USEPA data compared with other industrial sources such as the country's transportation sector (23 percent) and power generation (41 percent).[2] The International Civil Aviation Organization (ICAO) estimates that greenhouse emissions from aircraft account for roughly 3 percent of all anthropogenic greenhouse gas emissions globally. As explained by the USEPA, "greenhouse gases, once emitted, become well mixed in the atmosphere, meaning U.S. emissions can affect not only the U.S. population and environment but other regions of the world as well; likewise, emissions in other countries can affect the United States."[3] In other words, climate change due to greenhouse gas emissions is a global phenomenon, so the affected environment is the global climate.

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1 Federal Aviation Administration. 2007. *An Environmental Desk Reference for Airport Actions*. Washington, D.C.: October 2007. https://www.faa.gov/airports/environmental/environmental_desk_ref/.

2 IPCC Report as referenced in U.S. General Accounting Office (GAO) *Environment: Aviation's Effects on the Global Atmosphere Are Potentially Significant and Expected to Grow*; GAO/RCED-00-57, February 2000, p. 14; GAO cites available USEPA data from 1997.

3 Climate Change Division, Office of Atmospheric Programs, U.S. Environmental Protection Agency. 2009. *Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act* 2-3. http:// USEPA.gov /climatechange/endangerment.html

Summary of Findings: Based on FAA data, the current and forecasted operations activity at the Airport (less than 5,000 operations per year) is minor when compared to overall national aviation activity. Therefore, assuming that greenhouse gases occur in proportion to the level of activity, construction activities under the Preferred Alternative and subsequent aircraft operations in future years at the Airport, relative to aviation throughout the United States, is negligible.

Climate impacts are not expected from construction or operation of the Preferred Alternative or implementation of the No Action Alternative. No mitigation is proposed.

3.7 Coastal Resources

The *Coastal Zone Management Act of 1972* (16 U.S.C. §§ 1451-1466) established the Federal Coastal Zone Management Program to encourage and assist states in preparing and implementing management programs to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." In addition, the *Coastal Barrier Resources Act of 1982* requires that no new federal expenditures or financial assistance may be made available for construction projects within the boundaries of the Coastal Barriers Resource System. Executive Order 13089, *Coral Reef Protection* requires federal agencies to "identify any actions that might affect coral reef ecosystems, protect and enhance the conditions of these ecosystems, and ensure that the actions carried out, authorized, or funded by federal agencies will not negatively impact or degrade coral reef ecosystems."

Summary of Findings: The project is not located within or near any protected coastal resources. Impacts to coastal resources are not expected from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative. No mitigation is proposed.

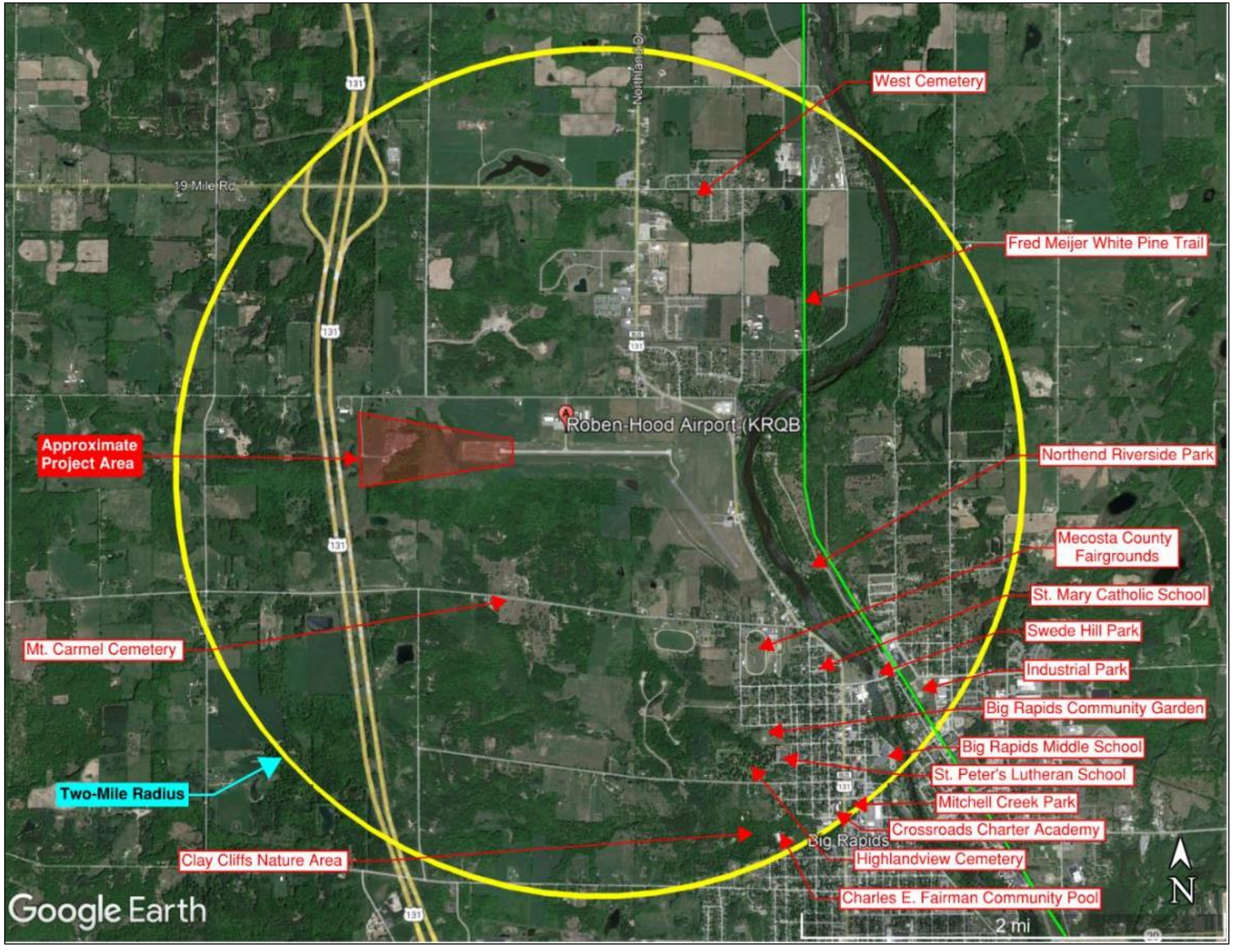
3.8 Department of Transportation Act, Section 4(f)

Section 4(f) of the *Department of Transportation Act* (49 U.S.C. § 303) requires that the Secretary of Transportation not approve any program or project that requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land from a historic site of national, state, or local significance as determined by the officials having jurisdiction unless there is no feasible and prudent alternative to the use of such land.

Several potential Section 4(f) resources are within a two-mile radius of RQB. The locations of these resources relative to RQB are shown in **Figure 3.5 Section 4(f) Resources**. These resources include parks, recreation areas, cemeteries, schools with playgrounds or athletic fields, and wildlife or waterfowl refuges.

Summary of Findings: There are no parks, recreation areas, cemeteries, schools with playgrounds or athletic fields, or wildlife or waterfowl refuges within the project area. The nearest such resource (Mt. Carmel Cemetery) is 0.7 miles south of the project area. Therefore, it is determined that neither construction or operation of the Preferred Alternative nor implementation of the No Action Alternative will have an impact on any Section 4(f) resources. No mitigation is proposed.

Figure 3.5 Section 4(f) Resources



Source: 2023 Google Earth with labeling by Mead & Hunt, Inc.

3.9 Farmlands

The *Farmland Protection Policy Act* of 1981 (FPPA) described in 7 U.S.C. §§ 4201-4209 was enacted to minimize the extent to which federal actions and programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. Per FPPA, "farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land."

Prime farmland has the best combination of physical and chemical characteristics for producing food, forage, fiber, and oilseed crops. Unique farmland is defined as land other than prime farmland that is used for the production of specific high-value food and fiber crops such as citrus, tree nuts, olives, cranberries, fruits, and vegetables. Any federal action that may result in conversion of farmland to a non-agricultural use requires coordination with the U.S. Department of Agriculture's (USDA) Natural Resource Conservation Services (NRCS).

A review of farmland classification maps available from the NRCS indicate the presence of farmland classified as "Prime Farmland if Drained," "All Areas are Prime Farmland," and "Farmland of Local Importance" at the approach end of Runway 10 (see **Appendix F – Farmlands**).

Summary of Findings: Initial coordination with the USDA NRCS office in East Lansing, Michigan, regarding the presence of farmlands in the project area occurred in November 2023. During this coordination, the NRCS advised that the runway extension portion of the proposed project is not exempt from regulatory protection under the FPPA. Therefore, a Farmland Conversion Impact Rating (Form AD-1006) was completed.

The completed Form AD-1006 was returned to the NRCS in December 2023. The proposed project scored a total of 135 points (relative value of farmland points plus total site assessment points) out of a possible 260 points. Based on the *Environmental Desk Reference for Airport Actions*, total scores below 160 do not require alternative sites to be evaluated. Therefore, neither construction or operation of the Preferred Alternative nor implementation of the No Action Alternative will have a significant impact on farmlands.

Documentation of coordination with the NRCS and a copy of the completed Form AD-1006 are provided in **Appendix F – Farmlands.**

3.10 Hazardous Materials, Solid Waste, and Pollution Prevention

Hazardous materials are those which can pose a risk to health, safety, and property, including hazardous wastes and hazardous substances as well as other materials. Hazardous materials are regulated under several statutes, including the *Comprehensive Environmental Response, Compensation, and Liability Act* (42 U.S.C. §§ 9601-9675), the *Resource Conservation and Recovery Act* (RCRA) described in 42 U.S.C. §§ 6901-6992k, and the *Toxic Substance Control Act* (15 U.S.C. §§ 2601-2697). Solid waste is discarded material that falls into specific regulatory definitions; solid waste is regulated under RCRA. Pollution prevention refers to efforts to avoid, prevent, or reduce discharges and emissions of pollutants.

In December 2023, a Phase I Environmental Site Assessment (ESA) in accordance with the American Society for Testing and Materials (ASTM) E1527-21, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, was completed for the proposed area of construction of the Preferred Alternative and adjoining properties. For details of the Phase I ESA, see **Appendix G – Hazardous Materials**.

The Phase I ESA provided findings of four separate sites, as shown in **Figure 3-6 Phase I Environmental Site Assessment Sites**. These findings are discussed below.

Site 1

Aero Med Spectrum Health is a Conditionally Exempt Small Quantity Generator that operates medical flights at RQB. The site is located on the RQB property but is more than one-quarter mile from any proposed project activities. An Aboveground Storage Tank (AST) of unknown contents and capacity associated with a Cummins generator was observed during site reconnaissance. It was found to be in good condition and showed no evidence of spills or leaks. While this site is regulated, it has no records of previously reported hazardous materials incidents. No evidence of contamination from the site was identified.

Site 2

On the east side of a maintenance/utility building is a pile of mechanical parts, tires, and other unidentifiable miscellaneous items. During site reconnaissance, at least three overhead transformers, one of which is laying on its side, were observed. Next to the overhead transformers appears to be a pad mounted transformer, also on its side. The site is located within the area of proposed activities. The site has no records of previously reported hazardous materials incidents. No evidence of contamination from the site was identified. However, observations of the ground underneath and around the pile were obstructed by recent snowfall. Given the known use of oils and Polychlorinated Biphenyls (PCBs) in transformers of this type, this site is a Recognized Environmental Condition (REC). Proposed project activities are not expected to impact this finding as they will be limited to the woodlands and areas beyond the general building area.

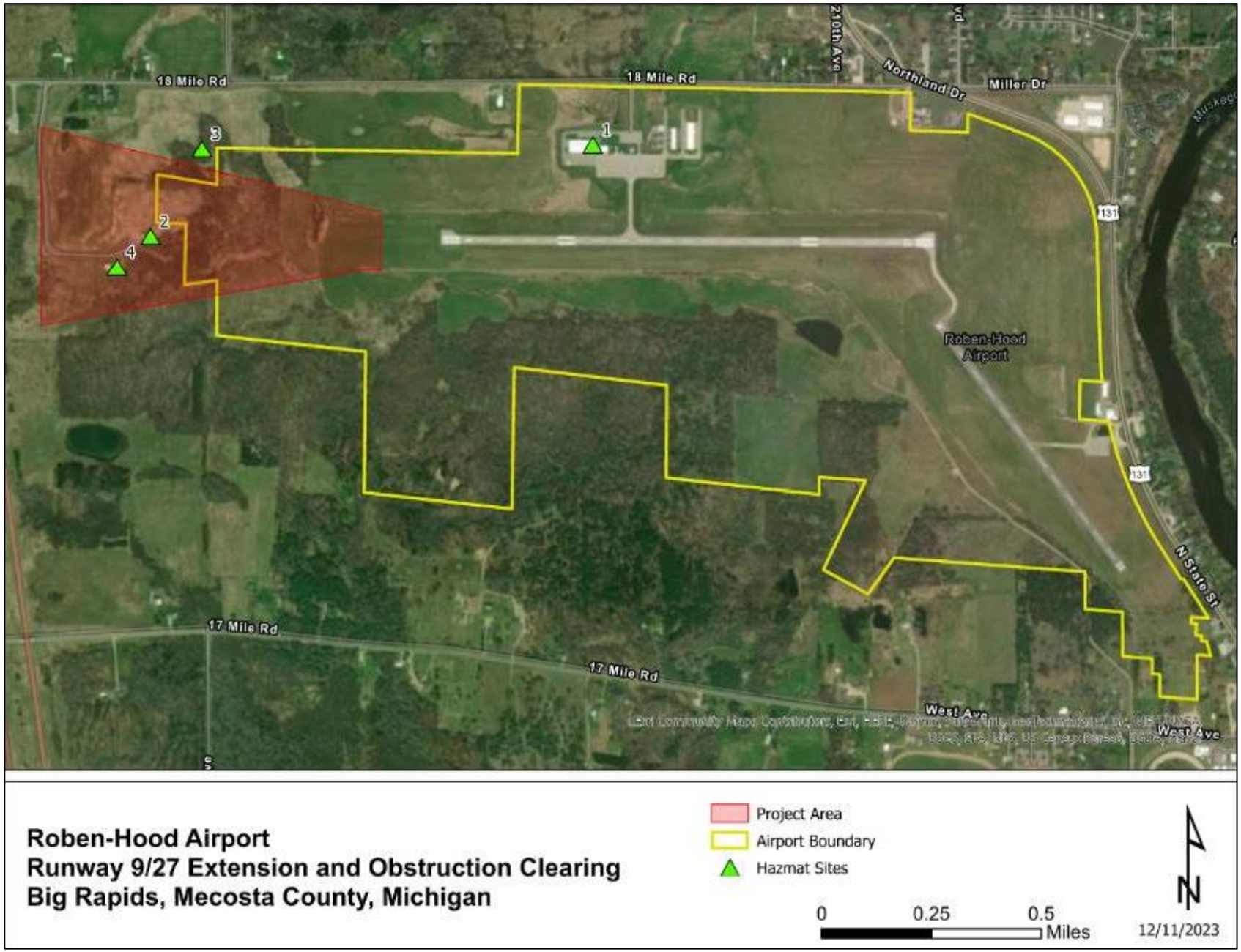
Site 3

In the northern edges of the forested area north of the area of proposed project activities, remnants of agricultural fencing were found during site reconnaissance. This is determined to be a Business Environmental Risk as it poses a threat to people and equipment and will require specific removal and disposal. No evidence of contamination from the site was identified.

Site 4

A Cummins brand generator sitting atop an AST was identified during site reconnaissance. It is located adjacent to an outbuilding that was inaccessible and unidentifiable in terms of use. It is assumed to contain some type of power supply, and the adjacent generator is assumed to be a back-up power source. The contents and capacity of the AST are unknown, but the AST is assumed to contain diesel fuel. The generator appeared to be in good condition and showed no evidence of spills or leaks. This site has no records of previously reported hazardous materials incidents. No evidence of contamination from the site was identified.

Figure 3.6 Phase I Environmental Site Assessment Sites



Source: *Phase I Environmental Site Assessment, Runway 9/27 Extension and Obstruction Clearing, Roben-Hood Airport*, December 2023, prepared by Mead & Hunt, Inc.

Summary of Findings: The FAA has not established a significance threshold for hazardous waste, solid waste, or pollution prevention. However, the FAA 1050.1F *Desk Reference* offers guidance to consider whether the proposed project could:

- Violate any laws or regulation regarding hazardous waste
- Involve a contaminated site, or if actions within a contaminated site are appropriately mitigated
- Produce an appreciable amount of hazardous waste
- Generate a different quantity or type of solid waste that could exceed local capacity or use different methods of collection and disposal.

The Phase I ESA report concluded that the assessment revealed evidence of one REC in connection with the subject property. This REC is found within Site 2. However, as previously explained, proposed project activities are not expected to impact this site, as they will be limited to the woodlands and areas beyond the general building area within Site 2.

Although the Phase I ESA did not find any RECs posing a risk to project activities or participants, construction activities associated with the Preferred Alternative have the potential to create solid waste material (excavated soil, remnant asphalt, etc.). The contractor will be required to have a Spill Prevention, Control, and Countermeasure (SPCC) plan in place to be implemented if a spill occurs during construction operations. An approved erosion control plan is also required to provide a collection area for non-recyclable waste. Any waste generated through proposed project improvements will be disposed of in compliance with all federal, state, and local regulations.

Hazardous material impacts are not expected from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative.

3.11 Historical, Architectural, Archeological, and Cultural Resources

Historical, architectural, archeological, and cultural resources include a variety of sites, properties, and facilities related to activities and societal and cultural institutions. Such resources express past and present elements of human culture and are important to a community. Section 106 of the *National Historic Preservation Act*, 54 U.S.C. § 300101, requires federal agencies to consider the effects their actions may have on these properties.

According to FAA Order 5050.4B*, NEPA Implementing Instructions for Airport Projects*, two basic laws apply to this impact category; the first law, the *National Historic Preservation Act of 1966*, as amended, "[r]ecommends measures to coordinate Federal historic preservation matters, to recommend measures to coordinate Federal historic preservation activities and to comment on Federal actions affecting historic properties included in or eligible for inclusion in the National Register of Historic Places."

The second law, the *Archeological and Historic Preservation Act of 1974*, "[p]rovides the survey, recovery, and preservation of significant scientific, prehistorical, historical, archeological, or paleontological data when such data may be destroyed or irreparably lost due to a Federal, Federally licensed, or Federally funded project."

A Section 106 Report to identify the potential for impacts to historical, archeological, architectural, and cultural resources from the proposed project was completed in December 2023. The full report is provided in **Appendix H – Section 106 Report**.

The archeological (below-ground) Area of Potential Effect (APE) encompasses the direct project area for all project activities – grading, runway improvements, and tree removal. The archeology APE is located at the west end of Airport property and extends into Big Rapids Charter Township-owned property where tree removal is proposed.

The architectural (above-ground) APE encompasses the direct and indirect project areas, including parcels for non-Airport properties that may be impacted by indirect (visual) effects from tree removals. This includes the parcels that appear to be associated with a historic farmstead and associated c.1892 house.

Summary of Findings: Architectural historians examined current and historic aerial photographs to identify above-ground resources located within the APE. Architectural historians then requested a records search from the Michigan State Historic Preservation Office (SHPO) to confirm whether any cultural resources within the direct and indirect project areas had been previously surveyed. The historians also checked resources at the county and township and contacted the Mecosta County Historical Museum for potential resources near the project area. No previously recorded resources within the APE were identified.

The c.1892 house at 22215 18 Mile Road is the only above-ground resource over 45 years old within the APE; all other buildings within the APE are under 45 years of age. The c.1892 house was found to be not eligible for listing in the National Register of Historic Places and, therefore, does not qualify as a Historic Property under Section 106 of the *National Historic Preservation Act of 1966*, as amended (Section 106). While the c.1892 house appears to be historically associated with a larger farmstead, there are no other buildings on the property over 45 years of age.

In addition to a review of above-ground resources, a Phase I Archeological Survey of the archeological APE was also completed in November 2023 to identify potential below-ground resources. The methods of investigation used during this survey included visual inspection and subsurface excavation. No archeological resources were identified, and no further archeological investigations were recommended. The complete Phase I Archeological Survey report is provided in **Appendix H – Section 106 Report**.

The Section 106 Report summarizing these findings was submitted to the SHPO for review and concurrence. SHPO stated that it concurred that no historical, architectural, archeological, or cultural properties will be affected within the APE for the proposed project and issued a “No historic properties affected” determination. The SHPO letter of concurrence dated January 2, 2024 is found in **Appendix H – Section 106 Report**.

Historical, architectural, archeological, and cultural resources impacts are not expected from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative. However, if historical, architectural, archeological, or cultural resources are encountered during construction, work must stop and the SHPO be notified immediately.

3.12 Land Use

As described in 1050.1F *Desk Reference*, "Section 1502.16(c) of the Council on Environmental Quality (CEQ) regulations requires the discussion of possible conflicts between the proposed action and the objectives of federal, state, regional, and local land use plans, policies, and controls for the area concerned. Where an inconsistency exists, the EA document should describe the extent to which the agency would reconcile its proposed action with the existing land use plan." The FAA also requires airport operators to ensure that actions are taken to establish and maintain compatible land uses around their airports.

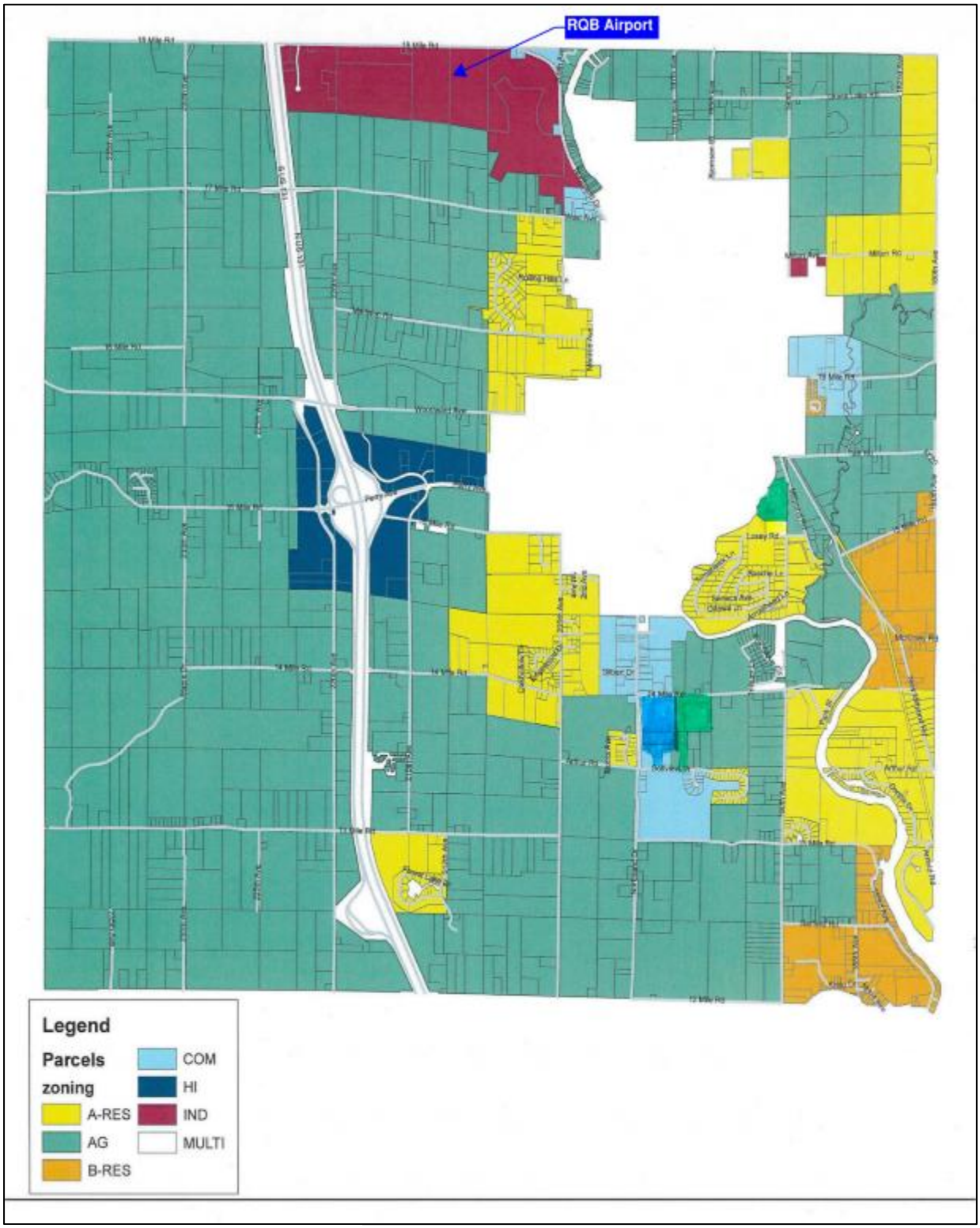
Land use regulations near airports typically focus on safety for airport users and the surrounding community. Elements of airport actions can change existing land use patterns and, in some instances, disrupt communities, require residential or business relocations, or degrade surface transportation service. Land use controls and zoning regulations generally discourage or prohibit land use that is incompatible with airport operations. The authority to enact zoning codes usually lies at the local level.

As previously explained, the Airport is entirely within Big Rapids Charter Township. According to the current zoning map for Big Rapids Charter Township (**Figure 3.7 Big Rapids Charter Township Zoning Map**), the Airport is zoned as an "Industrial District" and is surrounded by areas zoned as "Agricultural District" and "Commercial District." Immediately north of RQB is Green Township. The zoning map for Green Township (**Figure 3.8 Green Township Zoning Map**) shows areas north of the Airport are zoned as "I1 – Industrial," "AF – Agricultural/Forestry," "R2 – Single Family Residential," and "C2 – General Commercial."

The FAA also provides specific guidance related to land uses within an RPZ of a runway end. As described in **Chapter 2.0 Alternatives Considered**, an RPZ is a trapezoidal shaped area beyond a runway end with the purpose of protecting pilots as well as individuals and property on the ground. The FAA encourages airports to control the land within an RPZ and clear the areas of incompatible objects and activities if possible. FAA Advisory Circular (AC) 150/5300-13B, *Airport Design*, states that, "It is desirable to clear the entire RPZ of all above-ground objects. Where this is impractical, airport owners, at a minimum, should maintain the RPZ clear of all facilities supporting incompatible activities." Consultation with the FAA is required when there are new or changed uses planned within an RPZ, or a planned change to an RPZ size or location. New or planned land uses within an RPZ that require FAA consultation include:

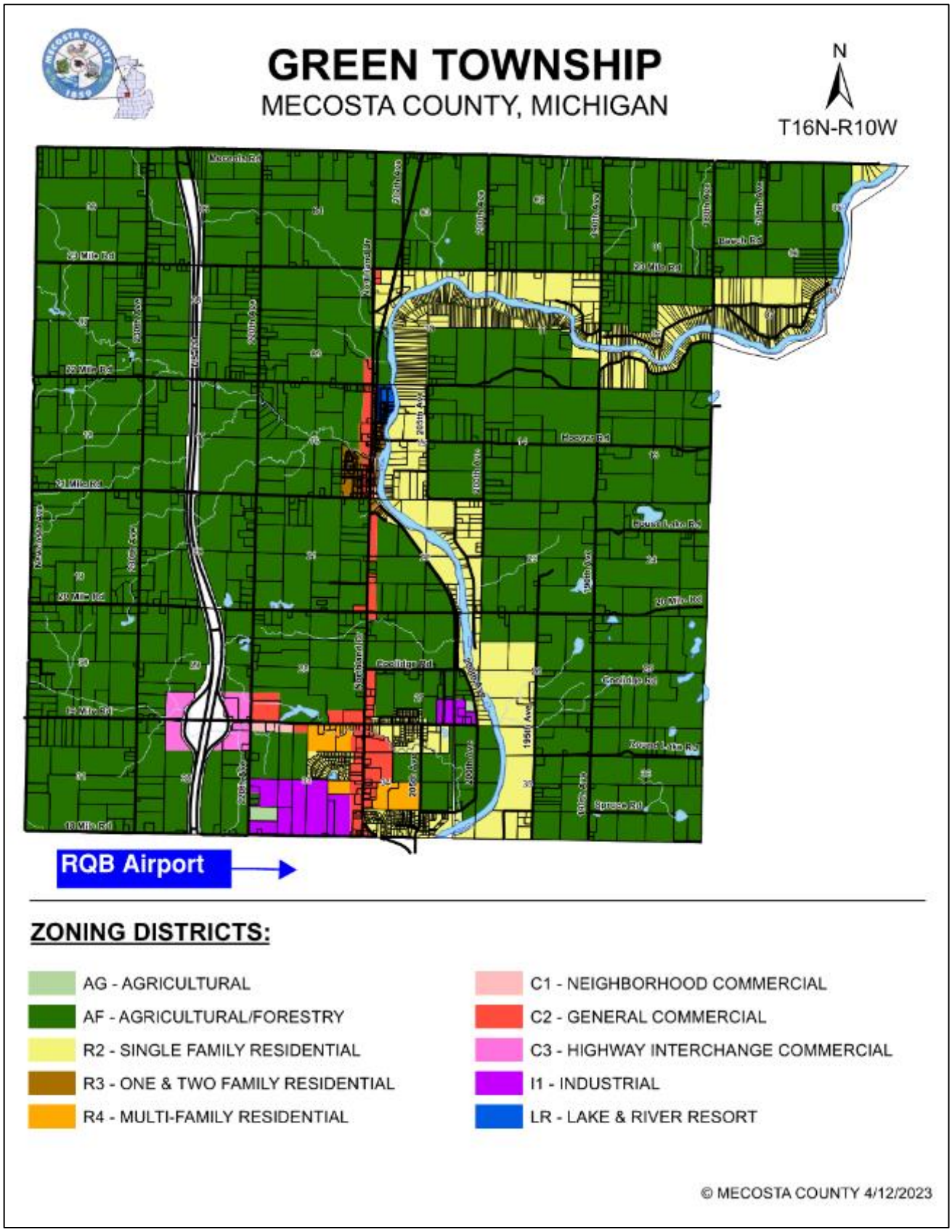
- Buildings and structures
- Recreational land uses
- Transportation facilities
- Fuel storage facilities
- Hazardous material storage
- Wastewater treatment facilities
- Above-ground utility infrastructure, including solar panel installations.

Figure 3.7 Big Rapids Charter Township Zoning Map



Source: Big Rapids Charter Township

Figure 3.8 Green Township Zoning Map



Source: Mecosta County

According to FAA AC 150/5200-33C, *Hazardous Wildlife Attractants on or near Airports,* the FAA requires that consideration be given to the potential increases in wildlife attractants that a project may create and that existing incompatible land uses near airports be assessed, such as solid waste landfills, crops, open water, and wetlands that may act as wildlife attractants.

Summary of Findings: The FAA has not established a significance threshold for land use, or factors to consider when determining significance of a project's effect on land use; however, to determine the potential for land use impacts caused by the Preferred Alternative and No Action Alternative, an evaluation of the proposed action and its compatibility with local land use controls and plans was completed.

No land use classification changes would occur with the Preferred Alternative or the No Action Alternative. No noise sensitive areas (residential, educational, health, religious, park or recreational, wildlife refuges, or cultural and historical) will be introduced or impacted. In compliance with 49 U.S.C. § 47017 (a)(10), the Airport has been proactive in restricting incompatible land uses adjacent to and within the immediate vicinity of RQB when feasible. Construction of the runway extension will take place entirely on existing Airport property, while some areas of tree obstruction removals will extend off Airport property. Existing land use patterns will remain unchanged. The Preferred Alternative is considered compatible with the existing land uses surrounding the project area.

To determine potential RPZ impacts of the Preferred Alternative, an RPZ Analysis technical report was completed for Runway 10/28 (found in **Appendix C – Runway Protection Zone Analysis**).

Extending Runway 10/28 at the approach end of Runway 10 under the Preferred Alternative would shift the approach and departure RPZs 700 feet to the west. The relocated RPZs at the approach end of Runway 10 would be entirely on RQB property with no incompatible land uses within them. See **Chapter 2.0 Alternatives Considered** for an exhibit of the Preferred Alternative's RPZ.

The proposed action will not increase wildlife attractants or introduce new wildlife that are hazardous to aircraft operations. No wetlands, open water, or habitat will be created from implementation of the Preferred Alternative. It is anticipated that the proposed project will reduce wildlife attractants by removing trees in the runway approach.

In addition, neither the Preferred Alternative nor the No Action Alternative are expected to increase congestion, cause degradation of level of service, or permanently close any surface roads within, or adjacent to, the project area. Traffic from construction vehicles would be managed to avoid and minimize any impacts to local roads by defining haul routes and by scheduling the arrival and departure times of construction traffic so that normal traffic patterns are not interrupted. Any potential construction impacts to surface transportation would be temporary in nature.

Based on the above information, it is determined that the Preferred Alternative and the No Action Alternative are compatible with existing and planned land uses and zoning requirements. Land use impacts associated with the proposed action will not be significant based upon the factors described above.

3.13 Natural Resources and Energy Supply

Executive Order 13834, *Efficient Federal Operations* directs projects to examine the potential changes in the demand for energy or natural resources that would have a significant measurable effect on local supplies due to the implementation of the Preferred Alternative or the No Action Alternative. Energy requirements associated with an airport usually fall into two categories: (1) those which relate to changed demands for stationary facilities and (2) those which involve the movement of air and ground vehicles. Examples of these include airfield lighting, terminal building heating and cooling systems, and aircraft and passenger vehicles.

As described in 1050.1F *Desk Reference*, 40 CFR § 1502.16(e)(f) of the CEQ regulations require that federal agencies consider energy requirements, natural depletable resource requirements, and the conservation potential of alternatives and mitigation measures be evaluated in NEPA documents. Though specific significance thresholds for natural resource consumption and energy supply have not been established by the FAA, the proposed action should be examined for the potential to cause demand to exceed available or future supplies of these resources.

FAA guidance typically states that airport improvement projects do not generally increase the consumption of energy or natural resources to the point that significant impacts would occur unless it is found that implementation of a proposed project would cause demand to exceed supply.

The facilities at the Airport require electricity and natural gas for lighting, cooling / heating, and operations. The area around the Airport is considered a rural area with adequate access to natural resources for aircraft operations and construction projects as well as meeting the needs of the surrounding community.

Summary of Findings: Electric or gas use required to operate RQB facilities is not expected to substantially increase because of the proposed project. A small amount of increased energy consumption may result from additional runway lighting to support the extension of Runway 10/28; however, the amount is expected to be negligible. Aircraft will be required to taxi a slightly longer distance to and from the Runway 10 end due to the runway extension, but a substantial increase in fuel consumption is not anticipated.

The Preferred Alternative will not require the consumption of petroleum-based fuels or other natural resources in quantities that would surpass available supply. BMPs to reduce energy consumption during construction will be employed, where applicable. To reduce energy consumption associated with the temporary use of excavators and vehicles for the Preferred Alternative, construction equipment should be in good working order to ensure the most efficient use of fuel. All vehicles and equipment should be checked for leaks and repaired immediately.

The nature of the project does not lend itself to significant increases in energy or natural resources beyond temporary energy consumption associated with construction of the Preferred Alternative. A slight increase in energy use can be expected with the additional runway lighting fixtures, but the increase is negligible.

Natural resources and energy supply impacts are not expected from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative.

3.14 Noise and Noise Compatible Land Use

FAA Order 5050.4B*, NEPA Instructions for Implementing Airport Actions,* describes compatible land use as, "the compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of the noise impacts related to that airport." An FAA noise analysis primarily focuses on how proposed airport actions would change the cumulative noise exposure of individuals to aircraft noise in areas surrounding the airport.

Noise is considered unwanted sound that disturbs or interrupts routine activities. Aviation noise includes sounds made by aircraft during departure, arrival, flight, taxiing, and other activities. The compatibility of land use around an airport is typically determined based on the level of aircraft noise. The degree of annoyance that people suffer from aircraft noise varies depending upon their activities at any given time.

The FAA uses day-night average sound level (DNL), expressed in dB (decibels), as its primary noise metric. DNL accounts for the levels of aircraft events, the number of times those events take place, and the timeframe in which they occur (day or night). The FAA, USEPA, and U.S. Department of Housing and Urban Development have established the 65-decibel DNL level as the threshold for noise impacts over noise sensitive areas. Noise levels greater than 65 DNL on noise sensitive areas are considered a potential impact.

Noise sensitive areas typically include residential, educational, health, religious structures and sites, parks, recreational areas, wilderness areas, wildlife refuges, and cultural and historical sites. In the context of airport noise, such facilities, or areas within the 65 DNL contour, may be considered a noise sensitive land use.

The Aviation Environmental Design Tool (AEDT) is the FAA-approved software system that dynamically models aircraft performance in space and time to produce noise estimates. AEDT is designed to estimate the long-term effects of noise using average annual input conditions. The AEDT model requires a variety of operational related inputs to model the noise environment around an airport. Common noise modeling inputs include:

- Aircraft Activity Levels
- Aircraft Fleet Mix
- Runway Utilization
- Time of Day
- Surrounding Terrain
- Flight Tracks

To evaluate potential noise impacts from the proposed project, noise modeling was developed for the base year (2023) and for future years 2028 (5-year) and 2033 (10-year) for the No Action Alternative and the Preferred Alternative. The itinerant jet and turboprop aircraft used in the model were derived from the activity and fleet mix forecast for the Runway Justification Study Update (see **Appendix B – Runway Justification Study Update**). Touch-and-go activity levels and associated fleet mix were sourced from the

2023 FAA Terminal Area Forecast (TAF) and the FAA Traffic Flow Management System Counts (TFMSC) database. Specific modeling scenarios included:

- Baseline (2023)
- 5 Year (2028) - No Project (No Action)
- 5 Year (2028) - With Project (Preferred Alternative)
- 10 Year (2033) - No Project (No Action)
- 10 Year (2033) - With Project (Preferred Alternative)

No noise-sensitive land uses (residential neighborhoods, recreational areas, parks) exist in direct project area. Scattered residences along 18 Mile Road were considered for noise impacts, but other adjacent land uses (industrial and agricultural uses) are not considered noise-sensitive.

Summary of Findings: The noise analysis found that the 65 DNL contour remains completely within RQB owned property under all noise scenarios (2023, 2028, and 2033). Noise impacts on noise sensitive land uses within the 65 DNL are not expected. See **Appendix I – Noise Analysis** for details on the noise modeling including inputs, methodology, and noise contour maps under different modeling scenarios.

Although the 65 DNL contour is the standard for determining potential noise impacts on noise sensitive land uses, the Airport, in full disclosure, included the 60 DNL contour in their analysis to determine potential noise impacts from the proposed project. Analysis found that the 60 DNL contour also remains completely within RQB owned property under all noise scenarios (2023, 2028, and 2033).

Temporary increase in noise may occur due to operations of heavy equipment during construction. Construction staging areas are not allowed near sensitive land uses, and all activity will take place on Airport or Big Rapids Charter Township owned property.

Based on the findings of the noise analysis described above, significant noise impacts are not expected from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative. No mitigation is proposed.

3.15 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

Statutes related to socioeconomic impacts include the *Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970* (42 U.S.C. § 61 et seq.). Environmental justice, as defined by the USEPA, is the "fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this Nation." Title VI of the *Civil Rights Act of 1964* (42 U.S.C. §§ 2000d2000d-7), Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* and Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks***,** and other federal

guidance have been issued to address environmental justice and children's environmental health and safety risks.

Airport development projects can impact the socioeconomic conditions of the surrounding community. Such projects have the potential to impact neighboring populations, including children, and may do so disproportionately to the overall area population. The proposed project was evaluated for socioeconomic and environmental justice impacts as well as health and safety risks to children.

3.15.1 Socioeconomic Impacts

The types of socioeconomic impacts that can arise from airport development projects include:

- Relocation of residences, businesses, or farms
- Alteration of surface transportation patterns that may restrict community access
- Disruption of established communities
- Disruption of orderly, planned development
- Creation of appreciable changes in employment.

Table 3-3 Major Employers in Big Rapids, Michigan, 2021 lists important employers in Big Rapids and the number of people employed. The area's major employers and industry are not expected to be adversely impacted by the proposed action and will likely benefit from access to an improved airport facility, as explained in **Chapter 1.0 Purpose and Need**. In addition, no appreciable changes in employment in Big Rapids Charter Township, the City of Big Rapids, or Mecosta County are anticipated.

Table 3-3
Major Employers in Big Rapids, Michigan, 2021

Company/Organization	Number of Employees
Ferris State University	3,510
Spectrum Health	1,160
Arch Staffing and Consulting	473
Haworth Inc.	402
Big Rapids Products	369
Original Footwear Manufacturing	354
OnPoint Employment Solutions	303
Mecosta Osceola Intermediate School District	276
Meijer Great Lakes Limited	252
Big Rapids Public Schools	328

Source: *Comprehensive Annual Financial Report, For the Year Ended June 30, 2021*, City of Big Rapids, Michigan

Summary of Findings: No residential, business, or farm relocations will be required as part of this proposed project. All construction and tree removals will take place on existing RQB or Big Rapids

Charter Township owned property; therefore, no alteration of surface transportation patterns, community disruptions, or disruptions of orderly, planned development are expected.

Socioeconomic impacts from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative are not expected. No mitigation is proposed.

3.15.2 Environmental Justice

The purpose of Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, is to identify, address, and avoid disproportionately high and adverse human or environmental effects on minority and/or low-income populations. Environmental justice is defined as the right to a safe, healthy, productive, and sustainable environment for all, where "environment" is considered in its totality to include the ecological, physical, social, political, aesthetic, and economic environments.

The FAA 1050.1F, *Desk Reference* also suggests the following factors as an example of the magnitude to consider when analyzing typical environmental justice impacts. The factors to consider that may be applicable to environmental justice include, but are not limited, to a situation in which the proposed action or alternative(s) would have the potential to lead to a disproportionately high and adverse impact to an environmental justice population, i.e., a low-income or minority population, due to:

- Significant impacts in other environmental impact categories; or
- Impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA determines is unique to the environmental justice population and significant to that population.

In compliance with Executive Order 12898, U.S. Census data was reviewed to determine the characteristics of people living in proximity to RQB. Based on 2020 Census data, the racial composition of the state of Michigan, Mecosta County, and the City of Big Rapids is predominately White/Caucasian (data was not available at the township level). Black/African American residents account for the second largest racial group in the state, while residents of races other than White/Caucasian, Black/African American, and Asian comprise the second largest racial group in Mecosta County and the City of Big Rapids (see **Table 3-4 Racial Diversity**).

As shown in **Table 3-5 2021 Median Household Income**, the annual median household income (in 2021 dollars) of Mecosta County ($48,440) and the City of Big Rapids ($29,239) are both lower than the state of Michigan ($63,202).

Table 3-4 Racial Diversity		
Geographic Area	**2020 Population**	**Percent**
State of Michigan		
Asian	334,300	3.3%
Black/African American	1,376,579	13.7%
White/Caucasian	7,444,974	73.9%
All Other	921,478	9.1%
Total	**10,077,331**	**100.0%**
Mecosta County		
Asian	320	0.8%
Black/African American	794	2.0%
White/Caucasian	35,916	90.4%
All Other	2,684	6.8%
Total	**39,714**	**100.0%**
City of Big Rapids		
Asian	159	2.1%
Black/African American	452	5.8%
White/Caucasian	6,413	83.0%
All Other	703	9.1%
Total	**7,727**	**100.0%**

Source: U.S. Census Bureau – 2020 Census

Table 3-5 2021 Median Household Income	
Geographic Area	**Median Income***
State of Michigan	$63,202
Mecosta County	$48,440
City of Big Rapids	$29,239

*In 2021 dollars
Source: U.S. Census Bureau QuickFacts

Summary of Findings: A review of Census information and USEPA's Environmental Justice Screening and Mapping Tool (EJScreen) showed that areas directly surrounding the Airport and project area do not have high proportions of minority populations. EJScreen also showed that the percentage of low-income population in the area surrounding RQB (42 percent) is higher than the state average (31 percent). However, the Preferred Alternative will be constructed entirely on Airport or Big Rapids Charter Township owned property. As such, environmental justice impacts are not expected.

Environmental justice impacts from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative are not anticipated. No mitigation is proposed.

3.15.3 Children's Environmental Health and Safety Risks Impacts

FAA Order 1050.1F requires the identification of any potential environmental health risks to children as stated: "Environmental health risks and safety risks include risks to health and safety that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to."

The FAA has not established a significance threshold for impacts to children's environmental health and safety; however, an analysis should include a determination on a proposed action's potential to cause disproportionate health or safety risks to children.

Summary of Findings: All construction under the proposed action would occur on RQB or Big Rapids Charter Township-owned property, and access to the site would be restricted. It is unlikely that the development of either the Preferred Alternative or the No Action Alternative will include products or substances a child is likely to encounter. It is therefore unlikely that either the Preferred Alternative or the No Action Alternative will result in any environmental health or safety risks that could disproportionately affect children.

Children's Environmental Health and Safety Risks impacts from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative are not anticipated. No mitigation is proposed.

3.16 Visual Effects (Including Light Emissions)

Airport lighting is required for security, obstruction identification, and navigation. The essential lighting systems required to safely operate an airport and its components can contribute to light emissions. When projects introduce new or relocated existing airport lighting facilities that may affect residential or other light-sensitive areas in proximity to an airport, an analysis of these impacts is necessary.

A project can also have impacts on the surrounding areas' visual resources and character. These impacts are typically related to a decrease in the aesthetic quality of an area resulting from development, construction, or demolition. FAA guidance states that an analysis of visual impacts is necessary when the proposed action would affect, obstruct, substantially alter, or remove visual resources including buildings, historic sites, or other landscape features, such as topography, water bodies, or vegetation, which are visually important or have unique characteristics.

The Preferred Alternative will require the installation of new lights and the relocation of existing NAVAIDs, as part of construction. Proposed lighting infrastructure includes:

- Relocation of PAPI lights
- Relocation of REILs
- Runway lights to match the Runway 10 extension.

Summary of Findings: The Preferred Alternative will require some additional runway lighting fixtures and the relocation of existing NAVAIDs (PAPIs and REILs). However, the additional lighting fixtures and

NAVAID relocations are not anticipated to affect any residential or other light-sensitive areas in the project area. Although the proposed action would extend Runway 10 700 feet to the west, the Runway 10 threshold would still be approximately 0.3 miles from any residential properties. Two areas of woody vegetation (one approximately four acres and the other approximately five acres) in close proximity to each other are not included in the area proposed for tree removals and would therefore function as a visual shield for several residences located northwest of the approach end of Runway 10 along 18 Mile Road. In addition, evening and nighttime runway lights are controlled by pilots and normally turned off unless needed by operating aircraft.

Although the proposed project will remove existing trees at the approach end of Runway 10, impacts on resources that are visually important or have unique characteristics are not anticipated.

Visual effects (including light emissions) from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative are not anticipated. No mitigation is proposed.

3.17 Water Resources

FAA Order 1050.1F references the *Clean Water Act* (CWA) described in 33 U.S.C. §§ 1251-1387, which provides the federal government with the authority to regulate activities related to water quality, including controlling discharges, preventing or minimizing loss of wetlands, and protecting local aquifers or sensitive ecological areas. In essence, the quality of surface water and groundwater should not be degraded by the planned construction or operations associated with a proposed development.

Water resources are surface waters and groundwater that are important to the ecosystem and the human environment. Analysis of water resources includes checking for disruption as well as changes in quality. Because wetlands, floodplains, surface waters, groundwater, and other water resources are all connected within the overall system, this section encompasses an analysis of each.

3.17.1 Wetlands

Wetlands are areas that support specific vegetation due to inundation or saturation by ground water. Sometimes these are called swamps, marshes, or bogs. Wetlands provide benefits to the natural and human environments that include habitat, water filtration, storage, and recreation. There are several statutes, regulations, orders, and other requirements related to wetlands. The CWA regulates the discharge of pollutants into Waters of the U.S. (including wetlands) and establishes a program to regulate discharge of fill material into such waters as well as requires projects not to violate water quality standards.

Surface waters or wetlands considered jurisdictional are regulated under the CWA; however, not all surface waters are under the authority of the CWA. The United States Army Corps of Engineers (USACE) makes jurisdictional determination case by case. Non-jurisdictional wetlands are protected under Presidential Executive Order 11990, *Protection of Wetlands*, commonly known as the “No Net Loss” executive order. This executive order directs any project that uses federal funds or is federally approved to mitigate for all wetland impacts that it causes regardless of size or

regulatory status. Therefore, any wetland impacts as a result of the Preferred Alternative will require mitigation.

To determine the locations and limits of area wetlands, appraise their types and functions, assess their regulatory status, and evaluate potential impacts from the proposed project, a USACE-compliant wetland delineation was conducted by a qualified wetland biologist within an 87-acre Area of Interest (AOI) on RQB and Big Rapids Charter Township property in May 2023 (see **Figure 3.9 Wetland Delineation Area of Interest Map**). All wetland delineations conformed to the Routine Onsite Method of the *1987 U.S. Army Corps of Engineers' (USACE) Wetland Delineation Manual*, as enhanced by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: North Central and Northeast Region*. The full wetland delineation report is provided in **Appendix J – Wetlands**.

Area of Interest Description

The AOI for the wetland delineation was the same as the Action Area for the biological resources field investigation. Therefore, see **Section 3.5.1 Endangered & Threatened Species** for a description of the AOI.

Delineated Wetland Descriptions

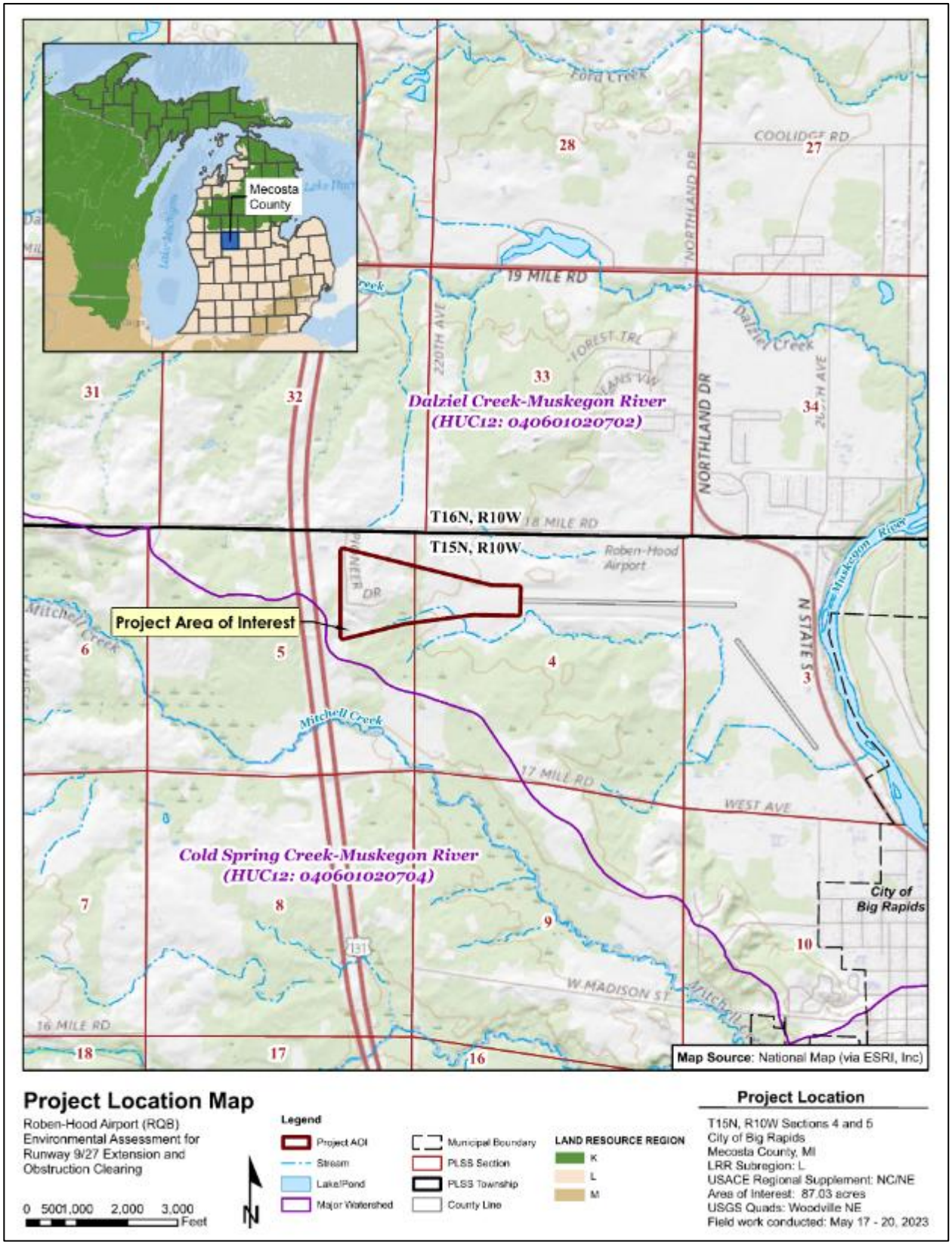
A total of four wetland boundaries enclosing 19.957 acres were delineated within the AOI as shown in **Figure 3.10 Wetland Resources Map**. **Table 3-6 Summary of Delineated Wetlands within the Area of Interest** summarizes the delineated wetlands.

Wetland 1 is drainage swale along the Runway 10 RSA grade slope. A stand of meadow willow (*Salix petiolaris*: FACW) dominates the central portion of the wetland with emergent areas on either side dominated by reed canary grass (*Phalaris arundinacea*: FACW).

Wetland 2 is comprised of two discontinuous parts within the AOI. The larger central depressional portion of Wetland 2 consists of a large scrub-shrub section supported by groundwater seepage and shallow concentrated flows and is surrounded by forested gentle slopes on all sides along an undulating edge. The second segment of Wetland 2 is a depressional basin located at the western extent of Runway 10 RSA that also appears to be groundwater-fed. The wetland is situated between two converging slopes that likely gathers some surface run-off as well during rain events. This area of Wetland 2 is drained by a constructed ditch to the south that meets another ditch draining the central section just outside of the AOI.

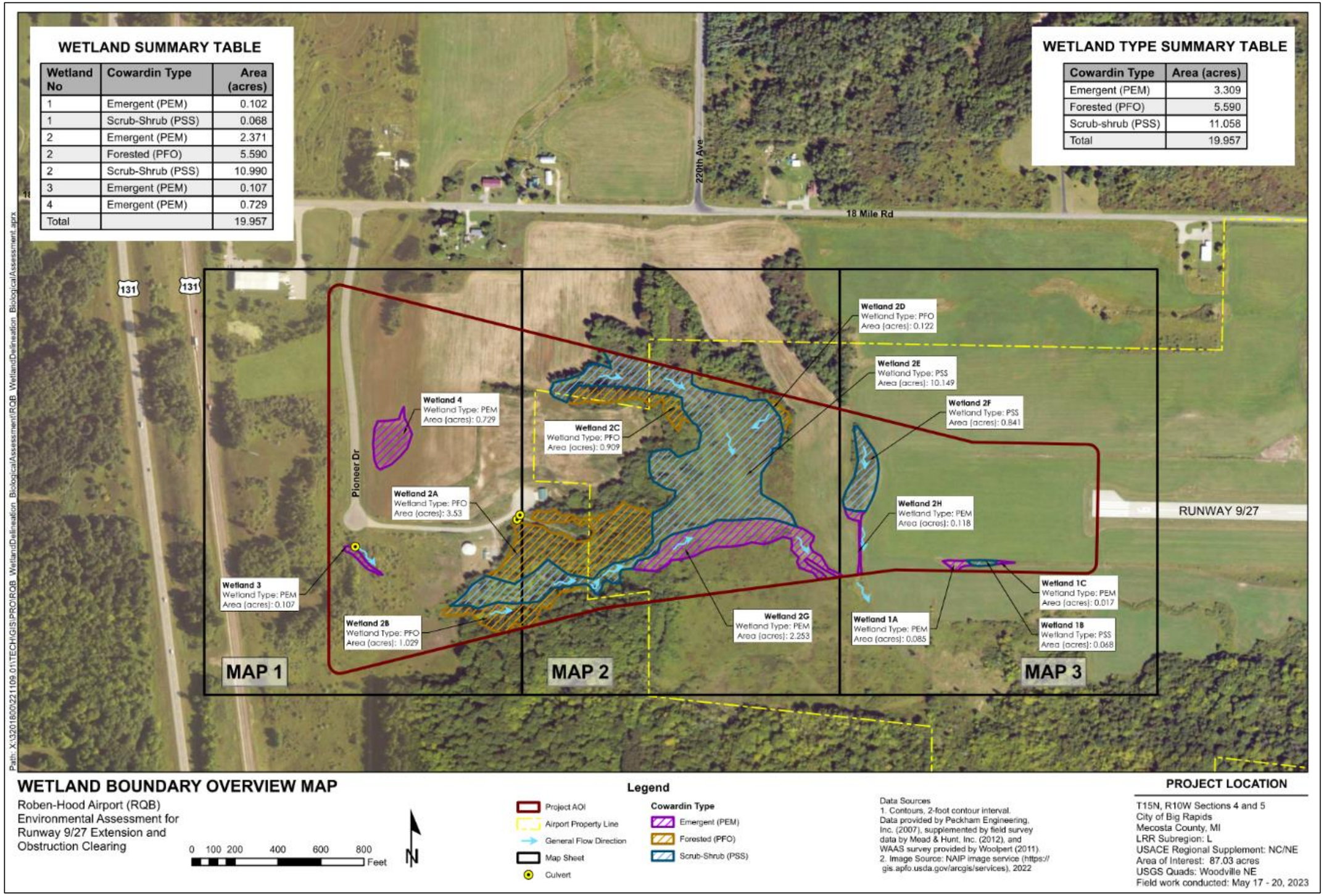
Wetland 3 is located on the western edge of the project AOI and is a narrow steep-sided drainageway wetland dominated by hawthorn (*Crataegus crus-galli*: FAC), gray dogwood, and woolgrass (*Scirpus cyperinus*: OBL). Also present were meadow willow, stalk-grain sedge (*Carex stipata*: OBL), and New England aster (*Symphyotrichum novae-angliae*: FACW). The wetland receives flows from a road culvert at the north end that drains to the southeast where flows are dissipated in an unmaintained field.

Figure 3.9 Wetland Delineation Area of Interest Map



Source: *Wetland Delineation Report, Proposed Runway 9/27 Extension and Obstruction Clearing, City of Big Rapids, Mecosta County Michigan*, prepared by Mead & Hunt, Inc., December 2023

Figure 3.10 Wetland Resources Map



Source: *Wetland Delineation Report, Proposed Runway 9/27 Extension and Obstruction Clearing, City of Big Rapids, Mecosta County Michigan*, prepared by Mead & Hunt,

Table 3-6 Summary of Delineated Wetlands within the Area of Interest			
Wetland	**Type**	**Area in AOI (acres)**	**Dominant Plants**
1	PEM/PSS	0.17	Salix petiolaris (FACW), Phalaris arundinacea (FACW)
2	PSS/PFO/PEM	18.951	Cornus racemosa (FAC), Salix petiolaris (FACW), Carex stricta (OBL), Phalaris arundinacea (FACW); Carex gracillima (FACU), Solidago gigantea (FACW); Populus tremuloides (FAC), Acer rubrum (FAC), Fraxinus pennsylvanica (FACW), Rubus allegheniensis (FACU), Onoclea sensibilis (FAC); Acer rubrum (FAC), Alnus incana (FACW), Podophyllum peltatum (FACU), Carex intumescens (FACW)
3	PEM	0.107	Crataegus crus-galli (FAC), Cornus racemosa (FAC), Scirpus cyperinus (OBL)
4	PEM	0.729	Typha angustifolia (OBL)
Total		**19.957**	

Source: *Wetland Delineation Report, Proposed Runway 9/27 Extension and Obstruction Clearing, City of Big Rapids, Mecosta County Michigan*, prepared by Mead & Hunt, Inc., December 2023

Wetland 4 is in a farm field on the western edge of the project AOI and consists of a large stand of cattails (*Typha angustifolia*: OBL) with some soft-stemmed rush (*Juncus effusus*: OBL) and woolgrass present in the dense cattail stand. The wetland is in a closed depression with apparent groundwater seepage.

Summary of Findings: Of the 19.957 acres delineated within the AOI, a total of 6.719 acres are expected to be impacted by the construction of the Preferred Alternative as shown in **Table 3-7 Impacted Wetlands**. Wetlands 1A, 1B, 1C, 2F, and 2H (total of 1.129 acres) are non-forested wetlands and will be cleared, grubbed, filled, and graded to accommodate the RSA for the runway extension. The remaining 5.590 acres of wetlands to be impacted are forested wetlands in the approach of Runway 10. Trees within these forested wetlands will be cleared without any ground disturbance. Consultation with EGLE indicates that cutting trees in any forested wetlands will require a permit and compensating mitigation.

Table 3-7 Impacted Wetlands		
Wetland	**Type**	**Area in AOI (acres)**
1A	Emergent (PEM)	0.085
1B	Scrub-shrub (PSS)	0.068
1C	Emergent (PEM)	0.017
2F	Scrub-shrub (PSS)	0.841
2H	Emergent (PEM)	0.118
2A	Forested (PFO)	3.530
2B	Forested (PFO)	1.029
2C	Forested (PFO)	0.909
2D	Forested (PFO)	0.122
Total		**6.719**

Source: *Wetland Delineation Report, Proposed Runway 9/27 Extension and Obstruction Clearing, City of Big Rapids, Mecosta County Michigan*, prepared by Mead & Hunt, Inc., December 2023

Proposed mitigation for wetland impacts is expected to include an EGLE Part 303 Wetland Protection permit and mitigation of 1.693 acres for the non-forested wetlands (1:1.5 ratio) and 5.59 acres for the forested wetlands (1:1 ratio) for a total of 7.283 acres. Given that the forested wetland is not permanently removed but converted to a different type, EGLE has reduced their mitigation requirements to a ratio of 1:1 (rather than a 2:1 ratio for typical forested wetland impacts). Mitigation will include the purchase of wetland credits at an EGLE approved mitigation bank within the same watershed. Final mitigation requirements are at the discretion of EGLE and will be incorporated into the anticipated wetland permit.

During final design of the Preferred Alternative, modifications will be considered to lessen the impacts on regulated wetlands. All delineated wetlands will be shown on construction plans and flagged in the field to protect them from any possible direct or indirect impacts. Construction documents will include avoidance and erosion control measures.

The Preferred Alternative is expected to have adverse wetland impacts; however, impacts can be mitigated through the permitting process. The No-Build Alternative will have no impacts to wetlands.

3.17.2 Floodplains

Executive Order 11988, *Floodplain Management*, defines floodplains as "the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year." Executive Order 11988 discourages federal actions in a floodplain unless no practicable alternative exists and requires measures to minimize unavoidable short-term and long-term impacts if the proposed action occurs in a floodplain.

A floodplain is a flat, low area adjacent to a stream, river, or creek that may be flooded during high water flow conditions. A 100-year floodplain includes the area that has a one percent (1%) chance of flooding in any given year. Projects within a 100-year floodplain are discouraged.

Summary of Findings: Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) were reviewed for the project area to evaluate potential floodplain impacts. FIRMs indicate that no regulated floodplains are found within the project area. Floodplain maps are presented in **Appendix K – Floodplains**.

The Preferred Alternative is not expected to have any adverse floodplain impacts. The No-Build Alternative will have no impacts to floodplains.

3.17.3 Surface Water

The CWA, in conjunction with the *Fish and Wildlife Coordination Act* (16 U.S.C. §§ 661-667d), Rivers and Harbors Act (33 U.S.C. § 401 and 403), the *Safe Drinking Water Act* (SDWA) found in 42 U.S.C. §§ 300(f)-300j26, and other local statutes, establish regulations that protect the Nation's water resources. Surface waters are typically lakes, rivers, streams, creeks, and wetlands. Surface waters collect the water from precipitation that does not infiltrate the soil and instead flows across the land. Surface waters can be hydrologically connected to groundwater.

In combination with the above-described wetland delineation completed for the project-wide AOI, regulated water resources were also evaluated to determine potential surface water impacts from construction of the Preferred Alternative.

The USEPA's NEPAssist database was also reviewed to determine the presence of other surface water resources located outside of but in proximity to the AOI. These water resources included:

- One unnamed pond 0.2 miles south of the AOI
- One unnamed pond 0.3 miles west of the AOI
- Mitchell Creek 0.3 miles south of the AOI
- One unnamed pond 0.4 miles south of the AOI
- One unnamed pond 0.6 miles southeast of the AOI
- One unnamed pond 0.8 miles northeast of the AOI
- Muskegon River 1.1 miles east of the AOI.

Summary of Findings: The field evaluation concluded there were no regulated waters within in the AOI other than the wetlands previously described.

Soil erosion is a source of concern due to possible adverse impacts to surface waters from construction projects. Since the Airport site is generally flat, there is not expected to be a high risk of soil erosion during excavation and other ground disturbing activities. However, some amount of erosion may occur during construction and tree removals, which will be minimized using appropriate BMPs. The following list of BMPs represents common erosion control measures that should be considered during construction and tree removals and applied where applicable:

- Sediment traps
- Temporary cement ponds

- Temporary grassing of disturbed areas
- Vegetation cover replaced as soon as possible
- Erosion mats and mulch
- Silt fencing and drainage check dams
- Settling basins for storm water treatment

All excavated soils and staging areas for construction equipment will be placed in non-sensitive upland areas with disturbed areas replanted as soon as possible to reduce the likelihood of erosion. Mitigation measures prepared under an erosion control plan, in accordance with FAA AC 150/5370-10H, *Standard Specifications for Construction of Airports*, will help minimize long-term impacts to area water quality and to the existing drainage system.

In accordance with Part 91, Michigan Soil Erosion and Sedimentation Control of the *Natural Resources and Environmental Protection Act*, 1994 Public Act 451, as amended, a soil erosion permit and a storm water runoff control permit are required from Big Rapids Charter Township.

The Airport is also required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for construction activity disturbing one acre or more of soil. Permittees are required to control runoff from construction sites and develop a construction Stormwater Pollution Prevention Plan (SWPPP) that includes erosion prevention and sediment control BMPs.

Surface water impacts from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative are not anticipated.

3.17.4 Ground Water

Ground water is water that is below the surface of the ground within the spaces between soil and rock formations. Ground water quality is primarily governed under the SDWA administered by the USEPA. The study area for ground water includes all areas where the ground could be disturbed by construction of the Preferred Alternative, where impervious surfaces could change rates of ground water infiltration, where airport operations could increase spills or leaks, and where construction vehicles and other equipment could potentially impact ground water due to staging, machinery, storage, and spills.

In evaluating ground water resources in the project area, the following databases were reviewed:

- USEPA Sole Source Aquifer for Drinking Water Database and Mapping Tool
- EGLE Open Data GIS dataset for water wells in Michigan
- EGLE Open Data GIS dataset for wellhead protection areas in Michigan

Summary of Findings: The proposed construction of the Preferred Alternative will increase impervious surfaces and likely increase storm water runoff. New impervious surfaces are estimated to be 1.21 acres (52,500 square feet). The proposed action will decrease groundwater infiltration

within the project area due to the additional impervious surfaces; however, this is not expected to tangibly impact ground water recharge rates or impact public water supply.

To protect surface and ground water resources, runoff will be directed into the Airport's existing storm water management system. Storm water runoff will drain into the Airport's existing drainage system in accordance with its SWPPP. The SWPPP will also be updated to include BMPs to reduce erosion and discharge of pollutants from construction activities.

The USEPA maintains a database of ground water sources that serve as the sole source of drinking water for a population. According to the USEPA, the proposed project is not within a Sole Source Aquifer for Drinking Water.

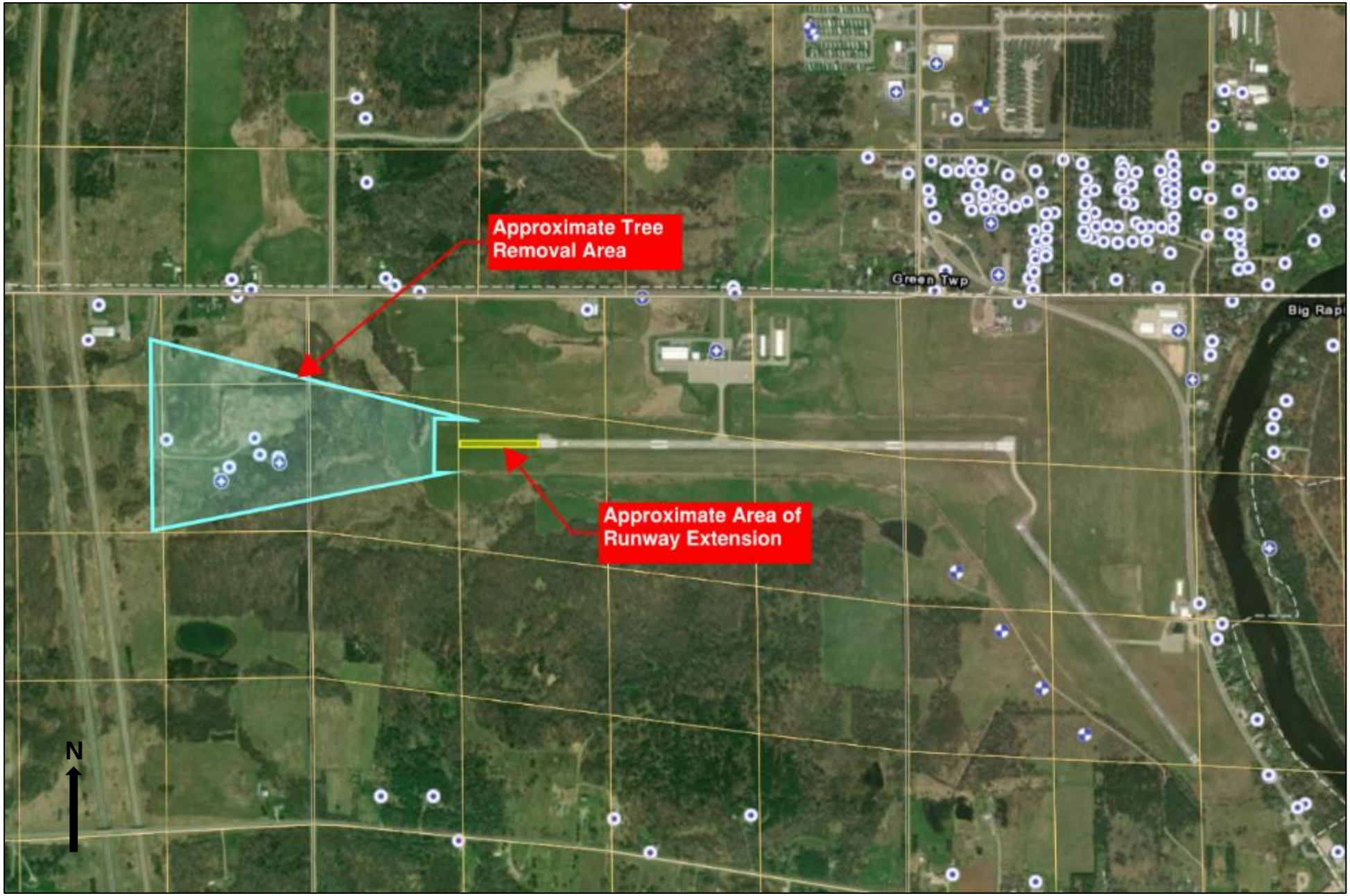
There are several drinking water wells within the limits of the proposed tree removal area of the Preferred Alternative (see **Figure 3.11 Water Wells**). There will be no direct impacts to these wells, however. The wells will be flagged in the field during tree removals and will be marked on construction plans to ensure they are avoided. If it is determined during final design that there will be impacts to any wells during project implementation, the wells will be relocated in accordance with state and local regulations.

In addition to the presence of drinking water wells, the entire runway extension area as well as eastern and northern portions of the tree removal area of the Preferred Alternative are within designated wellhead protection areas (see **Figure 3.12 Wellhead Protection Areas**). Wellhead protection areas represent the land surface area that contributes ground water to wells serving public water supply systems throughout Michigan. Wellhead protection areas define a landscape in which management strategies are employed to protect public water supply from ground water contamination.

Since the Preferred Alternative is located within a wellhead protection area, FAA AC 150/5320-15A, *Management of Airport Industrial Waste* will be implemented and the following ground water BMPs will be considered to prevent and minimize impacts to ground water in the project area:

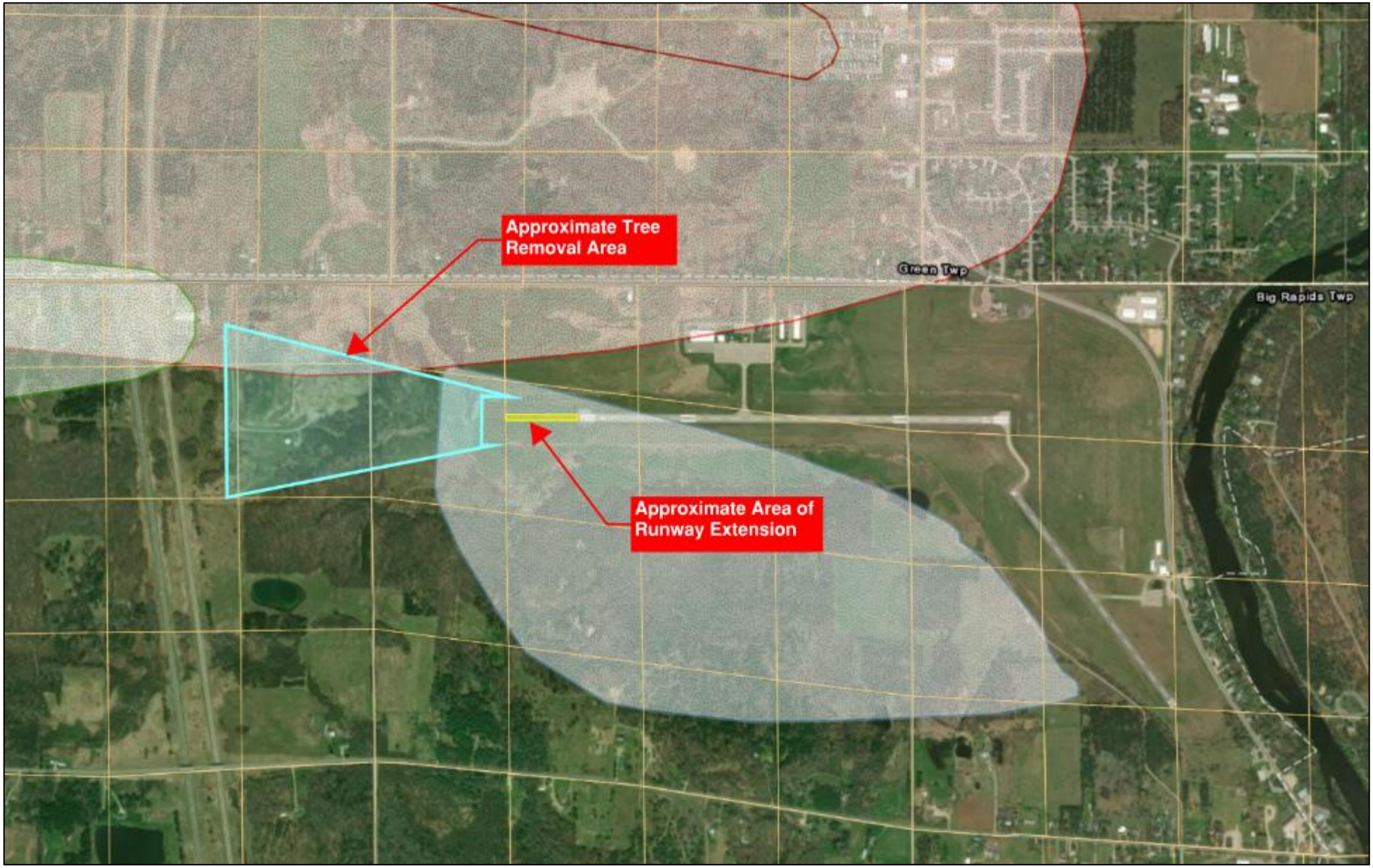
- Schedule construction activities for dry weather periods, if possible.
- Designate a contained area for equipment storage, short-term maintenance, and refueling at least 100 feet from wetland areas.
- Routinely inspect vehicles and equipment for leaks and repair immediately.
- Clean up leaks, drips, and other spills immediately to avoid soil or surface water contamination.
- Ensure that all spent fluids including motor oil, radiator coolant, or other fluids and used vehicle batteries are collected, stored, and recycled as hazardous waste off site.
- Ensure that all construction debris is taken to appropriate landfills and all sediment disposed of in upland areas or off-site.

Figure 3.11 Water Wells



Source: Michigan Dept. of Environment, Great Lakes, and Energy, Wellogic

Figure 3.12 Wellhead Protection Areas



Source: Michigan Dept. of Environment, Great Lakes, and Energy, Wellhead Protection Areas

No significant ground water impacts from the construction or operation of the Preferred Alternative or implementation of the No Action Alternative are anticipated.

3.17.5 Wild and Scenic Rivers

Wild and Scenic Rivers are those resources that have extraordinary scenic, recreational, geologic, ecosystem, historic, or cultural value as defined in the Wild and Scenic Rivers Act. The *Wild and Scenic Rivers Act* (16 U.S.C. §§ 1271-1287) creates a national system intended to preserve certain rivers in a free-flowing condition for current and future enjoyment. The national system is administered by the Bureau of Land Management (BLM), the National Park Service (NPS), the USFWS, and the United States Forest Service (USFS). The land surrounding a protected river or river segment determines the agency that administers the national system.

The Nationwide Rivers Inventory (NRI) is a list maintained by the NPS that identifies river segments that possess remarkable natural or cultural values and are of more than local or regional importance. All federal agencies are required to avoid or mitigate impacts to NRI segments.

According to the National Wild and Scenic Rivers System website, there are no rivers in the National Wild and Scenic Rivers System in Mecosta County. The closest protected river is the Pere Marquette River, which is approximately 19 miles northwest of RQB.

According to the NPS, the Muskegon River, a portion of which flows directly east of the Airport, is listed on the NRI. The Muskegon River is approximately 1.1 miles east of the project area.

Summary of Findings: There are no Wild and Scenic Rivers located at or within proximity of the project area. The closet NRI river (Muskegon River) is located 1.1 miles from the project area. Impacts to Wild and Scenic Rivers and NRI resources are not anticipated with the construction or operation of the Preferred Alternative or implementation of the No Action Alternative. No mitigation is proposed.

3.18 Cumulative Impacts

Cumulative impacts on the environment commonly result from the incremental change of an action when added to past, present, and reasonably foreseeable development in the area that is not directly associated with the Preferred Alternative, regardless of what agency or person undertakes such actions. According to FAA Order 5050.4B, reasonably foreseeable actions include those “on or off-airport that a proponent would likely complete and that has been developed with enough specificity to provide meaningful information to decision makers and the interested public.” In some cases, the individually minor impact of separate projects can have substantial effects when considered together over time.

Very few improvement projects have been completed at RQB over the last few years beyond routine maintenance activities. The Airport’s efforts have been directed at completing the needed Runway 10/28 extension project covered in this EA. One past project of note was the rehabilitation of Runway 14/32 in 2019 and 2020. No environmental impacts were associated with that project.

RQB is planning various improvement projects in the coming years. According to the FY 2024-2029 Airport Capital Improvement Program (ACIP) prepared for RQB in 2023 (see **Appendix L – Cumulative Impacts**), the following projects are planned at the Airport over the next five years:

- 2024 – RPZ and RSA Analysis for Runway 10 Extension
- 2024 – Environmental Assessment for Runway 10 Extension (current project)
- 2024 – Design Runway 10 Extension
- 2024 – Construct Runway 10 Extension
- 2024 – Wetland Mitigation
- 2024 – Design Taxilane Rehabilitation
- 2025 – Construct Taxilane Rehabilitation
- 2026 – Environmental Analysis for East Parallel Taxiway
- 2027 – Design Apron Rehabilitation
- 2028 – Construct Apron Rehabilitation
- 2028 – Construct Building Rehabilitation (Apron)
- 2028 – Design East Parallel Taxiway
- 2029 – Construct East Parallel Taxiway

Big Rapids Charter Township's Capital Improvement Plan (CIP) outlines a schedule of public service expenditures during the 2024-2029 period (see **Appendix L – Cumulative Impacts**). Examples of these projects planned in the vicinity of RQB over the next five years are listed below:

- 2024 – Roads - Annual Road Repair Work
- 2025 – Sewer - Replace 1st Pump at 14 Mile Road Lift Station
- 2026 – Fire Department - Replacement of 1991 Ford Engine
- 2027 – Cemetery - Purchase New Zero Turn Mower to Replace 2020 Mower
- 2028 – Streets - Annual Road Repair Work
- 2029 – Sewer - Replace Two Pumps at Menards Lift Station

Similarly, the City of Big Rapids' CIP expenditures planned for public service projects over the 2022-2028 period (see **Appendix L – Cumulative Impacts**). Examples of these projects include:

- 2023-2024 – Alleys and Parking Lots – 200 Block N Michigan Parking Lot
- 2024-2025 – Community Development – Hillcrest School Acquisition
- 2025-2026 – Fire Department – Information Technology Improvements
- 2026-2027 – Parks – Riverwalk Repair
- 2027-2028 – Water Treatment Plant – Redundant Raw Water Main from Well House to Plant

The Michigan Department of Transportation (MDOT) conducts other federal or federally assisted transportation improvement activities throughout the state of Michigan. According to MDOT's 2024-2028 Five-Year Transportation Program, MDOT does not propose to complete any projects in Mecosta County (See **Appendix L – Cumulative Impacts**).

Summary of Findings: The above-described projects are not expected to result in cumulative impacts when considered with the implementation of the Preferred Alternative. Given the minor project related impacts, it is unlikely the implementation of the Preferred Alternative, when viewed in light of past, current, and future planned actions, would result in significant cumulative impacts. All future actions on or off Airport property will be subject to avoidance and minimization studies and will undergo agency review and permitting, as required.

Cumulative impacts are not anticipated with the construction or operation of the Preferred Alternative or implementation of the No Action Alternative. No mitigation is proposed.

3.19 Other Project Considerations

This section discusses other items that, while not specifically covered in previous sections, are important to the understanding of the project's potential impacts on the social, environmental, and economic surroundings.

Conformance with Plans, Policies, and Controls: An airport development project plays an important role in the local and regional economy. Often, a project influences the type and location of specific land uses, the ground transportation network, and the general direction of community growth. When evaluating an action's conformance with plans and policies, there are usually two levels of planning involved. The first level addresses policy plans, which are goals and objectives for the area or jurisdiction. The second addresses specific physical plans that direct development of the physical infrastructure.

Coordination with the Airport does not indicate any conflicts with local, county, or regional planning efforts. The Airport has existing avigation easements on Big Rapids Charter Township property where some of the tree removals are proposed. Big Rapids Charter Township is in full support of the proposed project.

The proposed runway extension project is also shown on the Airport's current Airport Layout Plan (ALP) and has been shown on previous versions of the ALP. The Airport's current ALP can be found in **Appendix A – Airport Layout Plan**.

Conformance with Laws and Administrative Rules: In preparing this EA, various federal, state, regional, and local agencies were contacted to solicit their comments on the proposed project as it related to their specific area of expertise or regulatory jurisdiction including permitting and mitigation requirements (**Appendix D – Early Agency & Tribal Coordination**). Based on this coordination, inconsistency with known federal, state, or local laws or administrative rules is not expected. All phases of the proposed action will adhere to appropriate regulations and permitting requirements including any necessary mitigation measures.

Means to Mitigate Adverse Environmental Impacts: Projects should take care to avoid permanent adverse impacts on the environment. It is important that all adverse environmental impacts be minimized or mitigated if avoidance is not possible. The various impacts of the Preferred Alternative and the means to mitigate them to the greatest extent possible are summarized in **Table 3-8 Mitigation Summary of the Preferred Alternative**.

Degree of Controversy on Environmental Grounds: The Preferred Alternative is consistent with all federal, state, regional, and local plans and laws. According to conversations and correspondence with various federal and state agencies and the Airport, there have been no negative public comments or controversy concerning the proposed action.

Table 3-8 Mitigation Summary of Preferred Alternative	
Environmental Factor	**Proposed Mitigation and Permits**
Air Quality	To minimize air emissions from construction equipment the following recommendations may be implemented and incorporated by the Airport during construction and tree removals, where feasible: • Use low-sulfur diesel fuel (less than 0.05 percent sulfur). • Retrofit engines with an exhaust filtration device to capture diesel particulate matter before it enters the construction site. • Position the exhaust pipe so that the diesel fumes are directed away from the operator and nearby workers, thereby reducing the fume concentration to which personnel are exposed. • Use catalytic convertors to reduce carbon monoxide, aldehydes, and hydrocarbons in diesel fumes. These devices must be used with low sulfur fuels. • Use climate-controlled cabs that are pressurized and equipped with high efficiency particulate air (HEPA) filters to reduce the operator's exposure to diesel fumes. • Regularly maintain diesel engines, which is essential to keeping exhaust emissions low, and follow the manufacturer's recommended maintenance schedule. • Reduce exposure through work practices and training, such as turning off engines when vehicles are stopped for more than a few minutes, training diesel operators to perform routine inspections, and maintaining filtration devices. • Purchase new vehicles that are equipped with the most advanced emission control systems available. • With older vehicles, use electric starting aids as block heaters to warm the engine to reduce diesel emissions.
Biological Resources	Tree clearing will only be allowed after August 31 and before May 1 to minimize impacts to any potential bat populations. Recommended best management practices (BMPs) for the Eastern Massasauga Rattlesnake (EMR) will be implemented as follows: • Use of wildlife-safe erosion control materials. • Viewing of the Michigan Department of Natural Resources' "60-Second Snakes: The Eastern Massasauga Rattlesnake" video and/or review of the EMR factsheet. • Reporting of any EMR observations (or any other threatened or endangered species) during project implementation.

Table 3-8 Mitigation Summary of Preferred Alternative	
Environmental Factor	**Proposed Mitigation and Permits**
	USDA Wildlife Services recommendations to be considered during final design of the Preferred Alternative are as follows: • Conduct routine wildlife monitoring of the proposed area to evaluate wildlife usage before and after the project is completed. • Remove any trees or grasses to give a clear view of the area. • Monitor deer populations on and around the airfield. • Wildlife Services can perform a site visit to further discuss habitat management techniques to discourage wildlife usage of the proposed area as well as non-lethal and lethal control strategies to respond to wildlife using the area. • Wildlife Services would also be able to conduct a mini-wildlife hazard assessment over the course of several days to better evaluate wildlife hazards and their effect on aviation safety. Ideally visits could be scheduled before and after the tree removal to fully assess wildlife usage in the area. Recommendations could then be developed on wildlife hazard mitigation strategies.
Climate	None Required.
Coastal Resources	None Required.
Dept. of Transportation Act, Section 4(f)	None Required.
Farmlands	None Required.
Hazardous Materials	The contractor is required to have a Spill Prevention, Control, and Countermeasure (SPCC) plan in place to be implemented if a spill occurs during construction operations. An approved erosion control plan is required. Any waste generated through proposed project improvements will be disposed of in compliance with all federal, state, and local regulations.
Historical, Architectural, Archeological, and Cultural Resources	If historical, architectural, archeological, or cultural resources are encountered during construction, work must stop, and the State Historic Preservation Office (SHPO) must be notified immediately.
Land Use	Traffic from construction vehicles will be managed to avoid and minimize any impacts to local roads by defining haul routes and by scheduling the arrival and departure times of construction traffic so that normal traffic patterns are not interrupted.
Natural Resources and Energy Supply	BMPs to reduce energy consumption during construction will be employed, where applicable.

Table 3-8 Mitigation Summary of Preferred Alternative	
Environmental Factor	**Proposed Mitigation and Permits**
	To reduce energy consumption associated with the temporary use of excavators and construction vehicles, equipment should be in good working order to ensure the most efficient use of fuel. All vehicles and equipment should be checked for leaks and repaired immediately.
Noise and Noise Compatible Land Use	None Required.
Socioeconomics, Environmental Justice, or Children's Environmental Health and Safety Risks	None Required.
Visual Effects & Light Emissions	None Required.
Water Resources	<u>Wetlands:</u> • Proposed mitigation for wetland impacts is expected to include a Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 303 Wetland Protection permit and mitigation of 7.283 acres (1:1 ratio for forested wetlands 1:1.5 ratio for all others). Mitigation will include the purchase of wetland credits at an EGLE approved mitigation bank. • Final mitigation requirements are at the discretion of EGLE and will be incorporated into the required wetland permit. • During final design of the Preferred Alternative, modifications will be considered to lessen the impacts on regulated wetlands. • All delineated wetlands will be shown on construction plans and flagged in the field to protect them from any possible direct or indirect impacts. Construction documents will require avoidance and erosion control measures. <u>Floodplains:</u> None Required. <u>Surface Water:</u> • Soil erosion is a source of concern as a possible adverse impact to surface waters from construction projects. The following list of BMPs represents common erosion control measures that should be considered during construction and applied where applicable: o Sediment traps o Temporary cement ponds o Temporary grassing of disturbed areas

Table 3-8 Mitigation Summary of Preferred Alternative	
Environmental Factor	**Proposed Mitigation and Permits**
	○ Vegetation cover replaced as soon as possible ○ Erosion mats and mulch ○ Silt fencing and drainage check dams ○ Settling basins for storm water treatment • All excavated soils and staging areas for construction equipment will be placed in non-sensitive upland areas with disturbed areas replanted as soon as possible to reduce the likelihood of erosion. • Mitigation measures prepared under an erosion control plan in accordance with FAA AC 150/5370-10H, *Standard Specifications for Construction of Airports*, will help minimize long-term impacts to area water quality and to the existing drainage system. • In accordance with Part 91, Michigan Soil Erosion and Sedimentation Control of the *Natural Resources and Environmental Protection Act*, 1994 Public Act 451, as amended, a soil erosion permit and a storm water runoff control permit are required from Big Rapids Charter Township. • Obtain a National Pollutant Discharge Elimination System (NPDES) permit for construction activity disturbing one acre or more of soil. • Permittees are required to control runoff from construction sites and develop a construction Stormwater Pollution Prevention Plan (SWPPP) that includes erosion prevention and sediment control BMPs. <u>Ground Water:</u> • To protect surface and ground water resources, runoff will be directed into the Airport's existing storm water management system. Storm water runoff will drain into the Airport's existing drainage system in accordance with its SWPPP. The SWPPP will also be updated to include BMPs to reduce erosion and discharge of pollutants from construction activities. • Drinking water wells within the limits of the proposed tree removal area will be flagged in the field and will be marked on construction plans to ensure they are avoided. If it is determined during final design that there will be impacts to any wells during project implementation, the wells will be relocated. Since portions of the proposed project area are located within a wellhead protection area, FAA AC 150/5320-15A, *Management of Airport*

Table 3-8 Mitigation Summary of Preferred Alternative	
Environmental Factor	**Proposed Mitigation and Permits**
	Industrial Waste will be implemented and the following ground water BMPs should be considered to prevent and minimize impacts to ground water in the project area: • Schedule construction activities for dry weather periods, if possible. • Designate a contained area for equipment storage, short-term maintenance, and refueling at least 100 feet from wetland areas. • Routinely inspect vehicles and equipment for leaks and repair immediately. • Clean up leaks, drips, and other spills immediately to avoid soil or surface water contamination. • Ensure that all spent fluids including motor oil, radiator coolant, or other fluids and used vehicle batteries are collected, stored, and recycled as hazardous waste off site. • Ensure that all construction debris is taken to appropriate landfills and all sediment disposed of in upland areas or off-site.
Cumulative Impacts	None Required.

Chapter 4.0 List of Preparers

The chapter lists the names and qualifications of the principal Mead & Hunt participants that assisted in the preparation of the Environmental Assessment, as well as representatives from the Airport, Michigan Department of Transportation Office of Aeronautics, and the Federal Aviation Administration.

Mead & Hunt, Inc.

Stephanie Ward, AICP, Project Principal / Quality Control - Has more than 20 years of experience in preparing airport master plans, ALPs, environmental overviews, airport site selection studies, airport feasibility studies, and developing community support and understanding of airports and their importance to a community. Has prepared more than 60 planning studies for air carrier and general aviation facilities.

William Ballard, AICP, Project Manager - More than 18 years of experience evaluating environmental impacts associated with transportation projects and preparing National Environmental Policy Act (NEPA) documents. Has served as project manager for various environmental assessments and environmental impact statements.

Brauna Hartzell, Wetlands and Biological Resources Scientist - More than 20 years of experience in the execution of NEPA environmental compliance documents including state and federal wetland delineations, biological surveys, and regulatory permitting. Has served as project manager for wetland and biological analysis, permitting, and mitigation design.

David Clawson, Airport Planner - Serves as an airport planner for Mead & Hunt and is responsible for developing planning and environmental documents. Has assisted with several environmental assessments and has a strong understanding of the NEPA, environmental management systems, system plans, and economic analysis.

Emily Pettis, Cultural Resources Department Manager – 15 years of experience in cultural resources management. National resource for Section 106 and Section 4(f) regulatory coordination, historic resource requirements for NEPA documentation, as well as environmental document review. Conducts architectural surveys and preservation planning across the country and serves as project manager for historic preservation projects.

Roben-Hood Airport – Steve Schroeder, Airport Director

Michigan Department of Transportation Office of Aeronautics – Stan Reinke, Environmental Protection Specialist

Federal Aviation Administration – Misty Peavler, Environmental Protection Specialist

Chapter 5.0 References and Sources

All-Species Michigan Determination Key

American Society for Testing and Materials (ASTM). http://www.astm.org/

Big Rapids Charter Township

Department of Environment, Great Lakes, and Energy

Executive Order 13834, *Efficient Federal Operations*

Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*

Executive Order 13089, *Coral Reef Protection*

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*

Executive Order 11990, *Protection of Wetlands*

Executive Order 11988, *Floodplain Management*

FAA. 2023. *Aircraft Characteristics Data*. Aircraft Characteristics Data | Federal Aviation Administration (faa.gov)

FAA. 2022. *National Plan of Integrated Airport Systems* (NPIAS). https://www.faa.gov/airports/planning_capacity/npias/current

FAA. 2022. Advisory Circular (AC) 150/5300-13B, *Airport Design*. Washington, D.C.: FAA.

FAA. 2022. *Terminal Area Forecast (TAF).* Washington, D.C.: FAA.

FAA. 2020. *Memorandum: Actions Subject to NEPA Review Instructions to Airports District Offices and Regional Office of Airports Employees Regarding Airport Layout Plan Reviews and Projects Potentially Affected by Section 163 of the FAA*. Washington, D.C.: FAA.

FAA. 2020. AC 150/5200-33C, *Hazardous Wildlife Attractants on or near Airports*. Washington, D.C.: FAA.

FAA. 2018. AC 150/5370-10H, *Standards for Specifying Construction of Airports*. Washington, D.C.: FAA.

FAA. 2015b. Order 1050.1F, *Environmental Impacts: Policies and Procedures*. Washington, D.C.: FAA.

FAA. 2008. AC 150/5320-15A, *Management of Airport Industrial Waste*. Washington, D.C.: FAA.

FAA. 2007. *An Environmental Desk Reference for Airport Actions*. Washington, D.C.: FAA. https://www.faa.gov/airports/environmental/environmental_desk_ref/.

FAA. 2006. Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. Washington DC: FAA.

FAA. 2023. Traffic Flow Management System Count database. Washington, D.C.: FAA.

FEMA. 2023. *Flood Insurance Maps.*

Google Earth, 2023.

Mead & Hunt. 2023. *Biological Resources Report: Proposed Runway 9/27 Extension and Obstruction Clearing, Roben-Hood Airport (RQB), Mecosta County, Big Rapids, MI.*.

Mead & Hunt. 2022. *Runway Justification Study Update, 2022.*

Mead & Hunt. 2023. *Wetland Delineation Report: Proposed Runway 9/27 Extension and Obstruction Clearing, City of Big Rapids, Mecosta County Michigan.*

Mecosta County, Michigan

Michigan Department of Transportation Office of Aeronautics. 2017. *2017 Michigan Aviation System Plan.* Michigan Department of Transportation Office of Aeronautics, Page B-16.

Michigan Department of Environment, Great Lakes, and Energy.

Michigan Legislature. (1994). *Natural Resources and Environmental Protection Act, Act 451 of 1994*.

Michigan State Historic Preservation Office.

Michigan State University Extension. 2023. *Michigan Natural Features Inventory.* Michigan Natural Features Inventory (msu.edu)

Title 14 CFR Part 156 - State Block Grant Pilot Program.

Title 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace.

Title 40 CFR Part 1500 – Purpose and Policy

Title V of Public Law 97-248 of the Airport and Airway Improvement Act of 1982.

Environmental Laboratory, Waterways Experiment Station, U.S. Army Corps of Engineers (USACE). 1987. *Corps of Engineers Wetlands Delineation Manual*. Vicksburg, MS: USACE.

USACE. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: North Central and Northeast Region (Version 2.0)*.

United States Census, 2020.

U.S. Census Bureau. 2023. Michigan & Mecosta County QuickFacts.

U.S. Code. *15 U.S.C. §§ 2601-2697 - Toxic Substance Control Act.*

U.S. Code. *16 U.S.C. § 703 et seq - The Migratory Bird Treaty Act of 1918.*

U.S. Code. *16 U.S.C. §§ 1271-1287 - Wild and Scenic Rivers Act.*

U.S. Code. *16 U.S.C. §§ 1451-1466 - The Coastal Zone Management Act of 1972.*

U.S. Code. *16 U.S.C. §§ 661-667d - Fish and Wildlife Coordination Act*.

U.S. Code. *16 U.S.C. §1531-1544 - The Endangered Species Act.*

U.S. Code. *33 U.S.C. § 401 and 403 - Rivers and Harbors Act.*

U.S. Code. *33 U.S.C. §§ 1251-1387 - Clean Water Act.*

U.S. Code. *42 U.S.C. § 61 et seq. - Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970*.

U.S. Code. *42 U.S.C. §§ 2000d2000d-7 - Title VI of the Civil Rights Act of 1964.*

U.S. Code. *42 U.S.C. §§ 300(f)-300j26 - Safe Drinking Water Act.*

U.S. Code. *42 U.S.C. § 4321 – National Environmental policy Act of 1969*

U.S. Code. *42 U.S.C. §§ 9601-6975 - Comprehensive Environmental Response, Compensation, and Liability Act.*

U.S. Code. *42 U.S.C. §§ 6901-6992k - Resource Conservation and Recovery Act*.

U.S. Code. *42 U.S.C. §§ 7401- 7671q - The Clean Air Act.*

U.S. Code. *49 U.S.C. § 303 - Section 4(f).*

U.S. Code. *49 U.S.C. § 47128 – State Block Grant Program*

U.S. Code*. 54 U.S.C. § 300101 - Section 106 of the National Historic Preservation Act.*

U.S. Code. *7 U.S.C. §§ 4201-4209 - The Farmland Policy Protection Act of 1981.*

U.S. Department of Agriculture's National Resources Conservation Service. 2023. *Farmland Classification Maps*.

USEPA NEPAssist. https://www.epa.gov/nepa/nepassist

USEPA. 2023. *Environmental Justice Screening and Mapping Tool.*

United States Fish and Wildlife Service

U.S. Fish and Wildlife Service. 2023. *Information for Planning and Consolation (IPaC) Database.*

U.S. General Accounting Office