



**FINAL ENVIRONMENTAL ASSESSMENT &
FINDING OF NO SIGNIFICANT IMPACT**

Runway 17-35 Obstruction Removal

**Edward F. Knapp State Airport (MPV)
Berlin, Vermont**

Prepared For:



Prepared By:



DEPARTMENT OF TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT

I have carefully and thoroughly considered the facts contained in the attached "***Final Environmental Assessment Runway 17-35 Obstruction Removal Edward F. Knapp State Airport (MPV) Berlin, Vermont***". Based on that information, I find the proposed Federal action is consistent with existing national environmental policies and objectives of Section 101(a) of the National Environmental Policy Act of 1969 (NEPA) and other applicable environmental requirements.

I also find the proposed Federal action will not significantly affect the quality of the human environment or include any condition requiring any consultation pursuant to section 102(2)(C) of NEPA. As a result, FAA will not prepare an EIS for this action.

Signature of FAA Approving Official

APPROVED: _____

Date: _____

DISAPPROVED: _____

Date: _____

FINAL ENVIRONMENTAL ASSESSMENT

RUNWAY 17-35 TREE OBSTRUCTION REMOVAL

**E.F. Knapp State Airport
Town of Berlin, Vermont**

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

As Lead Federal Agency pursuant to the National Environmental Policy Act of 1969

MAY 2022

After careful and thorough consideration of the facts contained herein, the undersigned finds that the proposed federal action is consistent with existing national policies and objectives as set forth in Section 101 of the National Environmental Policy Act (NEPA) and other applicable environmental requirements and will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to Section 101 (2) (c) of the NEPA. This environmental assessment becomes a federal document when evaluated, signed, and dated by the responsible Federal Aviation Administration (FAA) official.

Responsible FAA Official

Date

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LIST OF ABBREVIATIONS AND ACRONYMS

AC	Advisory Circular
AC	Affected Community
ACIP	Airport Capital Improvement Plan
Act 250	Vermont’s Land Use and Development Law
ACHP	Advisory Council on Historic Preservation
AIP	Airport Improvement Program
Airport	E.F. Knapp State Airport
ALP	Airport Layout Plan

ANR	Vermont Agency of Natural Resources
APE	Area of Potential Effect
ARA	Archaeological Resource Assessment
CAA	Clean Air Act
CO	Carbon Monoxide
COC	Community of Comparison
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System Database
CZMA	Coastal Zone Management Act
dB	Decibels
dbh	Diameter at breast height
BFD	Bankfull depth
BFW	Bankfull width
DNL	Day-Night Average Noise Level
DOI	United States Department of the Interior
DOT	Department of Transportation
DPF	Diesel particulate filters
EA	Environmental Assessment
EFH	Essential Fish Habitat
EJ	Environmental Justice
EO	Executive Order
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FEMA	Federal Emergency Management Agency
FIRM	FEMA Flood Insurance Rate Map
FPPA	Farmland Protection Policy Act
FY	Fiscal Year
GA	General Aviation
GHG	Greenhouse gas
GIS	Geographic Information System
GSA	Generalized Study Area
GSE	Ground Support Equipment
ILS	Instrument Landing System
IPaC	Information for Planning and Conservation
LWCF	Land and Water Conservation Fund
MALSR	Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
MPV	E.F. Knapp State Airport
NAAQS	National Ambient Air Quality Standards
NWI	National Wetland Inventory
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NLR	Noise Level Reduction
NOAA	National Oceanic and Atmospheric Administration
NO _x	Nitrogen Oxides

NPIAS	National Plan of Integrated Airport Systems
NPL	National Priorities List
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
O ₃	Ozone
Pb	Lead
PBO	Programmatic Biological Opinion
PM	Particulate Matter
RCRA	Resource Conservation and Recovery Act
SCR	Selective Catalytic Reduction
SEMS	Superfund Enterprise Management System Database
SHPO	State Historic Preservation Office
SHWS	State and tribal hazardous waste site database
SIP	State Implementation Plan
SO _x	Sulfur Oxides
SPA	Source Protection Area
SPILLS	State spills database
SWPPP	Stormwater Pollution Prevention Plan
TERPS	Terminal Instrument Procedures
TWG	Traditional Navigable Water
USACE	United States Army Corp of Engineers
USC	United States Code
USFWS	United State Fish & Wildlife Service
VCP	State and tribal cleanup database
VDHP	Vermont Division of Historic Preservation
VLT	Vermont Land Trust
VSWI	Vermont Agency of Natural Resources Significant Wetland Inventory
VT	Vermont
VTrans	Vermont Agency of Transportation
VTWQS	Vermont Water Quality Standards

1 INTRODUCTION

This Environmental Assessment (EA) documents the evaluation of potential impacts associated with proposed tree removal within the approaches for Runway 17-35 at E.F. Knapp State Airport (MPV or Airport). Objects that penetrate the different Federal Aviation Administration (FAA) three-dimensional surfaces should be removed to accommodate approaching and departing aircraft safely. As the airspace surfaces extend well beyond the Airport's property boundary, the Sponsor's Proposed Action includes on and off-airport obstruction removal.

This EA was prepared to satisfy the requirements of the National Environmental Policy Act (NEPA) of 1969 to address potential impacts associated with the proposed tree obstruction removal while providing the opportunity for public involvement and comments. The study was conducted in accordance with FAA guidelines, including:

- *Environmental Desk Reference for Airport Actions (Version 2, 2020)*
- *FAA Order 1050.1F: Environmental Impacts: Policies and Procedures*
- *FAA Order 5050.4B: National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*

Since the Proposed Action would require federal approval and funding determinations by the FAA, the EA must comply with the NEPA and other federal special purpose laws.

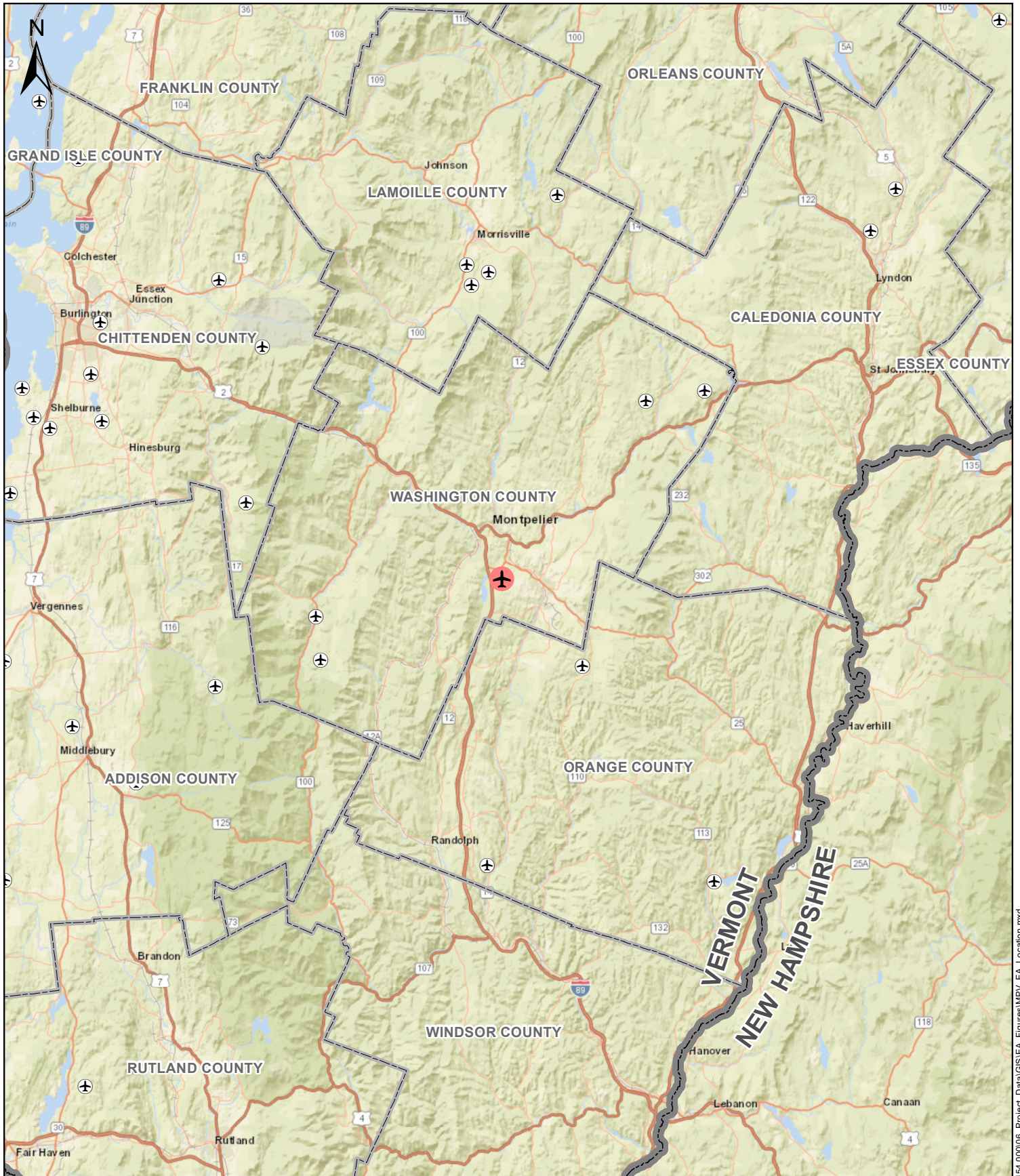
This EA includes the following chapters:

- Chapter 1: Introduction
- Chapter 2: Purpose and Need
- Chapter 3: Alternatives
- Chapter 4: Affected Environment
- Chapter 5: Environmental Consequences
- Chapter 6: Public Involvement
- Chapter 7: List of Preparers

1.1 AIRPORT OVERVIEW

MPV is a public-use airport owned by the State of Vermont and maintained by the Vermont Agency of Transportation (VTrans). According to the FAA 2021 – 2025 National Plan of Integrated Airport Systems (NPIAS) report, MPV is designated as a General Aviation (GA) airport and is currently classified with a role of “regional”. As defined within the NPIAS, a regional airport, *“supports regional economies with interstate and some long-distance flying and has high levels of activity, including some jets and multiengine propeller aircraft.”*

MPV is in the Town of Berlin, approximately four miles south of the City of Montpelier and three miles west of the City of Barre. The Town of Berlin, the City of Montpelier, and the City of Barre are located within Washington County and situated approximately 40 miles southeast of Burlington, VT. The Airport is accessible by personal vehicle via Interstate 89 and Vermont State Route 62. **Figure 1-1** depicts the location of MPV respective to the State of Vermont and the Washington County region.

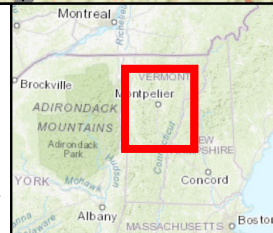


Legend

- State Boundary
- County Boundary
- MPV Airport
- Other Airport

**Figure 1-1
Location**

E.F. Knapp State Airport
Runway 17/35 Obstruction Removal EA



Sources: VTGIS, CHA (2021)



1.1.1 Airside Facilities

MPV operates under a dual-runway system. Runway 17-35, oriented northwest-southeast, serves as the primary runway and is 5,000 feet long by 100 feet wide (see **Figure 1-2**). The runway is constructed of asphalt and is listed in good condition. The runway maintains precision markings for the Runway 17 Instrument Landing System (ILS) approach and non-precision markings on the Runway 35 approach. The Runway 35 approach end has a 488-foot displaced threshold, with a portion of the runway end recently rehabilitated to ensure a published runway length of 5,000 feet.

Runway 5-23, oriented northeast-southwest, serves as a crosswind, visual-only runway 3,000 feet long by 75 feet wide. It is primarily used by single-engine aircraft with a restriction of less than 10 passenger seats. Additionally, Runway 5-23 is plowed in the winter (although it is the last area to be plowed so it may remain snow covered for several days after a storm). **Table 1-1** presents the characteristics of the runway.

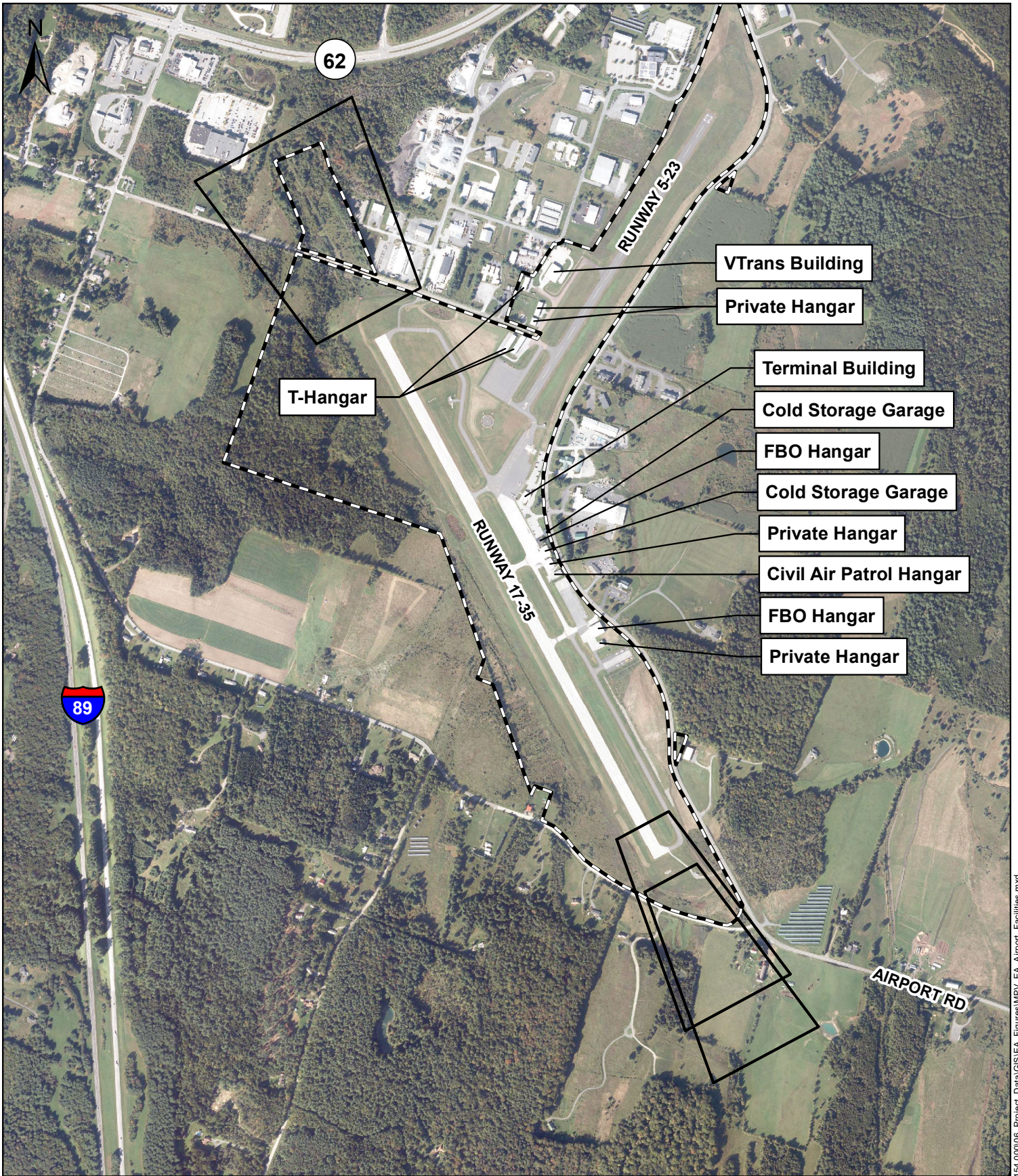
Table 1-1: MPV Runway Characteristics

Runway Feature	Runway 17-35	Runway 5-23
Length	5,000'	3,000'
Width	100'	75'
Displaced Threshold	488'	N/A
Pavement Type	Asphalt – Good Condition	Asphalt – Good Condition
Pavement Strength	31,000 lbs. Single-Wheel 70,000 lbs. Double-Wheel	30,000 lbs. Single-Wheel 46,000 lbs. Double-Wheel
Gradient	1.48%	1.01%
Edge Lighting	MIRL	MIRL
Approach Instrumentation	RWY 17 - Precision RWY 35 - Non-Precision	Visual
Approach Lighting	RWY 17 - MALSR	-
Approach Aids	RWY 17 - PAPI-4	-
Runway Markings	RWY 17 - Precision RWY 35 - Non-Precision	Basic

Source: FAA Airport Master Record, CHA 2021.

1.2 FAA DESIGN SURFACES

An airport’s airspace is an asset to the overall infrastructure of the facility. The airspace must safely accommodate the approach and departure of aircraft by remaining free of all potential obstructions. As such, an airport obstruction study was conducted in November 2020 to evaluate the Airport’s compliance with FAA airspace standards within the respective runway approach and departure corridors. This Obstruction Study assessed compliance with Advisory Circular 150/5300-13A, *Airport Design*, and Engineering Brief No. 99A, *Changes to Table 3-2 and 3-4 of AC 150/5300-13A*, which was the the most up to date FAA guidance at the time. However, on March 31, 2022, the FAA released AC 150/5300-13B, *Airport Design*. The new guidance altered the terminology used for approach and departure surfaces;



instead of defining each surface as an Obstacle Clearance Surface, the new surfaces are simply termed the Approach Surfaces and the Departure Surface and numbered according to type of approach. The overall dimensions and slope remain mostly unchanged. Updated FAA guidance is reflected in this EA. The following sections outline the different design surfaces that were analyzed. Since this EA is only analyzing alternatives to clear approaches for Runway 17-35, Runway 5-23 will not be discussed.

1.2.1 Federal Aviation Regulation (FAR) Part 77 Approach Surface

FAR Part 77: *Safe, Efficient Use, and Preservation of the Navigable Airspace* establishes areas of protected airspace surfaces used to define the maximum allowable height of objects surrounding an airport. The five FAR Part 77 surfaces include the Primary Surface, Transitional Surface, Approach Surface, Horizontal Surface, and the Conical Surface. The overall design, location, and heights of the FAR Part 77 surfaces at each airport vary based upon runway elevation, runway designation, and available instrument approach procedures.

The Approach Surface is very important to maintain as this area facilitates the arrival and departure of aircraft. The FAR Part 77 Approach Surface is located beyond each runway end and slopes upward at either a 20:1, 34:1, or 50:1 slope based upon the type of runway designation and instrument approach procedure. **Table 1-2** lists the FAR Part 77 Approach Surface dimensions and slopes for each runway at MPV.

Table 1-2: MPV FAR Part 77 Approach Surface Dimensions

Runway	Approach Type	Approach Slope	Inner Width	Outer Width	Length
17	Precision	50:1 & 40:1*	1,000'	16,000'	50,000'
35	Non-Precision	34:1	1,000'	3,500'	10,000'

Source: FAR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*

*50:1 for the first 10,000 ft., then 40:1 thereafter

Note: FAR Part 77 Approach Surface begins 200 feet beyond end of runway

1.2.2 Airport Design Approach Surfaces

In addition to the FAR Part 77 surfaces, the United States Standard for Terminal Instrument Procedures (TERPS) are used by the FAA to develop instrument approach procedures at airports. These procedures are used by aircraft while operating under Instrument Flight Rules. TERPS is defined within FAA Order 8260.3E and includes numerous approach and departure surfaces surrounding runways. As the TERPS surfaces can be complex and differ from the FAR Part 77 surfaces, the FAA has provided overall airport design standards for obstruction clearing beyond runways.

These obstruction clearing surfaces, known as the Approach Surfaces, are defined within FAA AC 150/5300-13B, *Airport Design*. The Approach Surfaces applicable to the runway are based upon the type of runway approach, landing visibility minimum, and type of aircraft the runway accommodates. **Table 1-3** lists the various Approach Surfaces along with the criteria used to determine runway applicability. These Approach Surfaces determine the minimum obstruction removal required for a runway end. In locations off-airport property, clearing the Approach Surface may be the most feasible alternative. **Table 1-4** lists the applicable Approach Surface dimensions and slopes for Runway 17-35. The Approach Surface #5 (20:1) and #6 (30:1) applies to Runway 17 and Surface #4 applies to the Runway 35 end.

Table 1-3: Approach Surface Dimensions

Surface	Runway Type	Slope
Visual Approach Surfaces		
1	Approach end of runways serving small airplanes with approach speeds less than 50 knots.	15:1
2	Approach end of runways serving small airplanes with approach speeds of 50 knots or more.	20:1
3	Approach end of runway serving large airplanes (>12,500 lbs. (5,669 kg)).	20:1
Non-Precision and IFR Circling Approach Surfaces		
4	Approach end of runways that support IFR circling procedures & procedures only providing lateral guidance - visibility greater than or equal to 3/4 statute mile.	20:1
	Approach end of runways that support IFR circling procedures and procedures only providing lateral guidance - visibility less than 3/4 statute mile.	34:1
APV and PA Instrument Runway Approach Surfaces		
5	Approach end of runways providing ILS, MMLS, PAR, and landing distance available (LDA) with glidepath, LPV, LNAV/VNAV, RNP, or GLS – visibility greater than or equal to 3/4 statute mile.	20:1
	Approach end of runways providing ILS, MMLS, PAR, and landing distance available (LDA) with glidepath, LPV, LNAV/VNAV, RNP, or GLS - visibility minimums less than 3/4 statute mile.	34:1
6	Approach end of runways providing ILS, MMLS, PAR, and LDA with glidepath, LPV, LNAV/VNAV, RNP, and GLS.	30:1

Source: FAA AC 150/5300-13B, *Airport Design*

Table 1-4: MPV Approach Surface Dimensions

Runway	Surface #	Surface Slope	Distance from Runway End (Dim. A)	Inner Width (Dim. B)	Outer Width (Dim. C)	Length 1 (Dim. D)
17	5	20:1	200'	400'	3,400'	10,000'
	6	30:1	0	300'	1,520'	10,200'
35	4	20:1	200'	400'	3,400'	10,000'

Source: FAA AC 150/5300-13B, *Airport Design*

1.2.3 MALSR Light Plane

The Medium Intensity Approach Lighting System (MALS) with Runway Alignment Indicator Lights (RAILS) provide landing approach guidance, such as runway alignment, height perception, and horizontal reference from the landing threshold outward into the approach zone. The MALS is 1,400 feet long with an additional 1,000 feet for the RAILS. At MPV, Runway 17 currently has a MALSR. The light plane is an imaginary surface that is projected through the center of the approach lights and follows the profile of the lights. The approach light plane begins at the threshold, is 400 feet wide centered on the extended runway centerline and extends 200 feet beyond the last flashing light in the portion of the MALSR system. FAA Order 6850.2B: *Visual Guidance Lighting Systems* states that “no fixed or moveable objects shall

protrude above the MALSRL light plane.” For design purposes, railroads and highways are considered as vertical solid objects. The clearance required above interstate highways is 17 feet; for railroads, 23 feet; and for all other roads, highways, and parking areas, 15 feet. The clearance for roads and highways is measured from the crown of the road while railroads are measured from the top of the rails. Airport service roads controlled in a manner that will preclude a vehicle from blocking the view of the approach lights from landing aircraft or preclude vehicles protruding above the light plane are not considered obstructions in determining the approach light plane.

1.3 SPONSOR’S PROPOSED ACTION

Based on the Airport Obstruction Survey (November 2020), both runway approaches for Runway 17-35 contain penetrations to various FAA design standards. These obstructions consist almost entirely of tree obstructions. The Sponsor’s Proposed Action will include the following elements (see **Figure 1-3**).

- Obtain avigation easements on private property
- Clear approximately 4.8 acres of trees within the Runway 17 approach surface
- Clear approximately 28 acres of trees within the Runway 35 approach surface

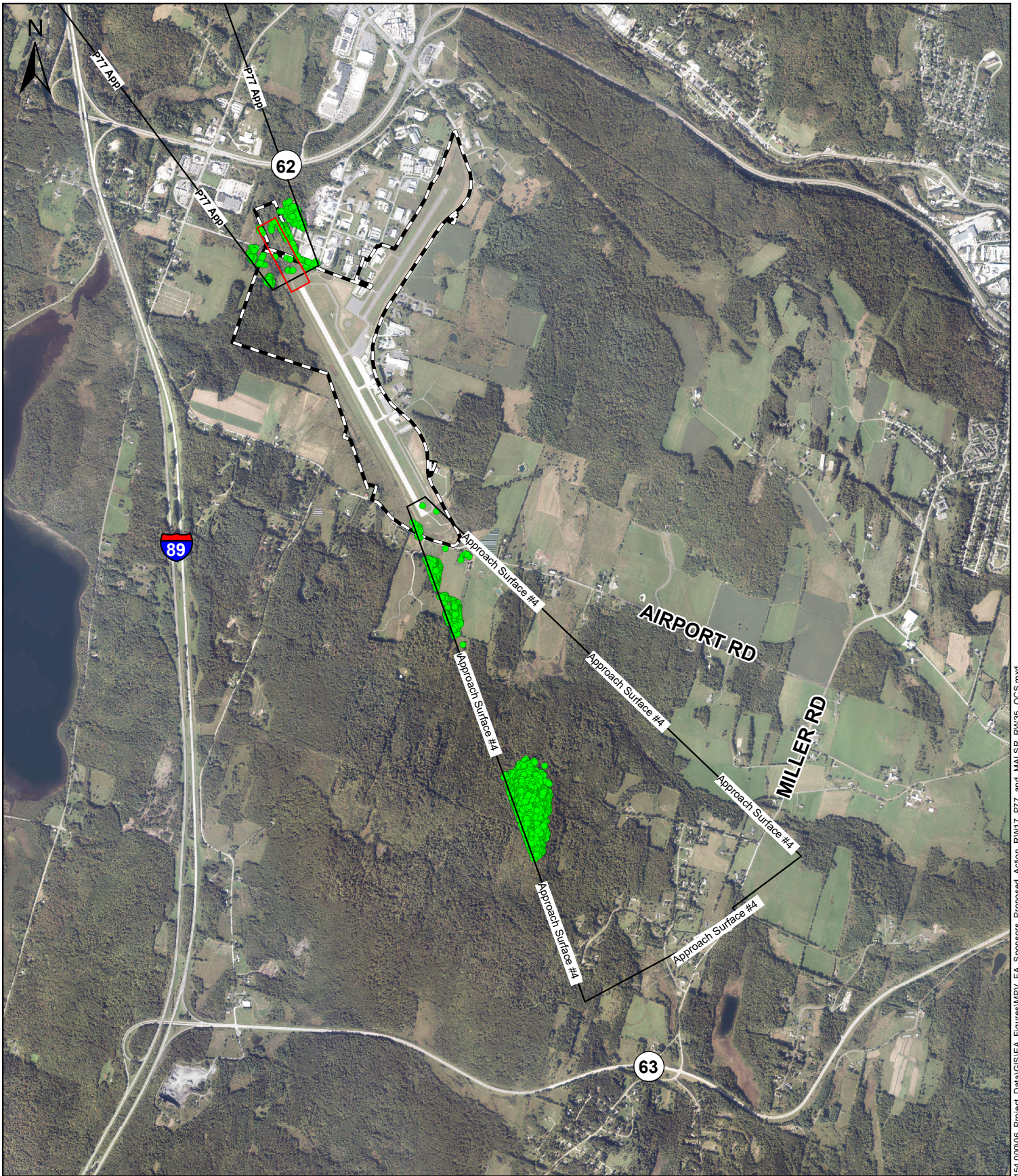
1.4 FEDERAL ACTIONS

There are numerous actions necessary for Federal approval to allow the proposed action to occur. These include the approval of the Airport Layout Plan (ALP) elements that are associated with the Runway 17-35 obstruction removal. In addition, environmental approval is required to support Airport Improvement Program (AIP) grant-in-aid funding for the proposed action. The following Federal actions will be required as part of the project:

- Unconditional approval of the updated ALP for MPV, depicting the proposed improvements pursuant to 49 USC § 40103(b), 44718 and 47107(a)(16).
- Federal environmental approval of further processing of an application for federal assistance to implement those AIP eligible projects.

1.5 TIMEFRAME OF THE PROPOSED ACTION

The Airport expects to submit the Final EA to the FAA by May 2022 and anticipates an environmental finding by July 2022. The Airport will apply for FAA AIP Fiscal Year (FY) 2023 funding for the first phase of the program, which will be avigation easements, obstruction removal design, and permitting. The actual obstruction removal may be phased over multiple years depending on funding; however, the work is anticipated to begin as early as FY 2024.



Legend





-  Airport Property Boundary
-  Part 77 Approach Surface (P77 App) / Approach Surface
-  Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights Surface (MALSR)
-  Obstruction

Figure 1-3
Sponsor's Proposed Action

E.F. Knapp State Airport
Runway 17/35 Obstruction Removal EA



0 600 1,200 2,400
Feet

Sources: VTGIS, CHA (2021)



2 PURPOSE & NEED

The Sponsor's Proposed Action includes the acquisition of avigation easements for off-airport properties and the removal of both on and off-airport obstructions to various FAA design surfaces for Runway 17-35. The VTrans and the FAA have initiated this EA under NEPA to assess and consider potential impacts to the human and natural environment from the proposed action. The purpose and need for the proposed action must be clearly explained and stated in terms that are understandable to individuals who are not familiar with aviation or commercial aerospace activities. It presents the problem being addressed and describes what the Airport Sponsor is trying to achieve with the proposed action. It provides the parameters for defining a reasonable range of alternatives to be considered. Presented in this chapter is a concise statement of purpose for the Proposed Project as introduced in **Section 1.3**, a series of substantiating points as to why the Proposed Project is needed and will be of benefit to MPV and its users.

2.1 PURPOSE

The purpose of the Proposed Action is to enhance airfield safety, maintain aircraft landing minimums, regain the ability to land at night, and comply with FAA design standards by eliminating obstructions within the approaches for Runway 17 and 35 while maintaining the existing runway length of 5,000 feet.

2.2 NEED

The FAA has established airspace and design criteria to provide for safe aircraft operations. In 2020, the VTrans conducted an obstruction study to evaluate the airspace at the Airport (see **Appendix A**). Based on the FAA design criteria, the results of this analysis identified multiple tree obstructions within several FAA design standards for both approaches to Runway 17-35. These obstructions currently prohibit aircraft from using the Runway 35 end at night. The Airport is also required to take appropriate action to comply with FAA obligations associated with receiving Federal grant funds that are enumerated in the FAA Sponsor Grant Assurances and FAA Order 5190.6B: *Airport Compliance Manual*. FAA Grant Assurance No. 20 (Hazard Removal and Mitigation) obligates the Airport to take appropriate actions to assure the airspace is adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards.

3 ALTERNATIVES

The previous section described the need to clear penetrations to FAA design standards within the approaches for Runway 17 and 35. This section presents a description and analysis of alternatives considered to meet the identified purpose and need. The alternatives that have been developed for this assessment are based on the requirements contained in the FAA Order 5050.4B and 10501.F. Impacts to the Airport and its surroundings will be assessed based on implementation of one of these alternatives.

The alternatives will be discussed in terms of a Build Alternatives and a No-Build Alternative. The No-Build Alternative is assessed under the guidance of Section 1502.14 (d) of the Council on Environmental Quality (CEQ) regulations, which requires that a “no-build alternative” be considered in development projects.

To be considered feasible for implementation, the alternatives consider many factors such as costs, adverse impacts to the environment, and constructability. The development options must support the Airport’s role in the aviation system and be compliant with applicable FAA airport design standards and other regulations. The placement of runways, taxiways, and navigational aids are required to be constructed in accordance with the standard criteria included in FAA AC 150/5300-13B: *Airport Design*.

3.1 ALTERNATIVES CONSIDERED AND DISMISSED

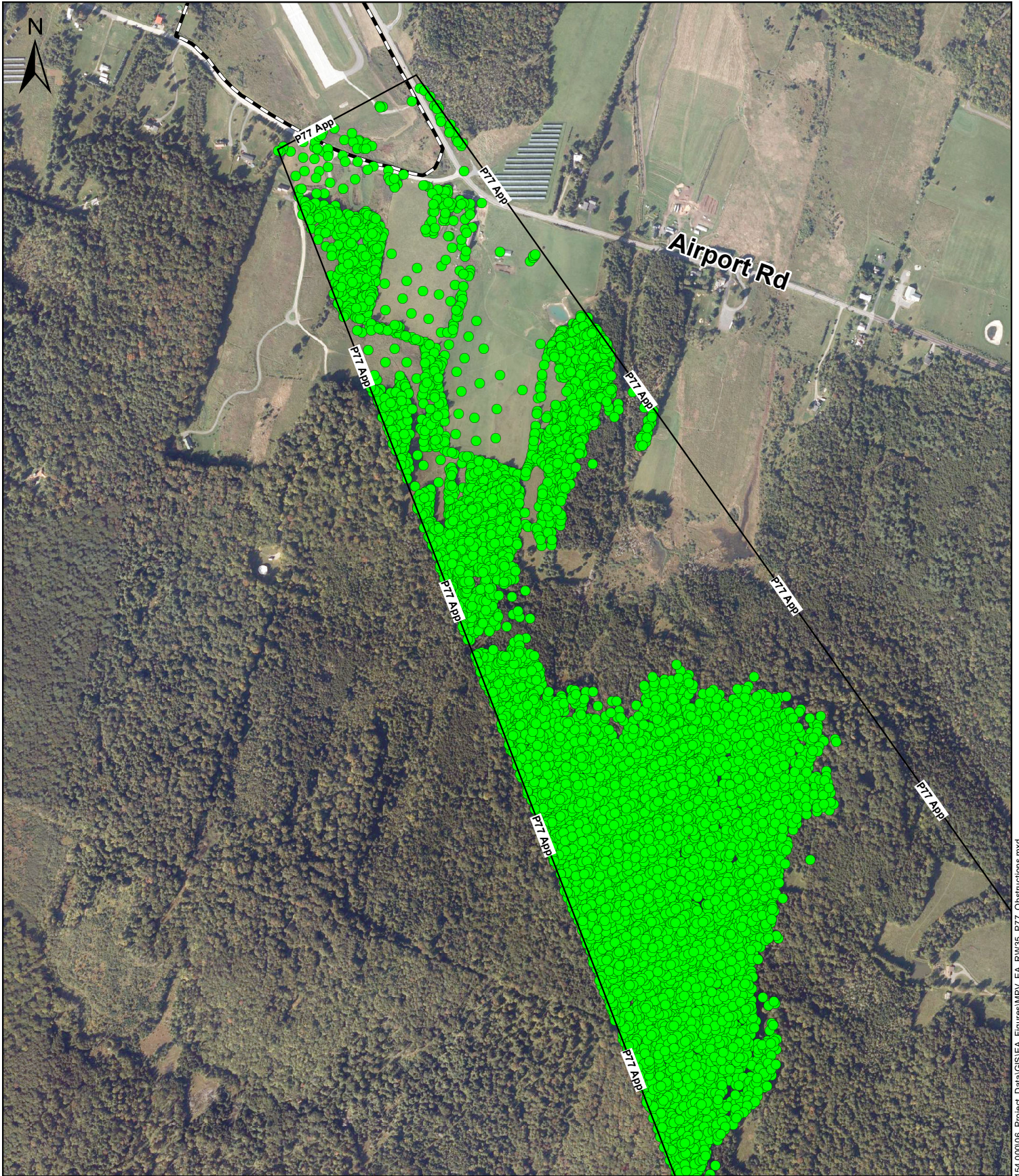
This section includes a brief description of alternatives considered but dismissed because they were deemed not practicable.

3.1.1 Removal of All Part 77 Obstructions

This alternative would remove all Part 77 approach surface penetrations to both ends of Runway 17-35. This alternative would require the clearing of approximately 120 acres of trees, with significant clearing required within the Runway 35 approach.

The Runway 35 FAR Part 77 Approach Surface begins 200 feet beyond the runway end and extends outward and upward at a 34:1 slope for 10,000 feet. **Figure 3-1** depicts the trees penetrating the Runway 35 Approach Surface, as well as all trees 10 feet below the surface. The surface penetrations range from at or near zero (i.e., equal with the surface elevation) to approximately 200 feet above the surface, with the greatest concentration of obstructions located within the higher terrain southeast of the runway. Although most of the obstructions are trees (approximately 115 acres), there are also various fixed objects located both on- and off-Airport property that penetrate the Runway 35 FAR Part 77 Approach Surface. These objects include the terrain itself, two buildings, and various utility poles. In addition, as Airport Road, Scott Hill Road, and Dodge Farm Road traverse the approach surface, vehicles traveling on those roads are penetrations to the Part 77 approach surface.

The Part 77 surfaces are considered a “notification” surface. Exceeding any Part 77 obstruction criteria creates a presumption that a particular object may result in a hazard to air navigation. However, FAR Part 77 does not contain the hazard criteria, and merely exceeding the obstruction evaluation criteria does not automatically result in a final hazard determination by FAA. To establish the impact of the proposal, further analysis is conducted by the FAA. In short, just because a tree is a penetration to Part 77 surface does not automatically make it a hazard to aviation. In addition, the location of the runway threshold is not determined by controlling Part 77 obstructions. This alternative was not considered feasible due to the environmental impact of clearing 120 acres of trees.



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



-  Airport Property Boundary
-  Part 77 Approach Surface (P77)
-  Obstruction

Figure 3-1
Runway 35 Part 77 Approach
Surface Obstructions
 E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 200 400 800
 Feet

Sources: VTGIS, CHA (2021)

3.1.2 Close Runway 17-35

On occasions, an airport with two or more runways may consider closure or elimination of a runway that is considered “additional” or unnecessary. As Runway 17-35 is the primary runway, it cannot be closed because the crosswind runway would not accommodate the existing fleet mix for wind coverage or runway length.

3.1.3 Reduce Runway Landing Distance Available (LDA)

The displacement of a runway’s landing location (i.e., threshold) is often used to reduce the number of tree penetrations to the Approach Surfaces. Currently, Runway 35 has a 488-foot displaced threshold. Adding additional displaced threshold length could reduce the need for tree clearing; however, moving the existing displaced threshold further down the runway would reduce the landing length available for airport users. The existing landing length is needed to maintain Airport operations according to its approved Airport Master Plan. As such, this alternative was considered but dismissed. Further reducing the available landing length would diminish the existing capability of the Airport.

3.2 ALTERNATIVES UNDER CONSIDERATION

Several project alternatives were considered to clear obstructions from the approach surface to Runway 17-35 at MPV in accordance with FAA design standards. These alternatives are described below.

3.2.1 Alternative 1: Remove Runway 17 MALSR Light Plane & Approach Surface Penetrations to Runway 17-35

Alternative 1 would remove all penetrations within the MALSR light plane and Approach Surface #5 and #6 for Runway 17 and Approach Surface #4 for Runway 35. Impacts to each runway end are discussed separately.

Runway 17 is equipped with an ILS with a landing visibility minimum of $\frac{3}{4}$ mile. As such, the runway is classified as a precision instrument approach, providing both lateral and vertical guidance to landing aircraft. Since the Runway 17 ILS provides vertical landing guidance and a landing visibility minimum of $\frac{3}{4}$ mile, both Approach Surface #5 and #6 apply (refer to **Table 1-3**). Approach Surface #5 begins 200 feet beyond the Runway 17 end and extends outward and upward at a 20:1 slope for 10,000 feet. Approach Surface #6 begins at the Runway 17 threshold and extends outward and upward at a 30:1 slope for 10,200 feet. Due to the respective starting points and slopes of each surface, Approach Surface #5 and #6 intersect at approximately 610 feet from the runway threshold. It is important to note that each surface also varies in width, resulting in some of the objects that penetrate Approach Surface #5 being located outside of Approach Surface #6. Additionally, Runway 17 currently has a MALSR. The Medium Approach Lighting System (MALS) is 1,400 feet long with an additional 1,000 feet for the Runway Alignment Indicator Lights (RAILS), which together is a MALSR. **Figure 3-2** depicts the objects penetrating the Runway 17 MALSR light plane and Approach Surfaces, as well as all vegetational objects 10 feet below the surfaces. All obstructions within the Runway 17 approach are located on Airport property or on the adjacent privately-owned parcel. No fixed objects (i.e., utility pole) penetrate the Runway 17 approach surfaces. The total tree removal on the Runway 17 end as part of Alternative 1 is approximately 1.5 acres.

Runway 35 has two published instrument approach procedures with a landing visibility minimum of 1-mile. As neither of the Runway 35 instrument approach procedures provide vertical landing guidance, only Approach Surface #4 applies to Runway 35. The Runway 35 Approach Surface extends outward and



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



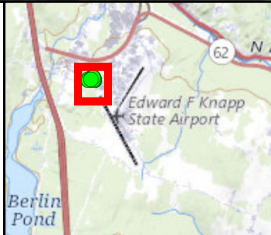
-  Airport Property Boundary
-  Approach Surface
-  Medium-Intensity Approach Lighting
-  System with Runway Alignment Indicator Lights Surface (MALSR)
-  Obstruction


Figure 3-2
Alternative 1: Clear Runway 17
Approach and MALSR Surfaces

E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 50 100 200
 Feet

Sources: VTGIS, CHA (2021)



upward at a 20:1 slope for 10,000 feet beginning 200 feet beyond the Runway 35 displaced threshold. As mentioned previously, the Very high frequency omni-directional range (VOR) approach has an offset final approach course eight degrees counterclockwise from the Runway 35 magnetic heading of 348 degrees. This means that in addition to the standard Approach Surface #4 dimensions, the Runway 35 Approach Surface also has an “offset approach plane”. This additional surface area has the same slope (i.e., 20:1), but extends 20 degrees counterclockwise per FAA guidance. The impacts of clearing the Runway 35 Approach Surface will require the removal of approximately 28 acres of trees (see **Figure 3-3**). The following table highlights potential advantages and disadvantages of Alternative 1.

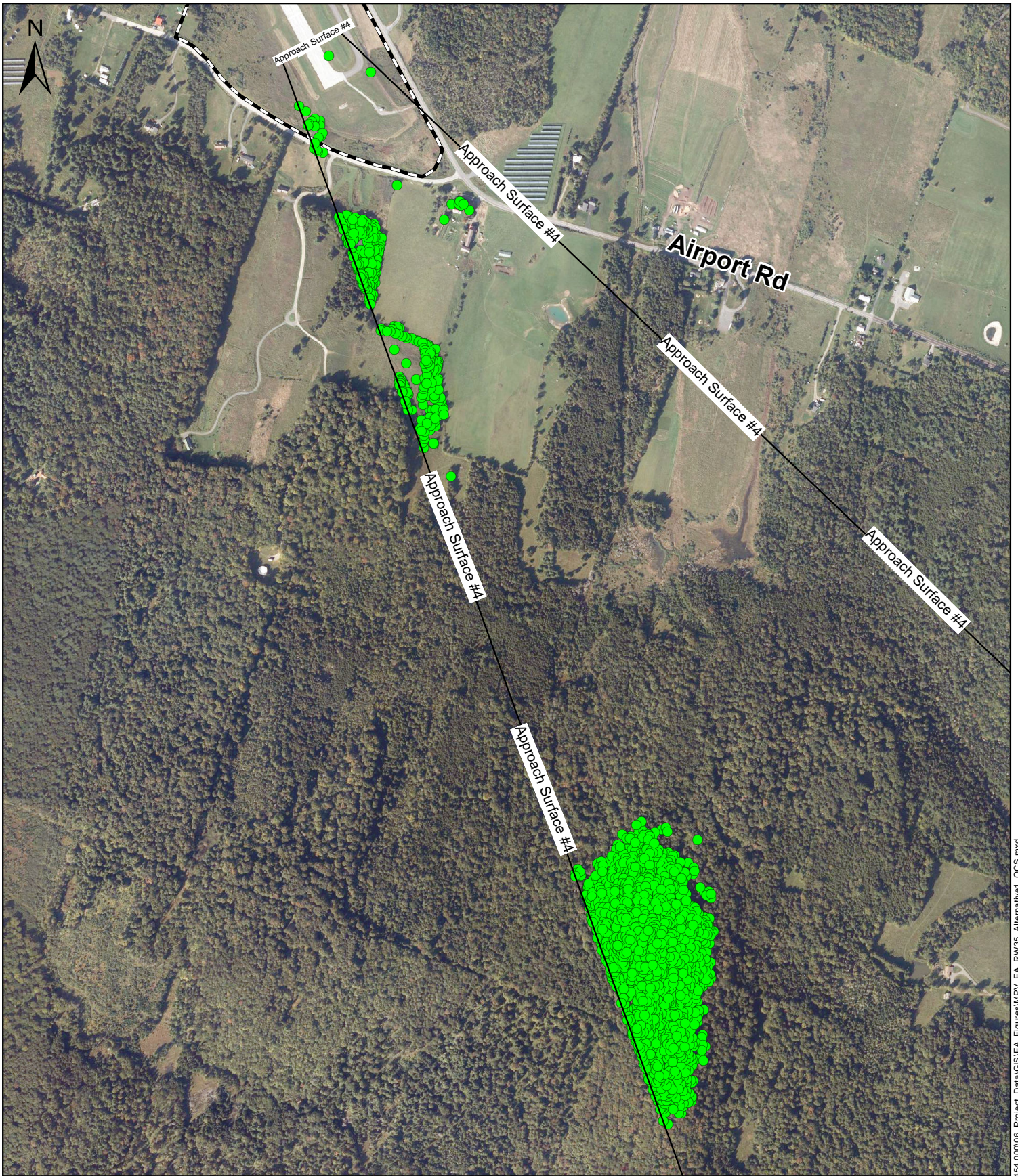
Alternative 1: Remove All MALSR & Approach Surface Penetrations to Runway 17-35	
Description: Alternative 1 would remove MALSR plane obstructions to Runway 17 and Approach Surface obstructions to Runway 17 and 35 totaling 29.5 acres of tree removal.	
Advantages	Disadvantages
<ul style="list-style-type: none"> • Meets the Purpose and Need of the project • Clears tree obstructions within the FAA’s required design surfaces • Reduces costs and environmental impacts when compared to clearing all of Part 77 	<ul style="list-style-type: none"> • Requires the clearing of approximately 29.5 acres of trees, both on and off Airport property • Requires the acquisition of avigation easements from approximately 5 properties in the Runway 35 approach and as many as 3 private properties within the 17 approach • Tree obstructions with the Part 77 surface would remain • Tree clearing would be within 1.5 acres of wetlands and approximately 1.3 acres of buffer*

*0.73 acres of wetland/buffer accounted for was not officially delineated

3.2.2 Alternative 2: Hybrid Removal - Clear MALSR Light Plane & Part 77 Surface Penetrations to Runway 17 & Only Approach Surface Penetrations to Runway 35 (Sponsor’s Proposed Action)

Alternative 2 is a hybrid approach to clearing the obstructions for Runway 17-35. As part of Alternative 2, the MALSR light plane and Part 77 penetrations for Runway 17 would be removed (50:1 slope) and like Alternative 1, only Approach Surface #4 (20:1) penetrations for Runway 35 would be addressed. To clear all Part 77 penetrations within the Runway 35 approach, more than 115 acres of tree removal would be required. Clearing Part 77 for the Runway 17 end would only add an additional 2 acres of tree clearing and the removal of a light pole. Since Runway 17 is the preferred landing direction during adverse weather conditions and has the lowest minimums, clearing Part 77 would be a prudent action by VTrans if avigation easements can be acquired.

The Runway 17 FAR Part 77 Approach Surface begins 200 feet beyond the Runway end and extends outward and upward at a 50:1 slope for 10,000 feet and then at a 40:1 slope for an additional 40,000 feet. **Figure 3-4** depicts the objects penetrating the MALSR light plane and Runway 17 Part 77 Approach Surface, as well as all tree objects 10 feet below the surface. The surface penetrations range from at or



Legend




-  Airport Property Boundary
-  Approach Surface
-  Obstruction


Figure 3-3
Alternative 1: Clear Runway 35
Approach Surface

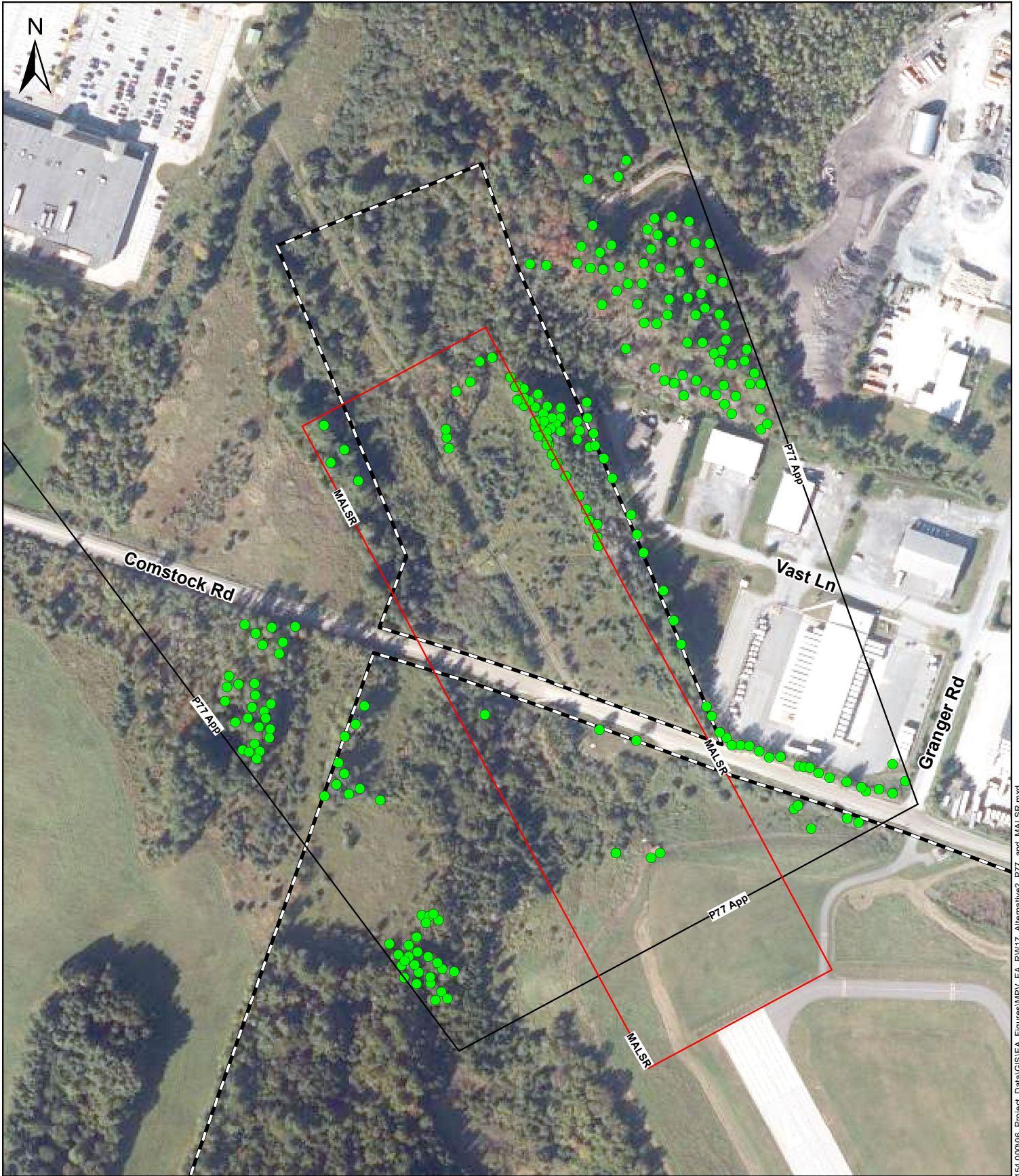
E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 200 400 800
 Feet

Sources: VTGIS, CHA (2021)





Legend





-  Airport Property Boundary
-  Part 77 Approach Surface (P77 App)
-  Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights Surface (MALSRS)
-  Obstruction



Figure 3-4
Alternative 2: Clear Runway 17
P77 App and MALSRS Surfaces

E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 50 100 200
 Feet

Sources: VTGIS, CHA (2021)

near zero (i.e., equal with the surface elevation) to approximately 30 feet above the surface. As shown, most of the objects are located north of Comstock Road, adjacent to the Runway 17 approach lighting system. While several the objects are located on Airport property, several are located off Airport-owned property. Although most objects shown are trees, a light pole located within the FedEx Freight parking lot at the corner of Granger and Comstock Road, as well as a portion of Comstock Road, penetrate the surface by just over one foot.¹ The total tree removal required for Runway 17 as part of Alternative 2 is approximately 4.8 acres.

The Runway 35 approach, like Alternative 1, will clear Approach Surface #4 requiring the removal of approximately 28 acres of trees. Alternative 2 will include tree clearing on approximately 10 private parcels, requiring avigation easements to access and clear the properties. The following table highlights the potential advantages and disadvantages of Alternative 2.

Alternative 2: Hybrid Removal - Clear MALSR Light Plane & Part 77 Penetrations to Runway 17 & Approach Surface Penetrations to Runway 35	
Description: Alternative 2 would remove the MALSR and Part 77 obstructions within the Runway 17 approach and Approach Surface #4 penetrations within the Runway 35 approach totaling 32.8 acres of tree removal.	
Advantages	Disadvantages
<ul style="list-style-type: none"> • Meets Purpose & Need • Satisfies threshold siting criteria • Runway 17 Part 77 penetrations would be removed 	<ul style="list-style-type: none"> • Requires the clearing of 32.8 acres of trees, both on and off Airport property • Requires the acquisition of avigation easements from approximately 5 properties in the Runway 35 approach and as many as 5 private properties within the 17 approach • Tree obstructions with the Runway 35 Part 77 surface would remain • Tree clearing would be within 4.4 acres of wetlands and approximately 1.8 acres of buffer*

*0.73 acres of wetland/buffer accounted for was not officially delineated

To access the privately owned properties, the Airport will seek permanent ‘avigation’ easements from affected property owners. Avigation easements refer to a permanent conveyance of airspace from a property owner to the Airport, granting the removal of obstructions to a defined airspace surface. These easements involve appraisals, negotiation with the individual property owner, and acquisition of the perpetual rights to remove existing tree obstructions and prevent future obstructions. If a landowner declines to enter into an agreement with the Sponsor to remove the obstructions on his/her property, the obstruction will most likely remain, which could have impacts to either runway end. To reduce potential

¹A traverse way elevation of 10 feet for private roads, 15 feet for public roads, and 17 feet for interstate highways is added to all roadways per FAR Part 77.

activities on private properties, small trees and underbrush that are not in danger of becoming obstructions in the near future would be retained. In addition, the following provisions would be part of both Alternative 1 and 2:

- In undeveloped locations and wetland areas, tree stumps would be left in place to minimize ground disturbance and potential erosion. No equipment would be permitted within delineated wetlands and hand trimming and removal would be required.
- In developed locations, if requested by landowners, tree stumps may be removed (via grinding), with minor grading and seeding, removal of woodchips, and general restoration (i.e., clean-up).

Overall, the tree obstruction removal approach and methods would vary based on site conditions, environmental sensitivity, and land use, with the detailed methodology determined during the design and permitting process. Removals are typically conducted during winter (November through March) and when frozen ground reduces temporary construction impacts. Winter removals are also beneficial to reduce impacts to bat, bird, and plant species.

3.2.3 Alternative 3: No-Action Alternative

The No Action Alternative retains all obstructions as is, with VTrans taking no action to address airspace hazards. The existing trees and other obstructions would continue to remain as penetrations to the local airspace. As this option results in potential dangers to users of the airport, it is not desirable from the perspective of the flying public. Mitigating potential airspace hazards is an important mission of VTrans and FAA. Although this alternative fails to improve safety for operating aircraft at the airport, it serves as the baseline for comparison to the build alternatives.

The No Action Alternative has the least potential impact to the environment and effect on property owners, as there are no actions involved. This option also has no implementation costs. The No Action alternative cannot be selected as the preferred action as it would violate the airport's federal obligations for hazard removal and mitigation. Airports developed or improved with federal funds are obligated to prevent the growth or establishment of obstructions in the approaches to the airport and to take reasonable actions to remove existing obstructions. This requirement is discussed in the FAA Airport Compliance Manual (FAA Order 5190.6B), which sets forth policies and procedures to be followed by public airports. This requirement is also listed in federal grant assurance No. 20, Hazard Removal and Mitigation of the Airport Improvement Program (AIP), per Federal Statute 49 U.S.C., Section 47101.

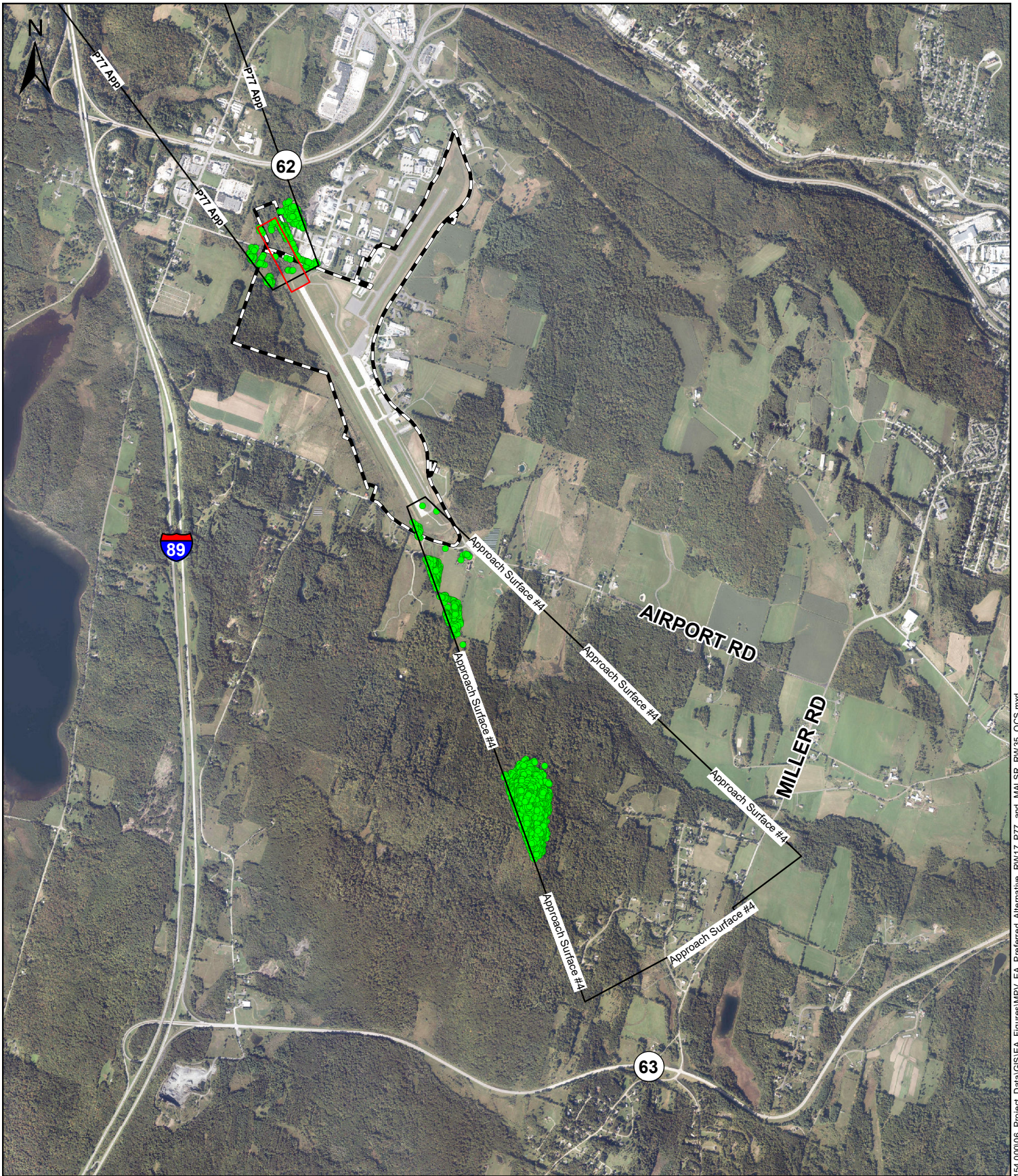
It is also noted that the No Action Alternative does not eliminate potential environmental and social impacts. Potential aircraft incidents could create environmental damage to wetlands, habitat, and endanger emergency responders and even persons and property on the ground. The following table highlights potential advantages and disadvantages of the No Action Alternative.

Alternative 3: No-Action Alternative	
<p>Description: Alternative 3 minimizes environmental impacts as it takes no action to remove, lower, mark, or mitigate existing or potential future airspace tree obstructions. The existing obstructions would remain and continue to grow.</p>	
Advantages	Disadvantages
<ul style="list-style-type: none"> • No wetland impacts (temporary or permanent) • No impacts to biological resources • No impacts or disturbance to property • No project costs • No need for avigation easements 	<ul style="list-style-type: none"> • Retains obstructions to the airspace for Runway 17-35 • Does not improve compliance with FAA design standards or grant assurances • Risks future FAA funding for improvements to the Airport





3.3 SPONSOR’S PREFERRED ALTERNATIVE

Based on the evaluation identified in this section, Alternative 2 (Hybrid Removal) has been chosen as the Sponsor’s Preferred Alternative (see **Figure 3-5**). The Sponsor’s Preferred Alternative will clear approximately 4.8 acres of trees within the Runway 17 approach and 28 acres of trees within the Runway 35 approach. The obstruction clearing will remove the tree, grind the stump, replace topsoil and seed. Within wetlands and their buffer, as well as any of the identified archeological sensitive areas (ASA), the tree stumps would be left in place and the trees would be cut by hand. Any smaller trees and understory would remain. There would be no mechanical equipment allowed within the wetlands or ASAs. Although Alternative 2 does have more clearing within wetlands and buffer, the methods of removal within those wetlands will limit impacts. Clearing Part 77 within the Runway 17 approach will provide clear surfaces for all required FAA design surfaces.

This alternative balances the Airport’s needs and safety while considering environmental considerations, minimizes both cost and private property disturbance, and meets the purpose and need to provide clear airspace and improve compliance with FAA design standards and regulations. Therefore, the EA will carry forward Alternative 2 and the No-Action Alternative for further analysis.



Legend

-  Airport Property Boundary
-  Part 77 Approach Surface (P77 App)/ Approach Surfaces
-  Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights Surface (MALSR)
-  Obstruction

**Figure 3-5
Preferred Alternative**

E.F. Knapp State Airport
Runway 17/35 Obstruction Removal EA



0 600 1,200 2,400
Feet

Sources: VTGIS, CHA (2021)



4 AFFECTED ENVIRONMENT

The following background information is provided to establish the context of the surrounding community as it relates to MPV. The issues addressed in this section consist of a description of land uses; natural resources, cultural resources; and regional population data and economic statistics. The information provided in this chapter serves as the basis for the assessment of potential environmental, social, and economic impacts in Chapter 5.

4.1 STUDY AREA

As part of this EA, two (2) study areas were defined to assess the potential direct and indirect impacts of the Proposed Action and any alternatives on environmental resources. The detailed study area identifies the areas that may be physically disturbed with the development of the Proposed Action (e.g., ground disturbance). The generalized study area includes the areas surrounding the Proposed Action components that may not be physically altered, but account for resources that may be affected by the Proposed Action.

4.1.1 Generalized Study Area

The generalized study area includes the communities surrounding the airport, as well as the specific land use, community facilities, cultural resources, and zoning (see **Figure 4-1**). This GSA includes portions of the Towns of Berlin and Barre. The generalized study area is bounded by Vietnam Veterans Memorial Highway (Route 89) on the west, Route 63 on the south, portions of Airport Road and Miller Road to the east, and Route 62 to the north.

4.1.2 Detailed Study Area

The detailed study area, which covers a much smaller area, includes the land areas that may be physically disturbed by the proposed project. A detailed study area boundary was developed using the anticipated impacts for the project. The detailed study area consists of the proposed tree clearing areas off both ends of Runway 17 and 35 (see **Figure 4-2**).

4.2 AIR QUALITY

In accordance with the Clean Air Act (CAA) Amendments of 1990, all areas within Vermont are designated with respect to compliance, or degree of noncompliance, with the National Ambient Air Quality Standards (NAAQS). NAAQS have been established for carbon monoxide (CO), sulfur oxides (SO_x), nitrogen oxides (NO_x), ozone (O₃), particulate matter with a diameter of ten microns or less (PM), and lead (Pb) (see **Table 4-1**). These designations are either attainment, nonattainment, or unclassifiable. An area with air quality better than the NAAQS is designated as “attainment;” an area with air quality worse than the NAAQS is designated as “non-attainment.” Non-attainment areas are further classified as extreme, severe, serious, moderate, and marginal. An area may be designated as unclassifiable when there is a lack of data to form a basis of attainment status.



Legend





-  Airport Property Boundary
-  County Boundary
-  Municipal Boundary
-  Generalized Study Area

Figure 4-1
Generalized Study Area

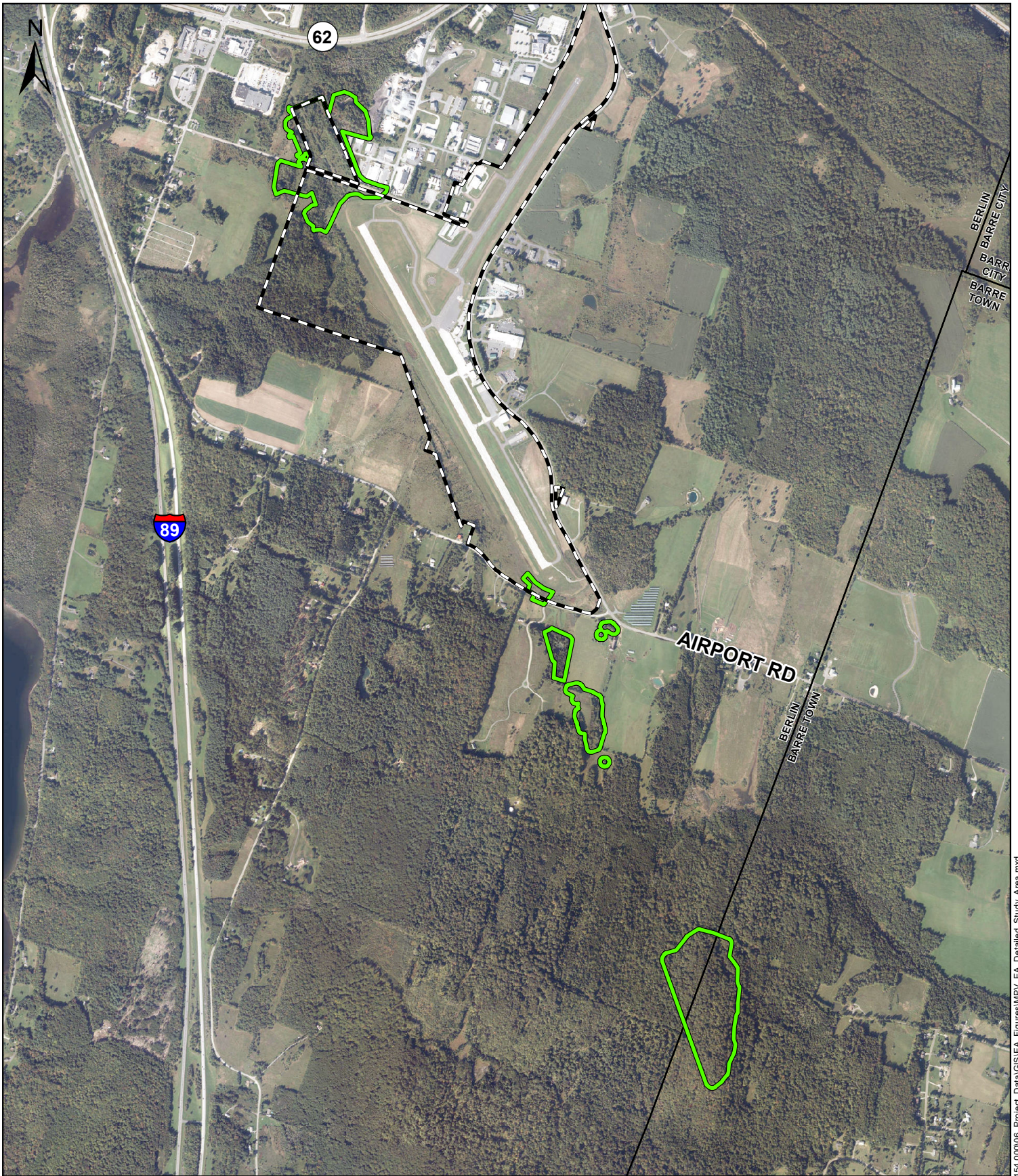
E.F. Knapp State Airport
Runway 17/35 Obstruction Removal EA






0 600 1,200 2,400
Feet

Sources: VTGIS, CHA (2021)





Legend

-  Airport Property Boundary
-  Municipal Boundary
-  Detailed Study Area

**Figure 4-2
Detailed Study Area**

E.F. Knapp State Airport
Runway 17/35 Obstruction Removal EA



0 400 800 1,600
Feet

Sources: VTGIS, CHA (2021)



Table 4-1: National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary/Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8-hour	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
Lead (Pb)	Primary & Secondary	3-month average	0.15 µg/m ³	Not to be exceeded
Nitrogen Dioxide (NO ₂)	Primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Primary & Secondary	1-year	53 ppb	
Ozone (O ₃)	Primary & Secondary	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
		1-year	12.0 µg/m ³	Annual mean, averaged over 3 years
Particulate Matter (PM _{2.5})	Secondary	1-year	15.0 µg/m ³	98th percentile, averaged over 3 years
	Primary & Secondary	24-hour	35 µg/m ³	Not to be exceeded more than once per year
Particulate Matter (PM ₁₀)	Primary & Secondary	24-hours	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
		1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
Sulfur Dioxide (SO ₂)	Primary	1-hour	75 ppb	Not to be exceeded more than once per year
	Secondary	3-hour	0.5 ppm	

Source: U.S. EPA; CFR, Title 40, Part 50, Section 121

4.2.1 Attainment/Non-Attainment Status

According to the U.S. Environmental Protection Agency (EPA), Washington County is in attainment for all criteria pollutants.

4.3 EXISTING NOISE

The FAA has adopted land use compatibility guidelines for preparing airport noise studies. According to federal regulations, a Day-Night Average Noise Level (DNL) below 65 decibels (dB) is compatible with all land uses. In comparison, noise levels between DNL 65 and 75 are considered incompatible with residential areas and schools but compatible with other activities. Within the DNL 65 to 75 dB range, homes and schools could be insulated to achieve an outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB. However, in areas with a DNL over 75, residential land use is considered incompatible. DNL levels over 75 are also regarded as incompatible with hospitals, places of worship, and recreational activities.

Normally, a noise analysis assesses the effects of airport development having the potential to cause aircraft noise outside the airport’s boundaries. For most actions, if the DNL 65 dbA contour lies entirely within the airport boundaries, a noise analysis is not required. According to VTrans, there has never been an aircraft noise analysis completed for MPV. Based on the fleet mix utilizing the Airport, as well as

farmland and commercial with limited residential and other non-compatible land uses immediately adjacent to Airport property, the existing noise from aircraft does not impact off-airport resources.

4.4 LAND USE & ZONING

The existing land use patterns on and around the Airport were identified primarily through the review of Geographic Information System (GIS) databases supplied by VT GIS. Aerial photography and GIS databases provided relevant information for the base map, such as parcels, roads, and other land uses. The subsections describe existing land use in terms of generalized land use patterns, land use plans and land use controls.

4.4.1 Land Use

According to VT GIS data, the specific land uses within the GSA are farm, residential, woodland, industrial and commercial (see **Figure 4-3**). A portion of the southern project area is within area designated as Private Conservation Land (Vermont Land Trust Conservation Easement) (**Figure 4-4**). The conservation easement over the Dodge Farm property includes 25 acres of tillable land, 7.7 acres of pasture, 137 acres of forest, 2 acres of an existing barn complex, and 3.2 acres classified as “development zone”. The total protected property is 176.4 acres with 129 acres excluded from the easement (see **Appendix C**).

4.4.2 Zoning

Figure 4-5 depicts the existing zoning within the study area, which includes portions of the Town of Berlin and Barre. The portions of the GSA within the Town of Berlin are zoned as industrial, rural, residential, and mixed Use/town center. The remaining portions of the GSA within the Town of Barre are zoned as residential, conservation and industrial.

In addition, the Town of Belin has an airport overlay district which protects operations at the Airport and ensures a compatible relationship between the Airport and proposed development within the zones. Portions of the proposed clearing areas are within the airport overlay district.

4.4.3 Schools

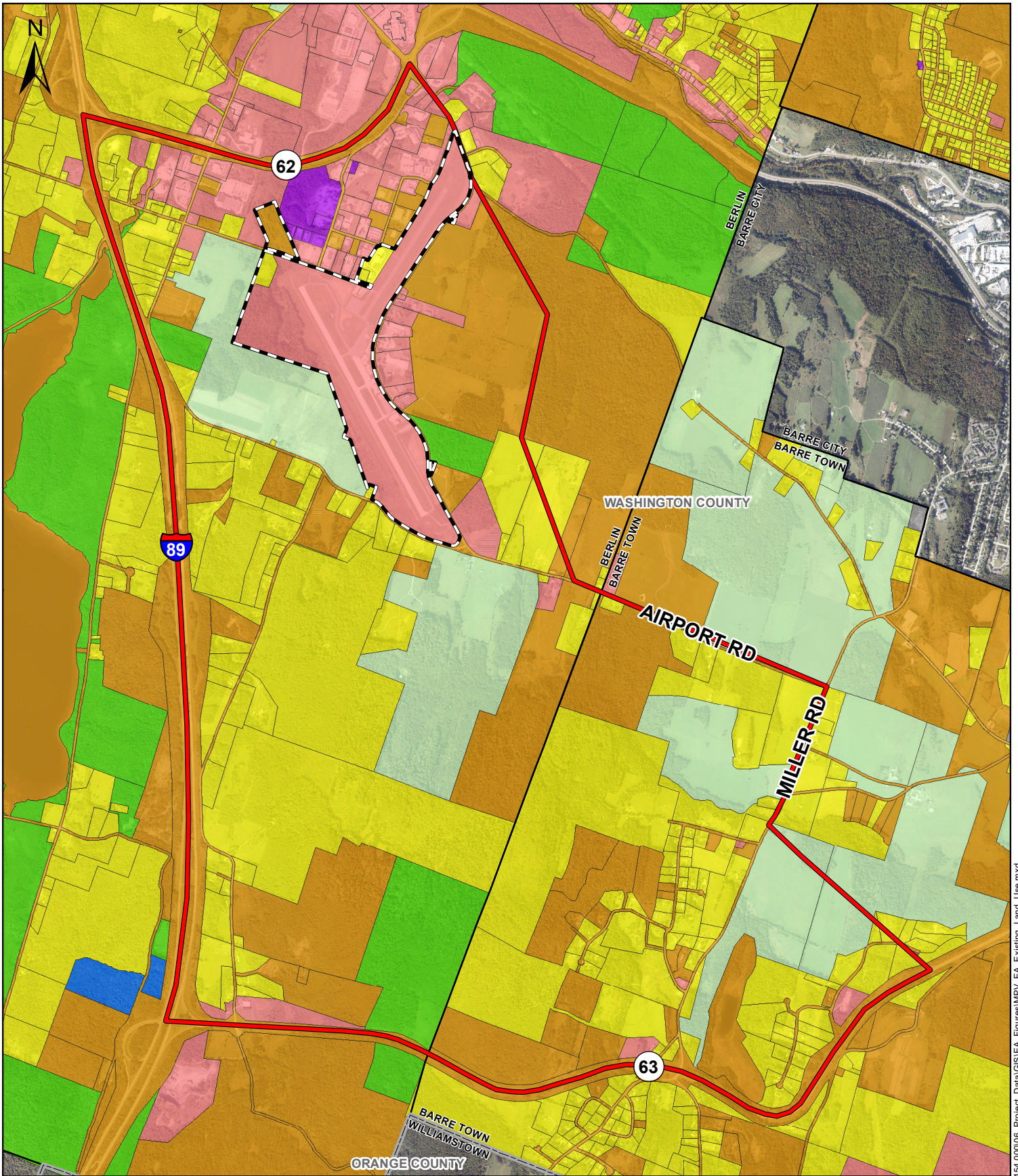
There are no schools within the GSA. However, the Berlin Elementary School is located on Paine Turnpike N, just north of the GSA. This is a PreK-6 school of 220 students.

4.4.4 Religious Institutions

There are two churches located within the GSA. The Kingdom Hall of Jehovah’s Witnesses is located east of the Airport within The Town of Berlin and the First Congressional Church is located west of the Airport within the Town of Berlin.

4.4.5 Wildlife Attractants

Based on review of the Vermont Agency of Natural Resources (ANR) Natural Resource Atlas, there are no active solid waste landfills near the Airport, and the nearest wastewater treatment facility is approximately 1.3 miles north of the Airport (Montpelier Water Treatment Plant). As noted in FAA AC 150/5200-33B: *Wildlife Attractants*, solid yard waste compost and enclosed transfer/recycling facilities generally do not attract hazardous wildlife and are therefore generally compatible with safe airport operations. There are no landfills, wastewater treatment, or other facilities expected to attract wildlife hazards within the GSA.



Legend

- Airport Property Boundary
- County Boundary
- Municipal Boundary
- Generalized Study Area
- Land Use**
- Commercial
- Residential
- Farm
- Industrial
- Miscellaneous/Unknown
- Seasonal Recreation
- Utilities
- Woodland

Figure 4-3
Existing Land Use

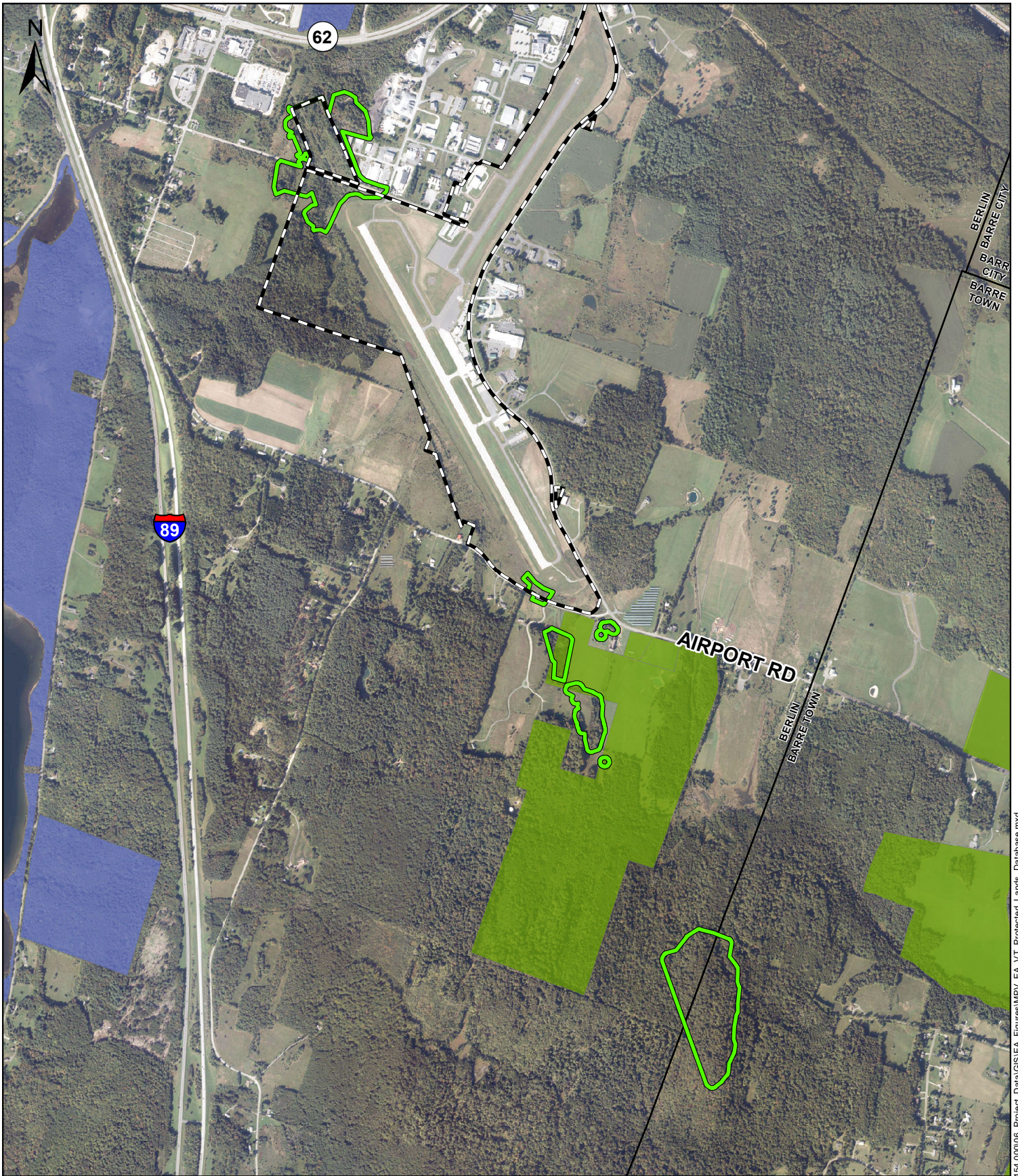
E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 600 1,200 2,400
 Feet

Sources: VTGIS, CHA (2021)





Legend

- Airport Property Boundary
- Municipal Boundary
- Detailed Study Area

Vermont Protected Lands Database

- Vermont Land Trust Easement
- Other

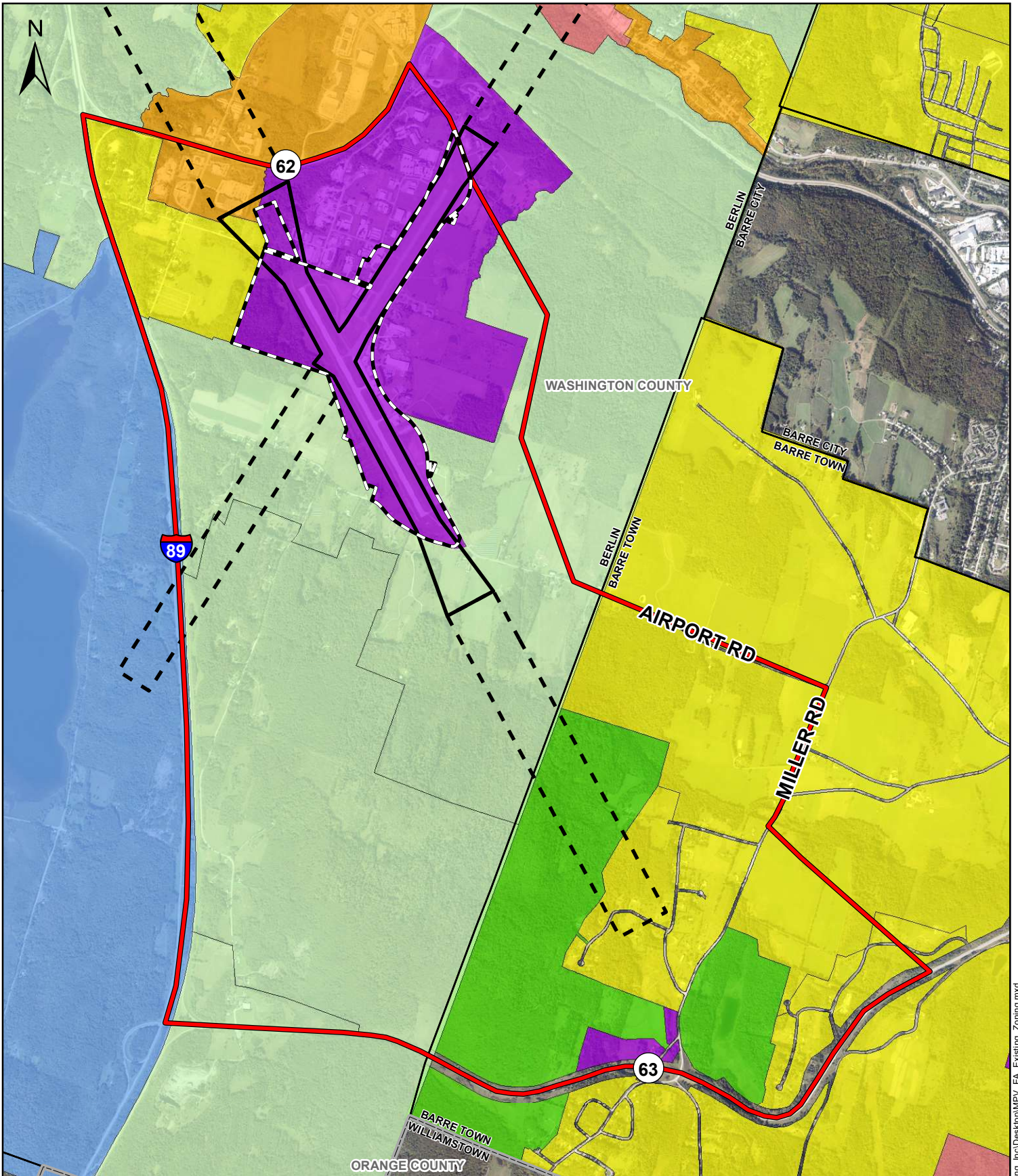
Figure 4-4
Vermont Protected
Lands Database

E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 400 800 1,600
 Feet

Sources: VTGIS, CHA (2021)

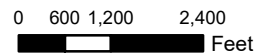


Legend

- Airport Property Boundary
- County Boundary
- Municipal Boundary
- Generalized Study Area
- Town of Barre Zoning**
- Commercial/Retail
- Conservation
- Earth Resource Extraction
- Industrial
- Residential
- Town of Berlin Zoning**
- Commercial
- Hamlet
- Industrial
- Mixed Use/Town Center
- Residential
- Shoreland Conservation
- Upland Conservation
- Airport Overlay Zone 1
- Airport Overlay Zone 2

Figure 4-5
Existing Zoning

E.F. Knapp State Airport
Runway 17/35 Obstruction Removal EA



Sources: VTGIS, CHA (2021)



4.5 BIOLOGICAL RESOURCES

Section 7(c) of the Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.) requires that the potential impacts to rare, threatened, and endangered species of flora and fauna and their critical habitats be identified to avoid adverse impacts to these species. The U.S. Fish & Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) website and the ANR Natural Resource Atlas were reviewed, and the ANR Vermont Fish & Wildlife Department was contacted to determine the potential for rare, threatened, or endangered species to occur within the detailed study area.

4.5.1 Federally Protected Species

The IPaC website was reviewed for federally listed species. The website indicated that the northern long-eared bat (*Myotis septentrionalis*), a threatened species, and the monarch butterfly (*Danaus plexippus*), a candidate species may occur or could potentially be affected by activities at the project location (**Appendix B**). No critical habitats have been identified within the project area.

According to the USFWS, the required habitat for northern long-eared bats is as follows: After hibernation ends in late March or early April, most northern long-eared bats migrate to summer roosts. The active season is the period between emergence and hibernation from April 1 through October 31. Suitable summer habitat consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats. This included forests and woodlots containing potential roosts, as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. They roost in cavities, underneath bark, crevices, or hollows of both live and dead trees and/or snags (typically \geq 3-inches diameter at breast height (dbh)). They are known to use a wide variety of roost types, using tree species based on presence of cavities and crevices or presence of peeling bark. They have also been occasionally found roosting in structures like buildings, barns, sheds, houses, and bridges.

According to the USFWS, the monarch butterfly can be found in a variety of habitats where it searches for milkweed (*Asclepias spp.*), which is its host plant. Based on the spring and fall migration map, the state of Vermont is in the summer breeding area.

4.5.2 Migratory Birds

The USFWS IPaC also identified a list of Birds of Conservation Concern that may be affected by the proposed project (**Appendix B**). Those birds are listed below:

- Bald Eagle (*Haliaeetus leucocephalus*)
- Black-billed Cuckoo (*Coccyzus erythrophthalmus*)
- Bobolink (*Dolichonyx oryzivorus*)
- Canada Warbler (*Wilsonia canadensis*)
- Evening Grosbeak (*Coccothraustes vespertinus*)
- Lesser Yellowlegs (*Tringa flavipes*)
- Olive-sided Flycatcher (*Contopus cooperi*)
- Wood Thrush (*Hylocichla mustelina*)

4.5.3 State Protected Species

The ANR Natural Resource Atlas identified the presence of a listed animal at the southern end of the runway. Therefore, the ANR Vermont Fish & Wildlife Department was contacted to obtain additional information. The ANR Vermont Fish & Wildlife Department indicated that upland sandpiper (*Bartramia longicauda*), a state Endangered grassland bird, has been observed at the Airport in grass areas on the edge of the runway and open ground (**Appendix B**). They also noted that there are no nearby records of northern long-eared bat hibernaculum or maternity roost trees, however, all existing forest in Vermont is considered potential summer habitat for the northern long-eared bat. No other rare, threatened, or endangered species were identified.

According to the *Vermont Grassland Bird Management and Recovery Plan* (2014), the upland sandpiper prefers open grassland for breeding, but has also been reported breeding in blueberry barenens. Taller grasses are used for nesting and areas of short grasses are used for brood rearing and feeding. Vegetative communities identified within the project areas consist of open upland, northern hardwood forest formation, palustrine emergent, scrub shrub and forested wetlands (including northern white cedar swamp) and vernal pools.

The ANR Natural Resource Atlas identified forest mapped as deer wintering area within the limits of the southern project area (**Figure 4-6**). This area is considered Necessary Wildlife Habitat and is protected via Vermont's Land Use and Development Law (Act 250).

According to the Vermont Fish & Wildlife Department *A Landowner's Guide- Wildlife Habitat Management for Lands in Vermont* (2014), white-tailed deer use specific habitat in the winter, when severe climatic conditions become a threat. Areas that are used year after year by deer seeking winter shelter are designated wintering areas. This guide indicates that "The management goal for all deer wintering areas, regardless of species composition, is to prolong the useful life of the habitat by:

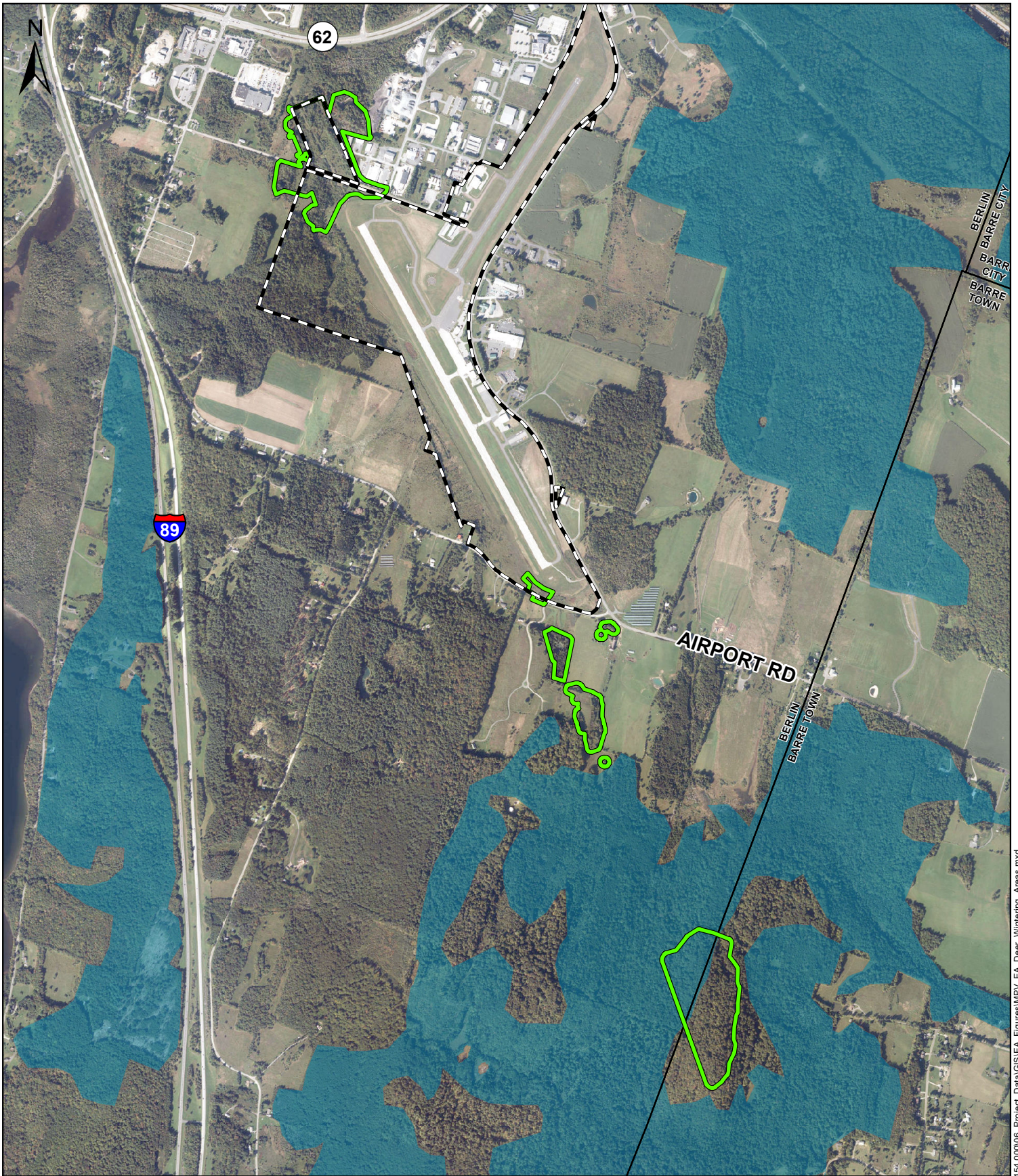
- Perpetuating softwood shelter through appropriate timber harvests using single tree and small group selection harvests, focused on releasing advanced softwood regeneration.
- Maintaining deer mobility and access throughout all non-regenerating segments of the wintering area; and
- Providing preferred, accessible browse, where appropriate and without compromising the softwood cover."

4.5.4 Invasive Plant Species

Invasive plant species were noted within the study area. Some of those species include common buckthorn (*Rhamnus cathartica*), morrow's honeysuckle (*Lonicera morrowii*), reed canary grass (*Phalaris arundinacea*) and purple loosestrife (*Lythrum salicaria*).

4.6 COASTAL ZONES

The U.S. Congress recognized the importance of meeting the challenge of continued growth in the coastal zone by passing the Coastal Zone Management Act (CZMA) in 1972. This act, administered by the National Oceanic and Atmospheric Administration (NOAA), provides for the management of the nation's coastal resources, including the Great Lakes. The goal of the Act is to "preserve, protect, develop, and where



Legend


-  Airport Property Boundary
-  Municipal Boundary
-  Detailed Study Area
-  Deer Wintering Area

Figure 4-6
Deering Wintering Area
 E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 400 800 1,600
 Feet

Sources: VTGIS, CHA (2021)



possible, to restore or enhance the resources of the nation’s coastal zone.” Federal agencies must determine if a proposed action impacts coastal resources in a state with an approved coastal zone management program. The state of Vermont has not developed a Coastal Zone Management Program given that the state does not lie in a coastal zone.

4.7 CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to consider the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by the ACHP. Revised regulations, Protection of Historic Properties (36 CFR Part 800), became effective January 11, 2001.

4.7.1 Area of Potential Effect

To consider the effect an undertaking may have on properties listed on or eligible for listing on the National Register of Historic Places (NRHP), an Area of Potential Effect (APE) must first be identified. According to 36 CFR Part 800.16(d), the APE is the geographic area or areas within which an undertaking may directly or indirectly alter the character or use of historic properties. Such changes may include physical destruction, damage, or alteration of a property; change in the character of the property’s use or of physical features within its setting that contribute to its historic significance; and introduction of visual, atmospheric, or audible elements that diminish the integrity of the property’s significant historic features [36 CFR 800.5(a)(2)]. The direct APE for the project has been limited to the proposed tree clearing areas or the detailed study area. An Archeological Resource Assessment (ARA) was completed on the direct APE in August 2021 and amended in December 2021 pursuant to the guidelines set forth by the Vermont Division of Historic Preservation (VDHP) (see **Appendix C**). In addition, an indirect APE was prepared for above ground resources within the viewshed of the proposed obstruction clearing. The results are discussed in the following subsections.

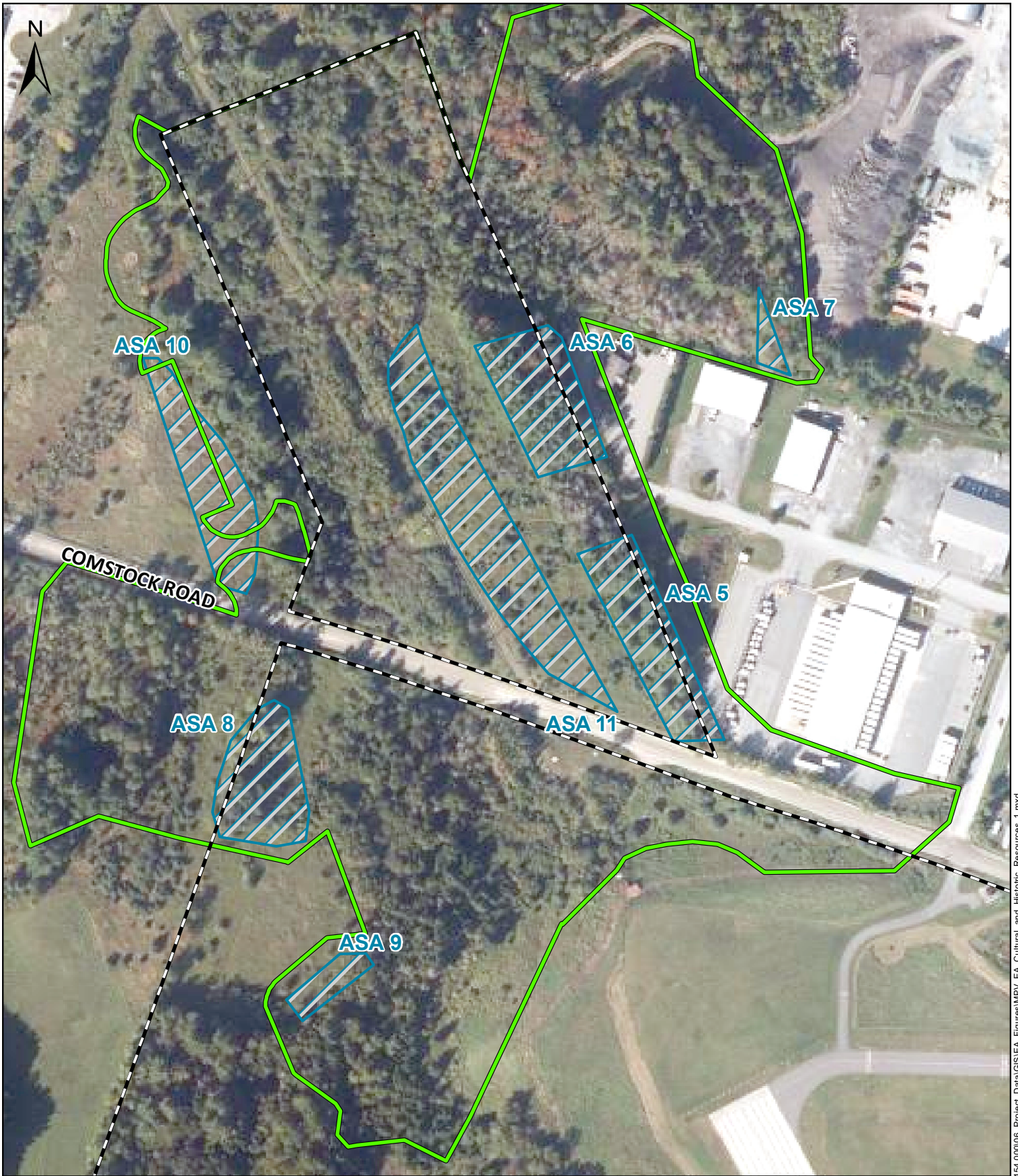
4.7.2 Archeological Resources

The ARA was completed to determine if areas within the APE are sensitive for the presence of pre- or post-contact archaeological sites, or to show that archaeological resources of potential significance are unlikely to be present. Based on the ARA, eleven (11) archaeologically sensitive areas (ASAs) were identified (see **Figures 4-7** through **4-9**). All 11 of the ASAs are sensitive for pre-contact Native American archaeology and ASA 4, which includes a state-listed farmstead, is sensitive for both pre- and post-contact archaeology. An Archaeological Phase I survey was recommended within the ASAs where proposed ground disturbance would take place.

4.7.3 Historic Architecture

The in-direct APE contains twenty-one buildings (see **Figure 4-10**). Fifteen of these buildings are industrial or commercial buildings that have been built since 1985 and were eliminated from consideration. Of the six buildings that are at least 45 years old, three are located on airport property:

- Airport Terminal (1959)
- Vermont Flying Service Building (1946)
- former National Life Hangar (1956)



Legend




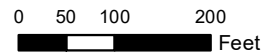
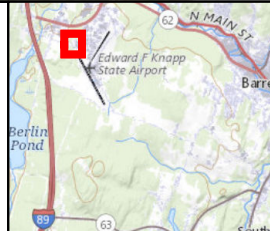
-  Airport Property Boundary
-  Detailed Study Area
-  NEARC Archaeologically Sensitive Area (ASA)

Figure 4-7
Cultural & Historic Resources

E.F. Knapp State Airport
Runway 17/35 Obstruction Removal EA



Sources: VTGIS, CHA (2021)





Legend


-  Airport Property Boundary
-  Detailed Study Area
-  NEARC Archaeologically Sensitive Area (ASA)
-  Vermont Land Trust Easement
-  Dodge Farm Property Boundary



Figure 4-8
Cultural & Historic Resources

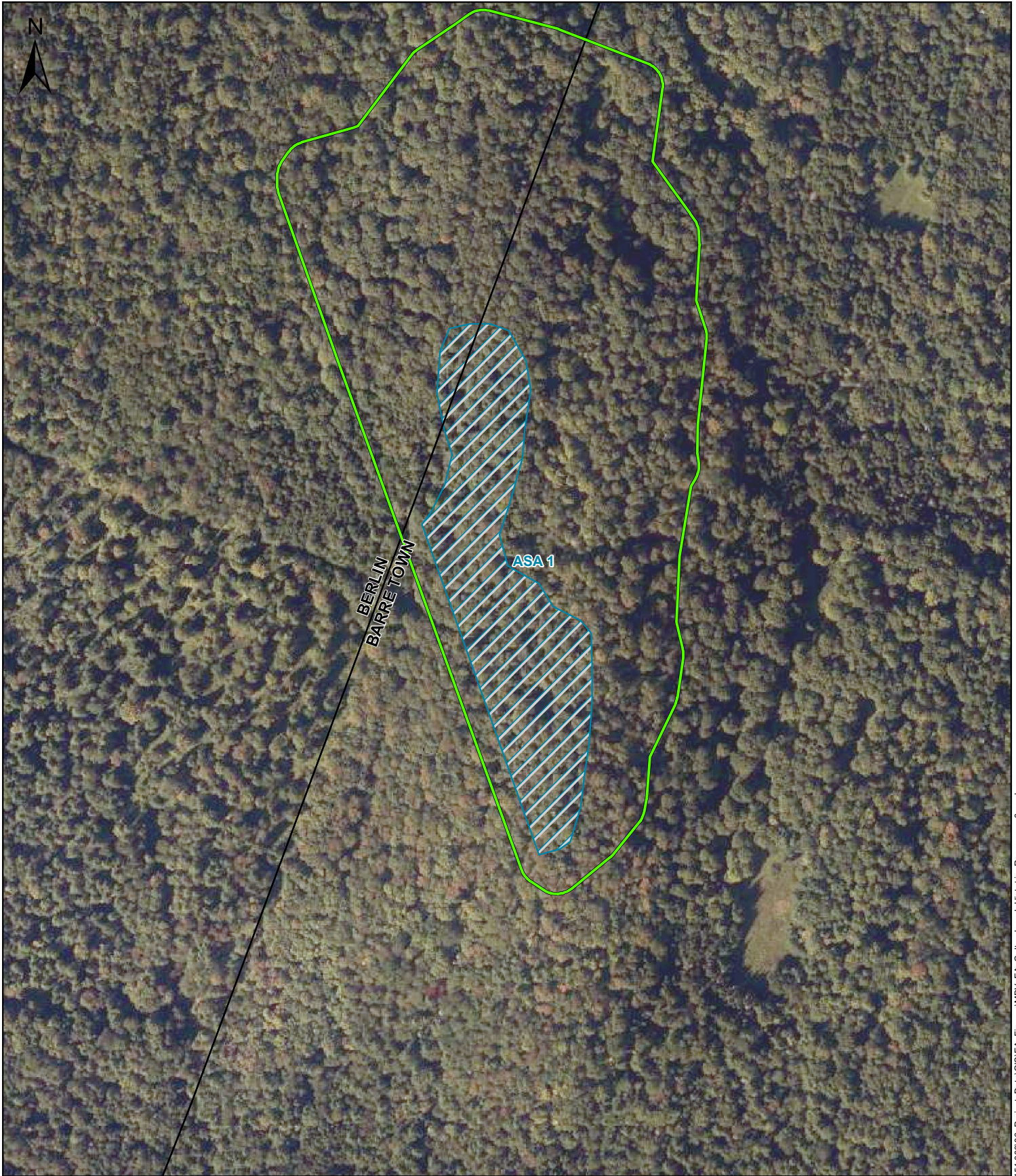
E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 50 100 200
 Feet

Sources: VTGIS, CHA (2021)



Legend




-  Municipal Boundary
-  Detailed Study Area
-  NEARC Archaeologically Sensitive Area (ASA)

Figure 4-9
Cultural & Historic Resources

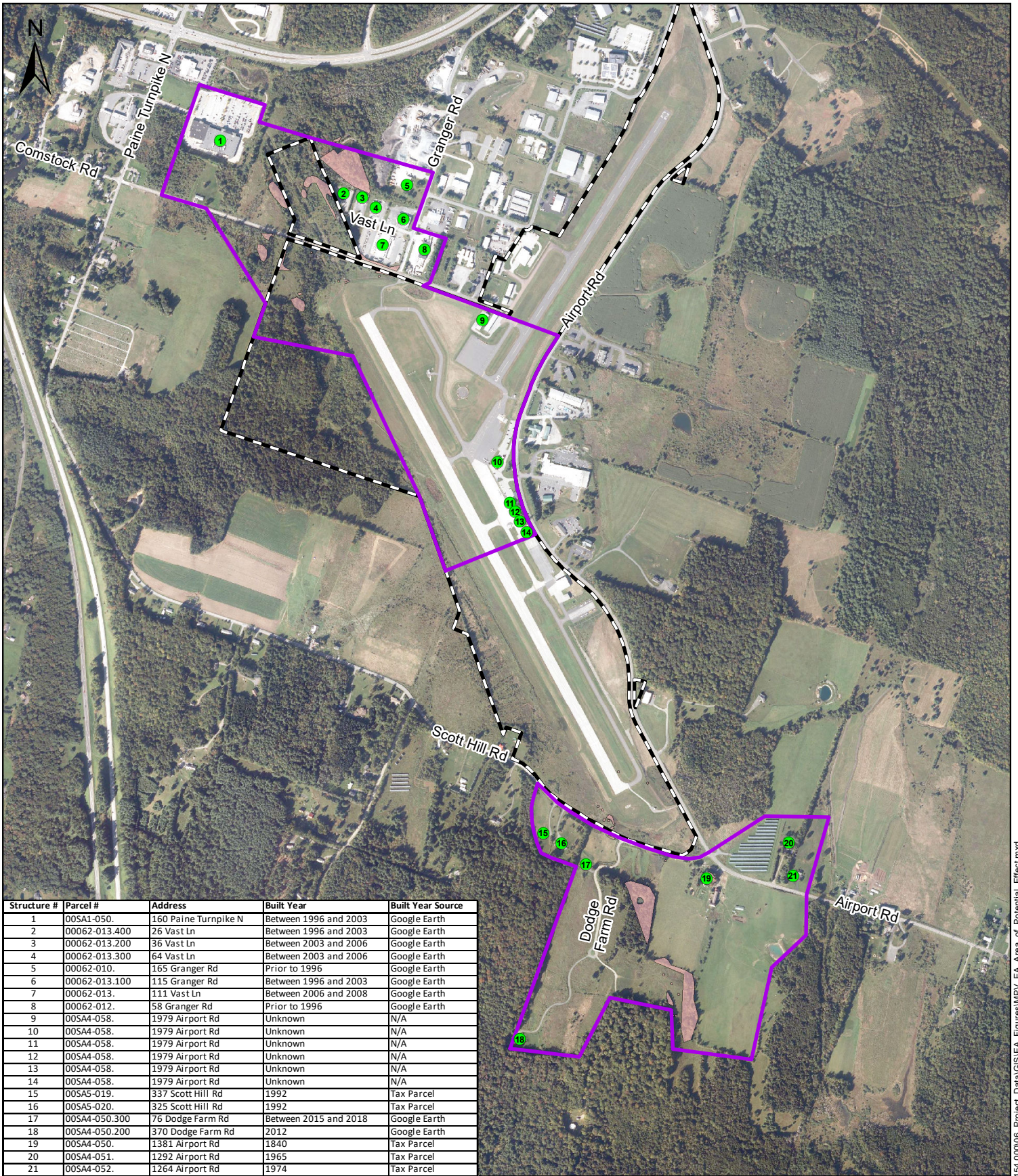
E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 50 100 200
 Feet

Sources: VTGIS, CHA (2021)



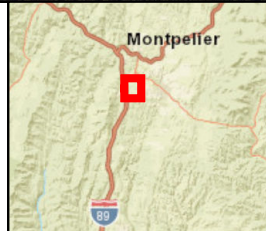


Structure #	Parcel #	Address	Built Year	Built Year Source
1	00SA1-050.	160 Paine Turnpike N	Between 1996 and 2003	Google Earth
2	00062-013.400	26 Vast Ln	Between 1996 and 2003	Google Earth
3	00062-013.200	36 Vast Ln	Between 2003 and 2006	Google Earth
4	00062-013.300	64 Vast Ln	Between 2003 and 2006	Google Earth
5	00062-010.	165 Granger Rd	Prior to 1996	Google Earth
6	00062-013.100	115 Granger Rd	Between 1996 and 2003	Google Earth
7	00062-013.	111 Vast Ln	Between 2006 and 2008	Google Earth
8	00062-012.	58 Granger Rd	Prior to 1996	Google Earth
9	00SA4-058.	1979 Airport Rd	Unknown	N/A
10	00SA4-058.	1979 Airport Rd	Unknown	N/A
11	00SA4-058.	1979 Airport Rd	Unknown	N/A
12	00SA4-058.	1979 Airport Rd	Unknown	N/A
13	00SA4-058.	1979 Airport Rd	Unknown	N/A
14	00SA4-058.	1979 Airport Rd	Unknown	N/A
15	00SA5-019.	337 Scott Hill Rd	1992	Tax Parcel
16	00SA5-020.	325 Scott Hill Rd	1992	Tax Parcel
17	00SA4-050.300	76 Dodge Farm Rd	Between 2015 and 2018	Google Earth
18	00SA4-050.200	370 Dodge Farm Rd	2012	Google Earth
19	00SA4-050.	1381 Airport Rd	1840	Tax Parcel
20	00SA4-051.	1292 Airport Rd	1965	Tax Parcel
21	00SA4-052.	1264 Airport Rd	1974	Tax Parcel

Legend

- Airport Property Boundary
- Tree Clearing Area
- Area of Potential Effect (APE)
- Structure in APE

Figure 4-10
Indirect Area of Potential Effect
 E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 300 600 1,200
 Feet

Sources: VTGIS, CHA (2021)



The remaining three historic resources within the APE are located immediately south of the airport boundary near the intersection of Airport Road and Scott Hill Road. One of these, the Dodge Farm, consists of a house and barn, both built in approximately 1840 and determined eligible for the State Register of Historic Places (Survey No. 1203-48). The other two are single-family residences. Vermont Architectural Resource Inventory Forms for these six resources were completed and sent to VDHP on January 3, 2022.

It has recommended that one of these buildings, the E.F. Knapp State Airport Terminal, is eligible for the NRHP under Criterion C (Architecture). The building was designed by the Vermont architect Gordon G. Woods and completed in 1959. It is a good example of a small-scale building in the international style and has retained excellent integrity. As state previously, the Dodge Farm has been previously determined eligible for the Vermont State Register of Historic Places. It was recommended that the building remains eligible for the State Register given its historical association with the Town of Berlin, but that it is not eligible for the NRHP due to its loss of integrity. It has modern replacement windows and doors. In addition, it was recommended that the remaining four buildings that were included in the survey are not eligible for the National Register of Historic Places (see **Appendix C**).

4.8 DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F) PROPERTIES

Section 4(f) of the Department of Transportation (DOT) Act of 1966 [recodified in 1983 as Title 49, Section 303(c) of the USC] provides for the protection of publicly owned recreational resources and requires the analysis of potential impacts to these resources arising from DOT actions. Resources protected under Section 4(f) include public parks and recreation areas, as well as wildlife and waterfowl refuges or management areas of national, state, or local significance. Section 4(f) also applies to historic sites of national, state, or local significance as determined by the official that has jurisdiction over these historic resources. Such sites include those that are listed or eligible for inclusion in the NRHP, as well as those identified by appropriate state or local agencies as having historic significance.

4.8.1 Public Parks & Recreation Areas

A review of on-line mapping and field reconnaissance indicates that there are no publicly owned parks or recreational areas within the GSA.

4.8.2 Wildlife Management Areas

According to the Vermont Interactive Map Viewer and the Wilderness Areas of the United States (wilderness.net), there are no wildlife management areas within the GSA.

4.8.3 Historic Sites

Section 106 of the NHPA, as amended, affords protection of historic sites that are on or eligible for inclusion on the NRHP. According to the ARA, 11 ASAs were identified within the detailed study area. All 11 of the ASAs are sensitive for pre-contact Native American archaeology. ASA #4 is sensitive for both pre- and post-contact archaeology because it contains the Dodge Farm property. The Dodge Farm property includes a historic farmstead that was mapped as the residence of P. Perrin in 1858 and J. E. Perrin in 1873. The farmstead is not listed on the NRHP but does appear on the VT State Register listing for Berlin (Survey No. 1203-48). As previously stated, the property is not eligible for the NRHP.

4.9 SECTION 6(F) RESOURCES

The U.S. Land and Water Conservation Fund Act of 1965 established the Land and Water Conservation Fund (LWCF), which was created to preserve, develop, and assure accessibility to outdoor recreation resources. Section 6(f) of this Act prohibits conversion of lands purchased with LWCF monies to a non-recreation use. A review of 6(f) properties on the LWCF website at <https://www.lwcfcoalition.com/tools> revealed a total of 99 properties in Washington County. None of these properties are located within or adjacent to the detailed study area.

4.10 FARMLAND

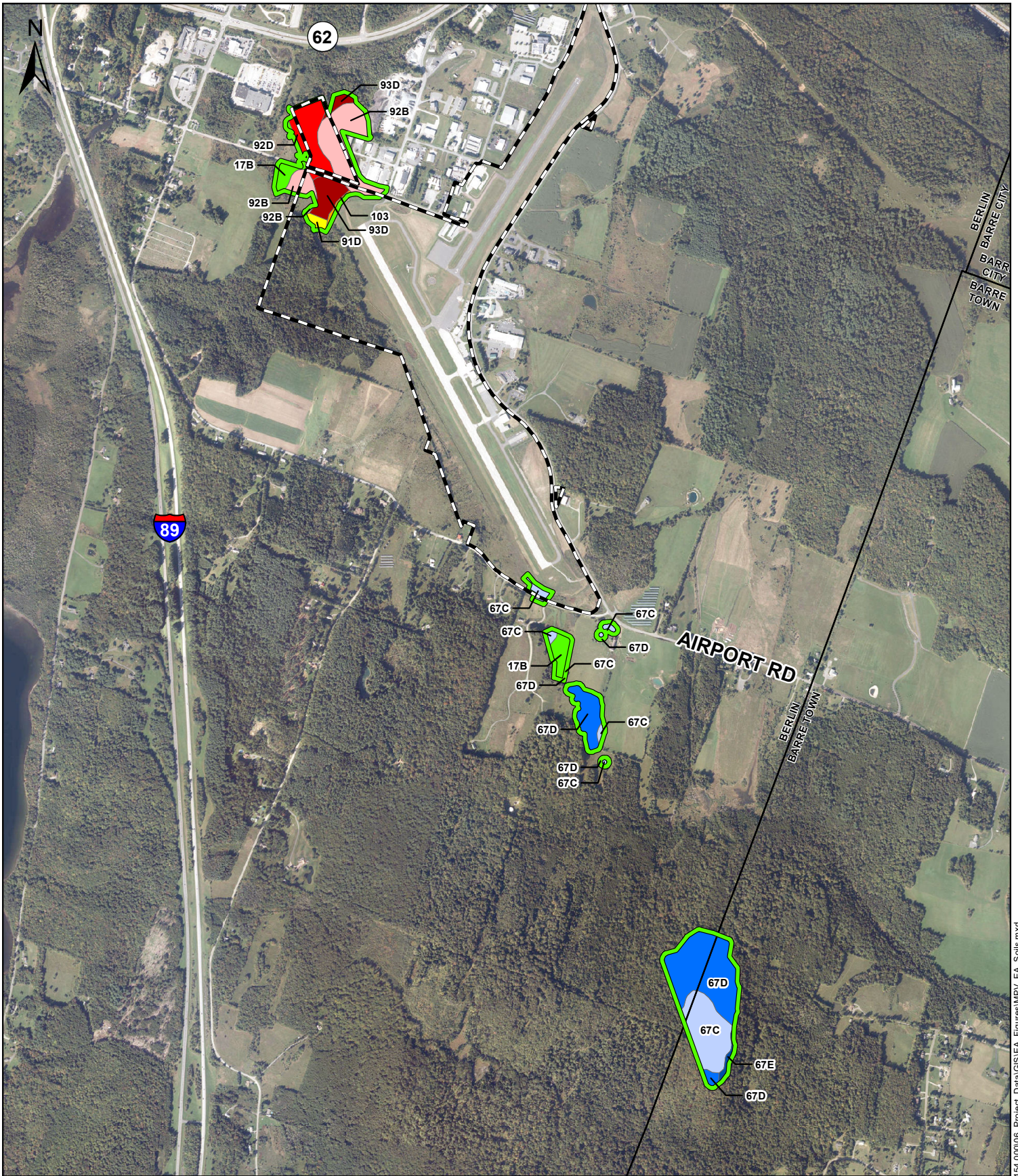
The Farmland Protection Policy Act (FPPA) (7 USC 4201-4209) of 1984 was implemented to protect and preserve farmland for agricultural use as part of the 1980 Farm Bill (PL 97-98, Title XV, Subtitle I; 7 USC 4201-4209). This policy, however, does not apply to land already committed to urban development or water storage, regardless of its importance as defined by the Natural Resource Conservation Service (NRCS). The guidelines recognize that the quality of farmland varies based on soil conditions and places higher value on soils with high productivity potential. To preserve these highly productive soils, the NRCS classifies soil types as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. The NRCS requires that soils in these categories be given proper consideration before they are converted to non-farming uses by federal programs. According to the Web Soil Survey from the NRCS for Washington County, the following soil types are classified as prime farmland or farmland of statewide importance are mapped within the project area (see **Figure 4-11**):

- 17B- Cabot silt loam-Farmland of statewide importance, if drained
- 92B- Buckland loam- All areas are prime farmland

4.11 HAZARDOUS MATERIALS

Hazardous waste is a general term relating to spills, dumping, and releases of substances that could threaten human and animal life. To identify these materials and protect the environment from harmful interaction with hazardous wastes, federal laws and regulations have been enacted, including the following: Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA). CERCLA prescribes a very specific process for the investigation and cleanup of sites listed on the National Priorities List (NPL), also referred to as Superfund sites. RCRA is the public law that creates the framework for the proper management of hazardous and non-hazardous solid waste. Hazardous waste impacts are typically associated with the current or future use, transfer, or generation of hazardous material within the limits of the proposed improvements or the acquisition of properties that contain hazardous materials. Environmental concerns related to solid waste disposal range from adequate landfills for normal urban trash and garbage to the safe disposal of industrial waste.

A review of on-line environmental databases was conducted to identify sites and facilities located in the detailed study areas that may be of environmental concern from both a site contamination and a NEPA perspective. The review included various on-line databases maintained by the EPA and state agencies. The NPL contains the most serious uncontrolled or abandoned hazardous waste sites throughout the United States. Based on review of available on-line resources, there are no NPL sites within one mile of



Legend	
	Airport Property Boundary
	Municipal Boundary
	Detailed Study
Soil Name (Soil Symbol)	
	Buckland loam, 3 to 8 percent slopes (92B)
	Buckland loam, 15 to 25 percent slopes (92D)
	Buckland loam, 15 to 35 percent slopes, very stony (93D)
	Cabot silt loam, 3 to 8 percent slopes (17B)
	Dummerston fine sandy loam, 15 to 35 percent slopes, very stony (91D)
	Glover-Vershire complex, 8 to 15 percent slopes, very rocky (67C)
	Glover-Vershire complex, 15 to 35 percent slopes, very rocky (67D)
	Glover-Vershire complex, 35 to 60 percent slopes, very rocky (67E)
	Udorthents, loamy (103)

Figure 4-11
Soils

E.F. Knapp State Airport
Runway 17/35 Obstruction Removal EA



0 400 800 1,600
Feet

Sources: VTGIS, USDA, CHA (2021)

either the detailed study area. Other state and federal databases tracking hazardous waste sites include Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), Superfund Enterprise Management System (SEMS), RCRA Corrective Action Report (RCRA CORRACTS), RCRA Treatment Storage and Disposal (RCRA TSDF), state and tribal hazardous waste sites (SHWS), state spills (SPILLS), state and tribal voluntary cleanup (VCP), and state and tribal brownfield sites (BROWNFIELDS). There were no NPL, proposed NPL, SEMS, CERCLIS, CORRACTS, RCRA TSDF, SHWS, VCP, or BROWNFIELDS on or adjacent to the southern detailed study area. An SHWS is located adjacent to the northern detailed study area: Pike Industries, located on Granger Road. There were no other SHWS located on or adjacent to the north of the airport. Additionally, there were no NPL, proposed NPL, SEMS, CERCLIS, CORRACTS, RCRA TSDF, VCP, or BROWNFIELDS on or adjacent to the northern detailed study area. There were no SPILLS recorded within the detailed study area.

The RCRA on-line database lists facilities that store, generate, transport, treat, and dispose of hazardous wastes. This database records facilities that generate large or small quantities of hazardous wastes or are conditionally exempt generators. It should be noted that sites included in this database do not necessarily involve contamination. The database report showed one RCRA very small quantity generator (VSQG) located approximately 0.5 miles north at the airport buildings. No other facilities currently reporting to the EPA under the RCRA are located within the detailed study area. A review of historical aerials indicated no areas of concern. Pike Industries (adjacent to the north) began operations sometime between 1973 and 1976.

CHA performed a site inspection of the project areas in July 2021. Adjacent property uses of the southern detailed study area included: the airport to the north; a solar array to the east, undeveloped/forested/agricultural/residential mixed use to the south and west. Adjacent property uses for the northern detailed study area included: the airport to the south, two detention basins to the east, industrial and commercial uses to the north and northwest (FedEx, Pike Industries {asphalt plant}, medical building, U.S. Department of Agriculture offices, UPS), and undeveloped area to the west. An asphalt odor was observed during the site visit in the vicinity of Pike Industries.

Three empty metal 55-gallon drums were observed near Wetland C. The drums were deteriorated and rusted through in places. There was a thick layer of leaf litter on the ground; however, vegetation in and around the drums appeared similar to surrounding vegetation. Additionally, broken chunks of asphalt were observed down the bank in the vicinity of Pike Industries and a piece of old metal farm equipment, and a pile of bricks were observed near Wetland E. No stained surfaces, sheens on water, or monitoring wells were during the site visit. There were no areas of stressed vegetation or other noxious odors.

4.12 SOCIAL & ECONOMIC CHARACTERISTICS

This section presents a discussion of the social, economic, and demographic characteristics surrounding the Airport. Potential socioeconomic impacts of an airport improvement project are primarily related to the direct effects on home and business relocation, transportation systems, utilities, and other cultural and public facilities. It also involves consideration for potential effects on minority and low-income populations, as well as indirect impacts, such as changes in growth patterns and community disruption. Environmental Justice laws, regulations, and policies are found in Title VI of the Civil Rights Act of 1964, the NEPA, Title 23 of the USC, Section 109(h), the Uniform Relocation, and Real Properties Acquisitions Policy Act of 1970, and most recently, Executive Order (EO) 12898: Federal Actions to Address

Environmental Justice in Minority and Low-Income Populations. EO 12898 directs each Federal agency to develop a strategy addressing environmental justice concerns in its programs, policies, and regulations. The purpose of this Order is to avoid disproportionately high and adverse human health or environmental impacts on minority and low-income populations with respect to human health and the environment. On July 16, 1997, the DOT issued its Final Order on Environmental Justice as Order 5610.2. To identify minority and low-income populations in the project area, demographic data from the U.S. Bureau of Census, 2019 American Community Survey 5-year Estimates, was reviewed and compiled.

To assess the data and determine the presence of environmental justice (EJ) populations, the following criteria were applied. Affected communities (AC) that are more than 50% minority or low income are automatically designated as EJ populations. All other ACs are designated as an EJ population if the low-income or minority populations are 125% of the community of comparison (COC). In the case of this analysis, the project is wholly contained within Washington County, Vermont which most accurately represents the geographic, social, and economic environment of the project area. Therefore, Washington County was deemed the most appropriate COC. The AC was determined to include Census Tracts 9545 and 9554. Census tracts were utilized for the ACs, as the information generated is specific to the georeferenced demographics of the area in which MPV is located (see **Figure 4-12**). Neither AC has a population of more than 50% minority or low-income. A reference threshold of 125% was calculated over the COC population to establish a threshold which was used to assess the presence of EJ populations. EJ populations were presumed to be present if the AC values exceeded the threshold. The results of this analysis appear in **Table 4-2**. Based on this data, Census Tract 9554 does contain an EJ population based on its minority population.

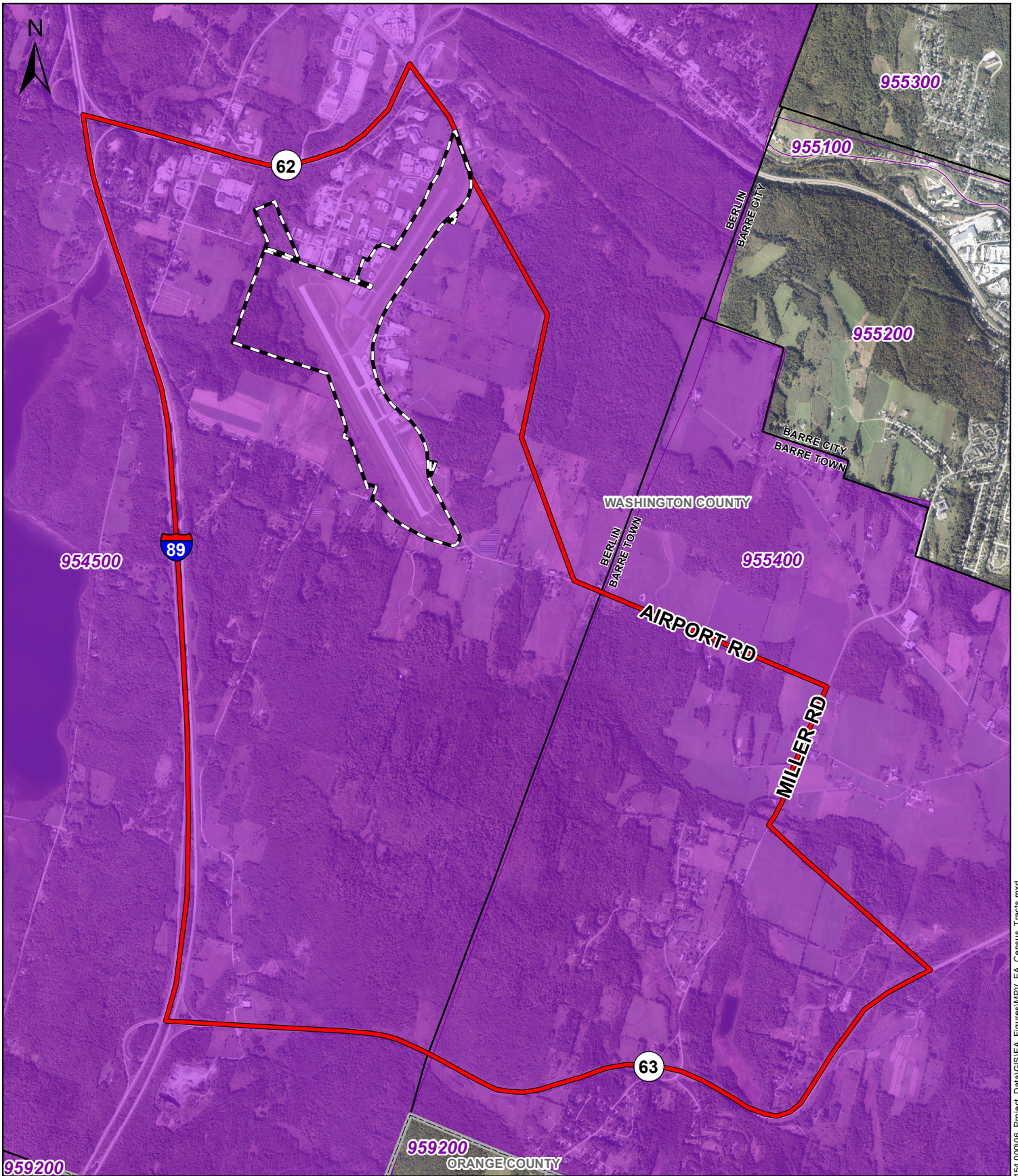
Tables 4-2: Minority & Low-Income Population Groups

	Washington County (COC)	Census Tract 9545	Census Tract 9554
Total Survey Population Determined	58,350	2,793	3,714
Minority Persons	3,393	101	335
Percent Minority	5.8%	3.6%	9.0%
125% COC	7.3%		
Potential Minority EJ Impact?		No	Yes
Total Survey Population Determined	56,075	2,530	3,656
Low Income	5,916	216	323
Percent Low Income	10.6%	8.5%	8.8%
125% COC	13.2%		
Potential Low Income EJ Impact?		No	No

Source: U.S. Census, 2019 ACS Survey (5-year estimates)

4.13 WATER RESOURCES

This subsection describes the existing water resources located within the Airport boundary and any water resources located within the footprint of the proposed limits of disturbance.



Legend

- Airport Property Boundary
- County Boundary
- Municipal Boundary
- Generalized Study Area
- Census Tract
- Potential Environmental Justice Populations

Figure 4-12
Census Tracts

E.F. Knapp State Airport
Runway 17/35 Obstruction Removal EA



0 600 1,200 2,400
Feet

Sources: VTGIS, CHA (2021)

VERMONT AGENCY OF TRANSPORTATION

4.13.1 Wetlands

The National Wetland Inventory (NWI) mapping was reviewed for the presence of potential federally mapped wetlands in the project area (see **Figure 4-13**). The NWI map for the northern project area identifies two tributaries of Pond Brook (within Wetland B delineated as Streams 2 and 3- R5UBH (Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded). The map also identifies two PSS1C (Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Seasonally Flooded) wetlands to the south (outside of the study area). These mapped wetlands are connected to Wetland B and Stream 3.

The NWI map for the southern project area identifies a pond (PUBH- Palustrine, Unconsolidated Bottom, Permanently Flooded) within the study area. This feature is part of delineated Wetland D. The map also identifies an unnamed tributary of Stevens Branch (delineated Stream 4 and 6- R5UBH) within the study area. An unnamed tributary of Pond Brook (R5UBH) is located to the north of Wetland A (outside of the study area). No other NWI features are mapped within the project areas.

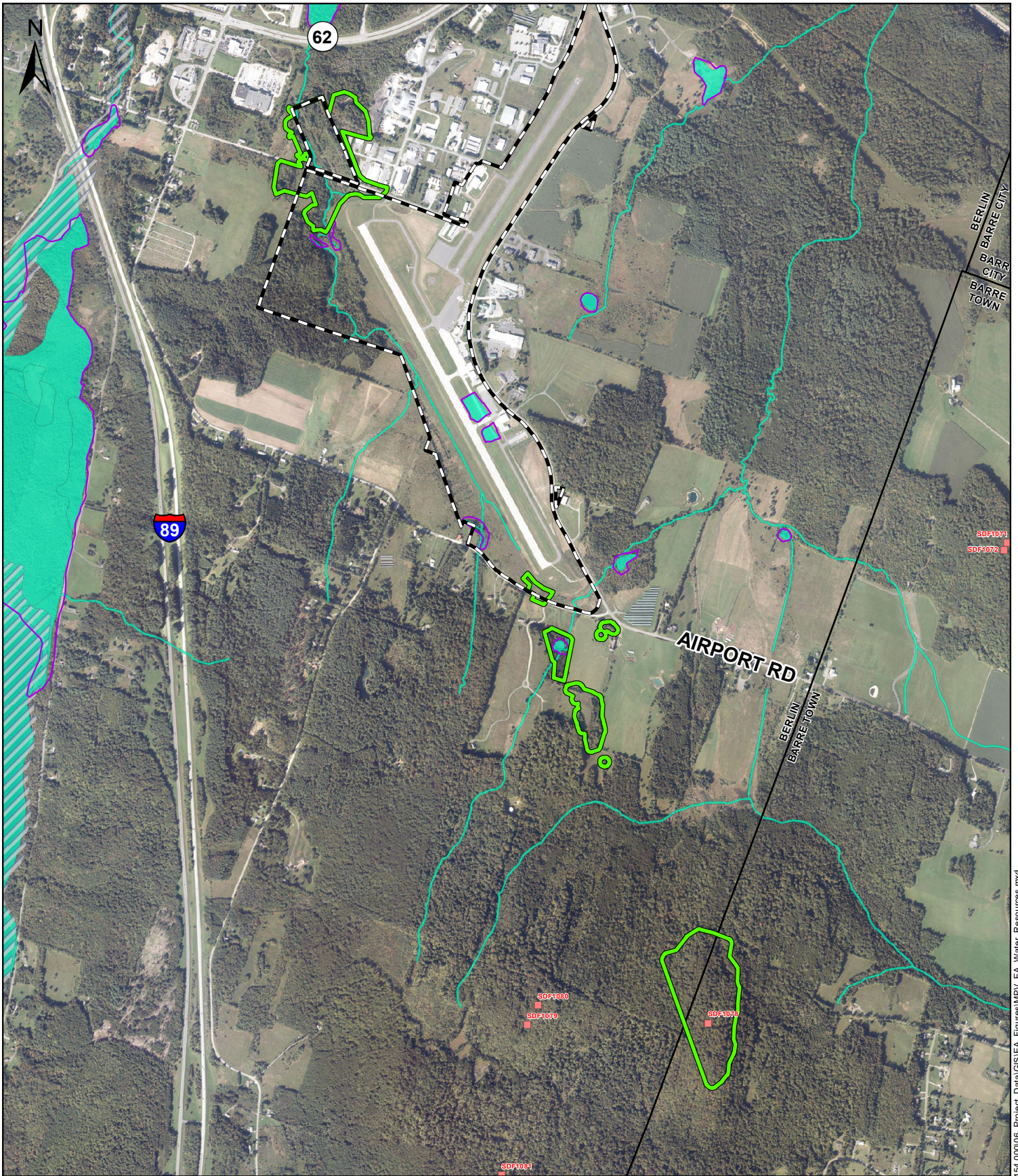
The ANR Vermont Significant Wetland Inventory (VSWI) map was reviewed for the presence of potential state mapped wetlands in the project area. The VSWI map does not identify any mapped wetlands within the northern project area. However, there are two mapped Class II wetlands to the south of the project area that are connected to Wetland B and Stream 3. In the southern project area, the VSWI map identifies portions of delineated Wetlands D and E as a mapped Class II wetland. The map also identifies an unconfirmed vernal pool (SDF1078) within Wetland F. No other VSWI wetlands are mapped within the project areas.

A wetland delineation was completed in July 2021 by CHA (see **Appendix D**). Wetlands were delineated pursuant to the United States Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual and current regional supplement. The wetland boundaries were determined in the field based on the three-parameter approach, whereby an area is a wetland if it exhibits vegetation adapted to wet conditions (hydrophytes), hydric soil indicators, and the presence or evidence of water at or near the soil surface during the growing season (hydrology).

A total of six (6) wetlands and a vernal pool were delineated (see **Figures 4-14 through 4-16**) and are discussed below. ANR verified the wetland boundaries on September 8, 2021 and determined that all the delineated wetlands are Class II. Class II wetlands have a 50-foot buffer.

Wetland A: Wetland A is located just south of the south end of the Airport. This wetland consists of palustrine emergent and scrub shrub wetland. A drainage swale is located along the fence line. This wetland continues outside of the study area to the north and southeast. Species such as white willow (*Salix alba*), silky dogwood (*Cornus amomum*), meadowsweet (*Spiraea latifolia*), reed canary grass (*Phalaris arundinacea*), late goldenrod (*Solidago gigantea*), sensitive fern (*Onoclea sensibilis*) and Canada goldenrod (*Solidago canadensis*), are present within the scrub shrub area. The emergent area contains species such as purple loosestrife (*Lythrum salicaria*), scouring rush (*Equisetum hymale*), Canadian rush (*Juncus canadensis*), flat-top goldenrod (*Euthamia graminifolia*) and reed canary grass.

Hydrology indicators include saturation, oxidized rhizospheres on living roots, drainage patterns, geomorphic position, and FAC-neutral test. Observed hydric soil indicators include loamy gleyed matrix and redox dark surface. Wetland A continues beyond the study area and is connected to Wetland E via a culvert under Scott Hill Road. Wetland A is also connected to Wetland B outside of the study area. The



Legend

- Airport Property Boundary
- Municipal Boundary
- Detailed Study Area
- FEMA 100-Year Floodplain
- NWI Wetlands
- Vermont Significant Wetland Inventory (VSWI) Wetlands
- Vernal Pool (Unconfirmed)

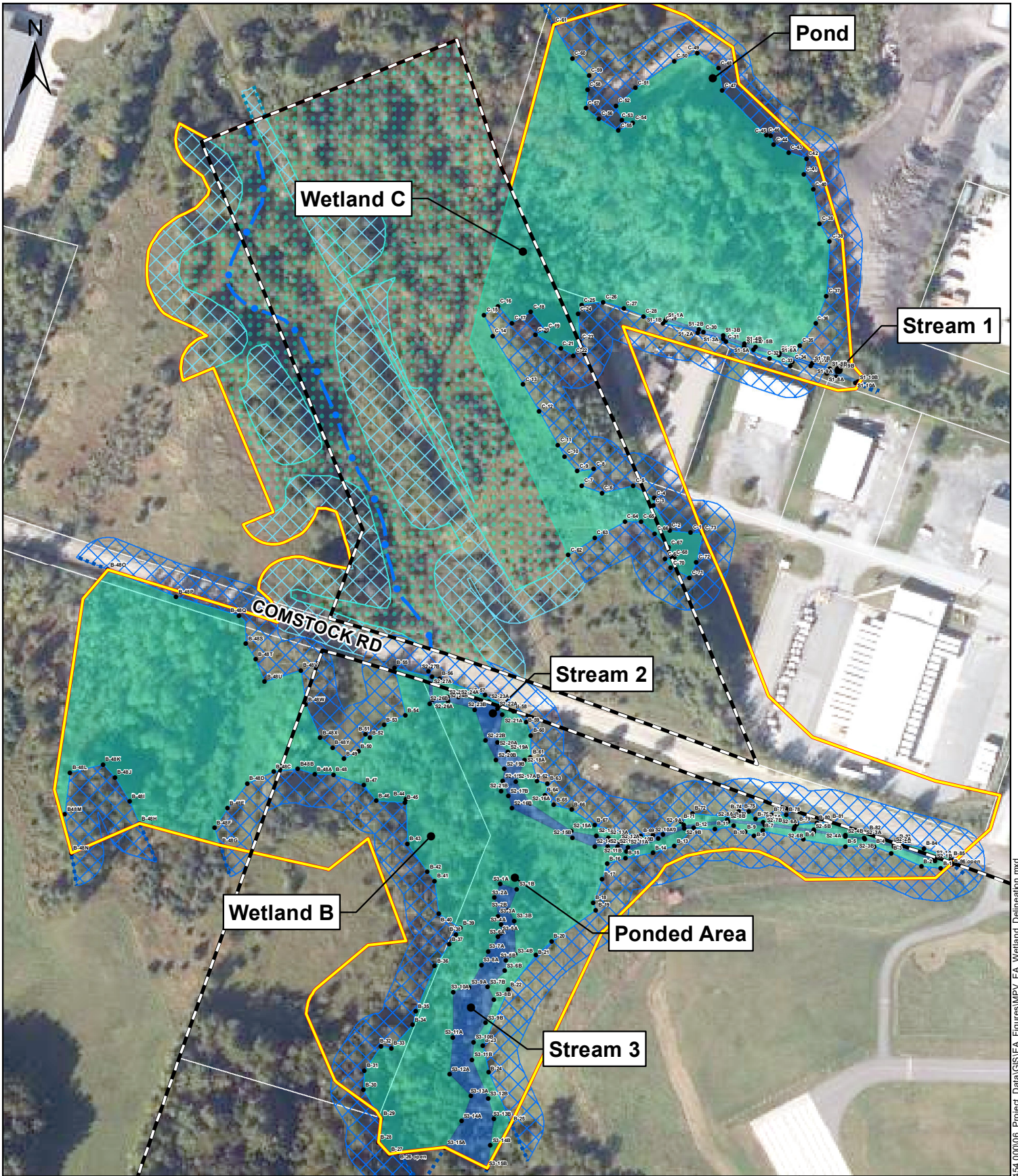
Figure 4-13
Water Resources

E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 400 800 1,600
 Feet

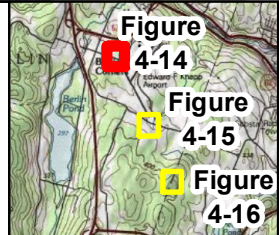
Sources: VTGIS, FWS, FEMA CHA (2021)



Legend

Airport Property Boundary	Delineated Wetland 50-Foot Buffer
Parcel Boundary	Delineated Wetland Continues
Review Area	Walkover Stream
Delineated Flag	Walkover Wetland
Delineated Stream	Walkover Wetland 50-Foot Buffer
Delineated Wetland	

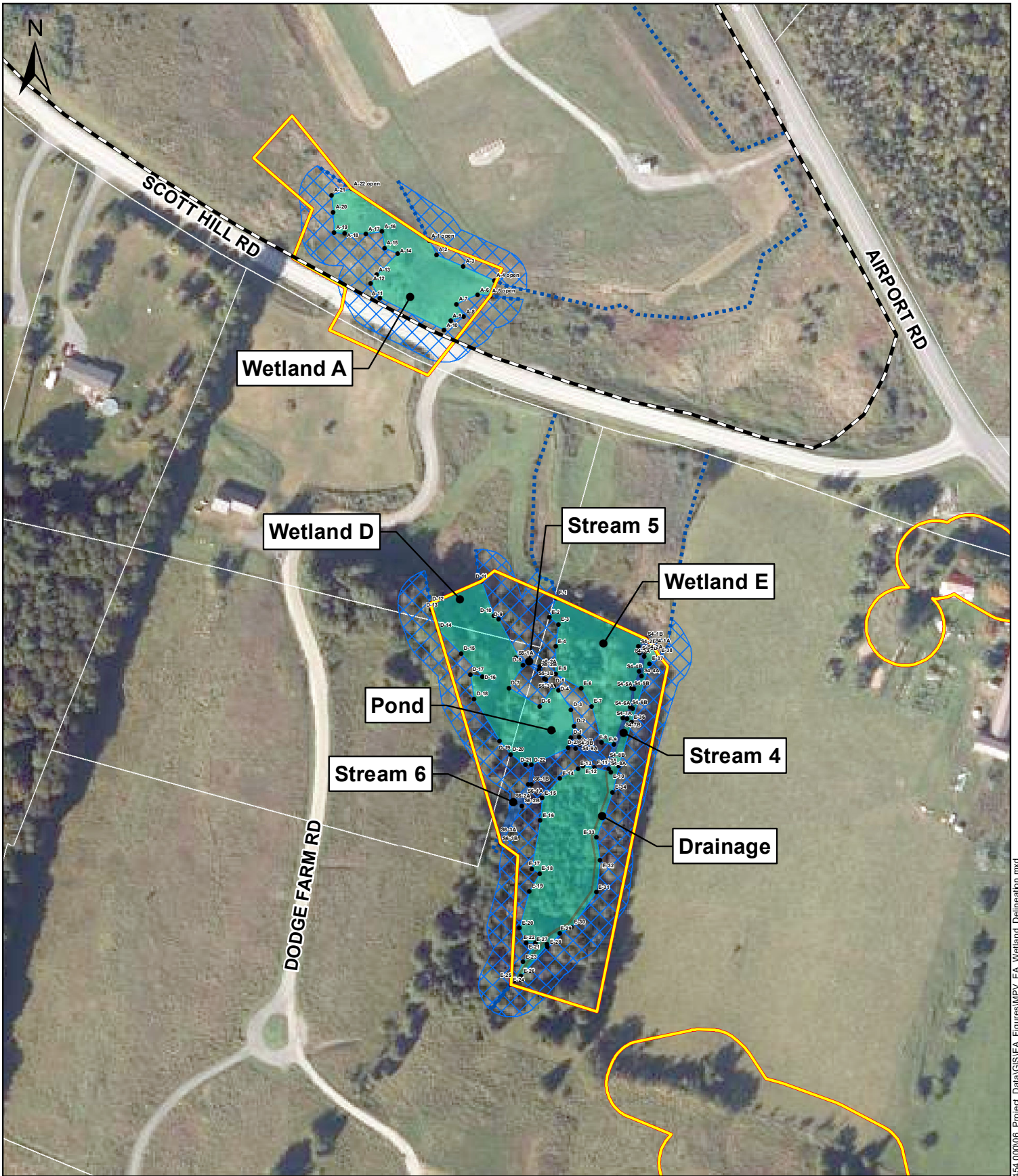
Figure 4-14
Wetland Delineation
 E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 50 100 200 Feet

Sources: VTGIS, CHA (2021)

\\cha-hp.comproj\Projects\ANYK\068454.000008_Project_Data\GIS\EA_Figures\MPV_EA_Figures\MPV_EA_Wetland_Delineation.mxd

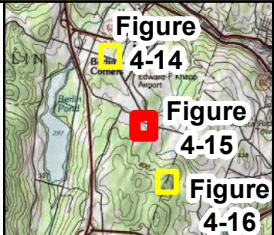


Legend

- Airport Property Boundary
- Parcel Boundary
- Review Area
- Delineated Flag
- Delineated Drainage
- Delineated Stream
- Delineated Wetland
- Delineated Wetland 50-Foot Buffer
- Delineated Wetland Continues

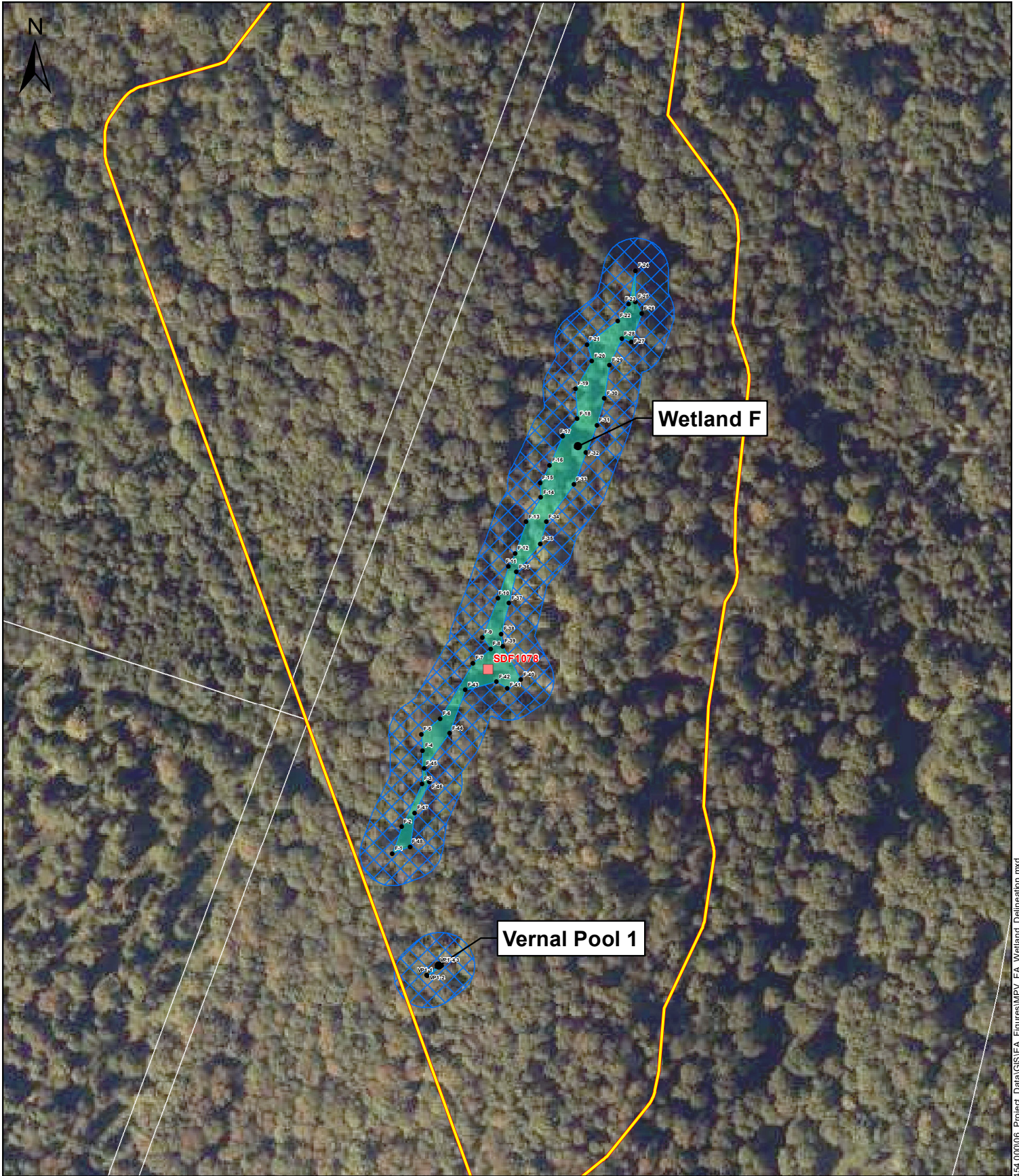
Figure 4-15
Wetland Delineation

E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 50 100 200
 Feet

Sources: VTGIS, CHA (2021)

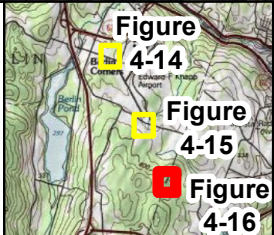


Legend

- Airport Property Boundary
- Parcel Boundary
- Review Area
- Delineated Flag
- Delineated Wetland
- Delineated Wetland 50-Foot Buffer
- Delineated Wetland Continues
- Vernal Pool (Unconfirmed)

Figure 4-16
Wetland Delineation

E.F. Knapp State Airport
 Runway 17/35 Obstruction Removal EA



0 50 100 200
 Feet

Sources: VTGIS, CHA (2021)

total size of Wetland A within the study area is 0.475 acres. Wetland A is a state Class II wetland and is also federally jurisdictional due to its connection to intermittent and perennial streams within Wetlands B and E.

Wetland B: Wetland B is located to the north of the runway and contains palustrine emergent, scrub shrub and forested wetland. Streams 2 and 3 and ponded area are within this wetland. This wetland and both streams continue beyond the study area. NWI and VSWI wetlands are mapped to the south of Wetland B. Species such as northern white cedar, balsam fir, red maple, white willow, silky dogwood, field horsetail (*Equisetum arvense*), sensitive fern, creeping jenny (*Lysimachia nummularia*), and sphagnum moss are present within the forested wetlands. The emergent and scrub shrub wetlands contain species such as white willow, speckled alder (*Alnus incana*), new England aster (*Symphotrichum novae-angliae*), reed canary grass, flat-top goldenrod, dark green bulrush (*Scirpus atrovirens*), soft rush (*Juncus effusus*), blue vervain (*Verbena hastata*), Canada goldenrod, field horsetail, and cattail (*Typha latifolia*).

Hydrology indicators include saturation, oxidized rhizospheres on living roots, moss trim lines, microtopographic relief, geomorphic position, and FAC-neutral test. The observed hydric soil indicators are depleted matrix and redox dark surface. The presence of beavers was noted. A beaver lodge was noted near flag B-62. Wetland B is connected to Wetland C outside of the study area via a culvert under Comstock Road. Wetland B connects to Wetland A outside of the study area. The total size of Wetland B within the study area is 5.645 acres. Wetland B is a state Class II wetland and is federally jurisdictional due to its direct connection to a perennial stream.

Wetland C: Wetland C is composed of palustrine emergent and forested wetland. Delineated Stream 1 is within this wetland. Stream 1 continues beyond the study area to the east and is fed by drainage from the adjacent development. A pond is also within this wetland in the vicinity of wetland flag C-47. Wetland C continues beyond the study area to the west. Species such as northern white cedar, red maple, green ash (*Fraxinus pennsylvanica*), eastern hemlock (*Tsuga canadensis*), sensitive fern, and jewelweed (*Impatiens capensis*) are within the forested wetland. Black willow (*Salix negra*), speckled alder, grey birch (*Betula populifolia*), silky dogwood, cattail, joe pye weed (*Eutrochium maculatum*), reed canary grass, meadowsweet, dark green bulrush, flat-top goldenrod, and late goldenrod can be found in the emergent areas.

Hydrology indicators are high water table, saturation, oxidized rhizospheres on living roots, and FAC-neutral test. The observed hydric soil indicators are depleted below dark surface and depleted matrix. Wetland C is connected to Wetland B outside of the study area via a culvert under Comstock Road. The total size of Wetland C within the study area is 4.674 acres. Wetland C is a state Class II wetland and is federally jurisdictional due to its connection to a perennial stream outside of the study area.

Wetland D: Wetland D is composed of palustrine emergent and forested wetland and continues north beyond the limits of the study area. This wetland contains a pond and delineated Streams 5 and 6. Some of the species within the forested wetland include northern white cedar, green ash, lesser herb robert (*Geranium robertianum*), sensitive fern, and jewelweed. The emergent areas contain species such as northern white cedar, boneset (*Eupatorium perfoliatum*), dark green bulrush, late goldenrod, soft rush, field horsetail, wild mint (*Mentha arvensis*), and jewelweed.

Hydrology indicators are high water table, saturation, oxidized rhizospheres on living roots, geomorphic position, and FAC-neutral test. The observed hydric soil indicators are redox dark surface and thick dark

surface. Wetland D is connected to Wetland E via Stream 4. The VSWI map identifies portions of delineated Wetlands D and E as a mapped Class II wetland. The total size of Wetland D within the study area is 0.570 acres. Wetland D is a state Class II wetland and is federally jurisdictional due to its connection to an intermittent stream.

Wetland E: Wetland E is a palustrine forested wetland that continues beyond the study area to the north (as emergent wetland) and to the south (as ephemeral drainage channel). This wetland contains Stream 4 and an ephemeral drainage channel. The wetland contains species such as northern white cedar, buckthorn (*Rhamnus cathartica*), sensitive fern, ostrich fern (*Matteuccia struthiopteris*), silky dogwood, and jewelweed.

Hydrology indicators include high water table, saturation, water-stained leaves, drainage patterns, geomorphic position, and FAC-neutral test. The observed hydric soil indicator is redox dark surface. Wetland E is connected to Wetland D via Stream 4. Wetland E is also connected to wetland that is connected to Wetland A via a culvert under Scott Hill Road. The VSWI map identifies portions of delineated Wetlands D and E as a mapped Class II wetland. A northern redback salamander (*Plethodon cinereus*) was noted in this wetland. The total size of Wetland E within the study area is 1.031 acres. Wetland E is a state Class II wetland and is federally jurisdictional due to its direct connection to an intermittent stream.

Wetland F: Wetland F is an isolated palustrine wetland in a depression that contains a vernal pool identified as unconfirmed by the state (SDF1078). No inlet or outlet to this wetland was noted. No hydrologic connection to other wetlands or waters of the United States are present. Seeps were noted within this wetland. This wetland contains species such as sensitive fern, ostrich fern, and interrupted fern (*Osmunda clayoniana*). Hydrology indicators include water-stained leaves, geomorphic position, and FAC-neutral test. The observed hydric soil indicators are loamy gleyed matrix and redox dark surface. The total size of Wetland F is 0.609 acres.

The vernal pool occurs in a depression area surrounded by deciduous forest. The vernal pool and surrounding area are undisturbed. No water was present at the time of the visit; however, it was estimated that the pool depth would be 6-12 inches. The substrate is silt and leaf litter. The property owner noted the presence of salamander species in this area in the spring. Wetland F is a state Class II wetland. However, since the wetland is isolated and is not located near other Waters of the United States, it is not federally jurisdictional.

Vernal Pool (VP) 1: Vernal Pool (VP) 1 occurs in an isolated forest depression. The surrounding area is undisturbed deciduous forest. No inlet or outlet is present. No hydrologic connection to other wetlands or Waters of the United States are present. No water was present at the time of the visit; however, it was estimated that the pool depth would be 6-12 inches. The substrate is silt and leaf litter. No vegetation was present within the pool. The total size of VP 1 is 0.001 acres. VP 1 is a state Class II wetland. However, since the vernal pool is isolated and is not located near other Waters of the United States, it is not federally jurisdictional.

On November 3, 2021, CHA completed a wetland walkover of an area to the north of the Runway 17 just to the west/adjacent to Wetland C. Since the MALS light plane penetrations were added to the project after the original delineation had been completed and after the growing season, an official delineation could not be completed. Therefore, the approximate wetland area was estimated based on a field review. The approximate size of this wetland area is 5.5 acres, and it is anticipated that it will be considered a

Class II wetland. A perennial stream is also within the walkover area. This area will need to be delineated and reviewed by ANR prior to permitting/design.

4.13.2 Floodplains

EO 11988 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, the area subject to a one percent or greater chance of flooding in a given year.*” The intent of Order 11988 is to ensure that floodplains and floodways are kept clear of obstructions and facilities that could restrict or increase flow rates or volumes during flood conditions. Encroachment is defined as any action that would cause the 100-year water surface profile to rise by one foot or more. The 100-year floodplain has been adopted by the Federal Emergency Management Agency (FEMA) as the base flood for floodplain management. Both Federal and state laws regulate development within floodplains and floodways.

According to FEMA’s Flood Insurance Rate Maps (FIRM), dated March 19, 2013 (Panel Numbers 50023C0429E, 50023C0433E & 50023C0441E), the project areas are not located within the 100-year floodplain.

4.13.3 Surface Water

Six streams were delineated within the project areas (refer to **Figures 4-14 through 4-16**). A tributary of Stevens Branch is within the southern project area. Stevens Branch is a tributary of the Winooski River. According to the USACE regulations, the Winooski River is a Traditional Navigable Water (TNW). Additionally, tributaries of Pond Brook are in the northern project area. Pond Brook is a tributary of Stevens Branch and Stevens Branch is a tributary of the Winooski River.

Stream 1: Stream 1 is intermittent and begins from piping and ditching associated with development to the east of the study area. The stream is along the toe of slope and fades out into Wetland C. In the area of S1-2A, the bankfull width (BFW) is approximately 7 feet and the bankfull depth (BFD) is approximately 6 inches. The substrate is silt and gravel and had a slight flow at the time of the visit. The stream is shaded and mostly pooled. The length of Stream 1 within the study area is 308.8 feet. Stream 1 is federally jurisdictional.

Stream 2: Two tributaries of Pond Brook are within Wetland B. These streams have been delineated as Stream 2 and Stream 3. Stream 2 appears to have a portion that is intermittent and a portion that is perennial. From flags S2-1 to 10 the BFW of the stream is approximately 1 to 6 feet and the BFD is approximately 6 inches. The stream in this area is shaded by hydrophytes and the substrate is mineral soil. This portion of the stream is fed by drainage from the Airport and has fringe wetland. Pondered area is present from flag S2-15 to S2-16. The stream from S2-16 to S2-27 is meandering. The BFW of the stream in this area is approximately 6 to 20 feet, and the BFD is approximately 18-30 inches. The banks are stable, and the area is a broad floodplain. The stream in this area is shaded and the water is cool. The substrate is silt and sand. Minnows were noted as well as the presence of beavers. A culvert is present under the road at flag S2-27 and at flag B-81. The length of Stream 2 within the study area is 961.7 feet. Stream 2 is federally jurisdictional. Stream 2 is connected to Stream 3; a ponded area is between them.

Stream 3: Stream 3 is a beaver modified perennial stream that contains areas of braided channel and ponding. In the area of S3-15, the BFW is approximately 3 to 20 feet, and the BFD is up to 3 feet. The substrate is silt, and the stream was flowing at the time of the visit. The stream is shaded, and the banks

are stable. Minnows, green frog (*Lithobates clamitans*), and northern two-lined salamander (*Eurycea bislineata*) were noted. The length of Stream 3 within the study area is 449.9 feet. Stream 3 is federally jurisdictional.

Stream 4: Stream 4 is an unnamed intermittent tributary of Stevens Branch. This stream continues beyond the study area to the north. The substrate is silt and gravel. The portion of stream within the study area is shaded. The BFW is approximately 5 feet, and the BFD is approximately 6 inches. The length of Stream 4 within the study area is 271.4 feet. Stream 4 is federally jurisdictional.

The drainage channel within Wetland E appears ephemeral and flows into Stream 4. No flow was noted during the site visit. The length of channel within the study area is 384.0 feet. This drainage flows into Stream 4, which flows to a TNW, and is therefore considered to be federally jurisdictional.

Stream 5: Stream 5 is intermittent and connects emergent wetland to the pond. The stream is fed by the wetland. At the time of the visit the stream was flowing. The water was clear and cold, and the substrate is mucky. The banks are stable, the stream is shaded, and hydrophytes and woody debris are present. The BFW is approximately 1-6 feet, and the BFD are approximately 12 inches. The length of Stream 5 is 77 feet. Stream 5 is federally jurisdictional.

Stream 6: Stream 6 appears to be intermittent, is mapped as an unnamed tributary of Stevens Branch and is connected to the pond. Stream 6 continues beyond the study area to the south. The stream was dry at the time of the visit. The stream contains woody debris and is shaded. The substrate is blue shale and cobble. The BFW is approximately 7 feet, and the BFD is approximately 12-24 inches. The length of Stream 6 within the study area is 127.8 feet. Stream 6 is federally jurisdictional.

Ponds: Ponds are present within Wetlands B, C and D. Refer to the stream descriptions above as well as the wetland descriptions in Section 4.12.1 for further details.

Based on review of the ANR Natural Resource Atlas, none of streams in the project area are on the Stressed Waters List, the Priority Waters List or the 303(d) list of impaired streams. Additionally, none of the streams have been designated as an Outstanding Resource Waters.

The Vermont Water Quality Standards (VTWQS) are rules that are intended to achieve the objective of the CWA and achieve the goals of the Vermont Surface Water Strategy. There are four possible classifications of Vermont surface waters: B (2) – good; B (1) very good; A (2) public water source; and A (1) excellent. All waters at or below 2,500 feet are designated Class B (2) for all uses, unless specifically designated as Class A (1), A (2), or B (1) for any use. All waters above 2,500 feet are designated Class A (1) for all uses, unless specifically designated Class A (2) for use as a public water source.

No classes were identified on the ANR Natural Resource Atlas or the ANR Wetlands Inventory Maps for the Pond Brook tributaries or the tributary of Stevens Branch. The topography of the study areas is below 2,500 feet; therefore, it is assumed that the streams are Class B (2).

4.13.4 Groundwater

Based on review of the EPA website, there are no sole source aquifers located near the project area. Based on review of the ANR Natural Resource Atlas, there are groundwater source protection areas (SPA) within the project area. The project is located within the SPA of the Shaws Berlin Corners public Non-Transient

Non-Community water system (WSID VT0020675). There are two groundwater wells (WL001 and WL002) which each has its own 1,000-foot radius centered on the which act as the SPA.

4.13.5 Wild and Scenic Rivers

The Wild and Scenic Rivers Act (PL 90-542, as amended) was implemented to facilitate the protection of rivers possessing “outstandingly remarkable scenic, recreational, geological, fish and wildlife, historic, cultural, or any other similar values.” The U.S. Department of the Interior (DOI) maintains a national inventory of river segments that appear to qualify for inclusion in the National Wild and Scenic River System. According to data from the National Park Service National Rivers Inventory there are no federally designated Wild and Scenic Rivers within the project area. According to data from the State of Vermont Agency of Commerce and Community Development, there are no Vermont Wild and Scenic rivers within the project area.

5 ENVIRONMENTAL CONSEQUENCES

This chapter describes the environmental consequences of the MPV Runway 17/35 Tree Obstruction Removal project with respect to the environmental resource categories, characterized in Chapter 3, as specified in FAA Order 1050.1F: *Environmental Impacts: Policies and Procedures*. The information in this chapter compares the Sponsor's Proposed Action and the No-Action Alternative in the same analysis year for each environmental resource category to determine the long-term effect (beneficial or adverse) of the Proposed Action. Measures proposed to avoid, reduce, and/or mitigate the potential impacts are identified within each resource category, as applicable.

It was determined that the following resource categories would not be affected by the proposed development at the Airport as they do not currently exist within the study area or will not be impacted by the Sponsor's Proposed Alternative. No further impact analyses were conducted for these categories:

- Coastal Resources
- Section 6(f) Resources
- Noise
- Floodplains
- Wild & Scenic Rivers

5.1 AIR QUALITY

Two primary regulations, the NEPA and the CAA, apply to air quality. The need for an air quality assessment to satisfy NEPA depends on the nature of the project, the project area's non-attainment status, and the size of the airport. The CAA amendments of 1990 include provisions to ensure emissions from Federally funded actions within non-attainment areas comply with the goals and objectives of the State Implementation Plans (SIP) for the state the project is located in.

5.1.1 National Environmental Policy Act

The impact of a proposed action on air quality must be assessed by evaluating the impact of the proposed action to the NAAQS. The NAAQS are pollutant concentrations established to define maximum levels of pollutants in the ambient air over a period of time. According to the FAA's Emissions and Air Quality Handbook, Version 3, an operational emissions inventory is designed to quantify the amounts of criteria pollutant emissions associated with operational activity in the proposed project/action. The results are typically expressed in tons/year segregated by pollutant type, emission source [ex. aircraft engines, Auxiliary Power Units, Ground Support Equipment (GSE), etc.], and alternative. There will be no changes in operations, amount of people traveling to/from the Airport, etc. with any of the alternatives. Therefore, an air quality assessment for NEPA is not required.

5.1.2 Clean Air Act & General Conformity

The CAA establishes regulations that apply to Federally funded projects. These rules and regulations are intended to prevent the Federal government from approving or funding a project that will not comply with the SIP. SIPs are developed to ensure that federal air quality standards will be met and maintained throughout the states. The rules established in the CAA, specifically the General Conformity Rule, apply

to airport improvement projects when an airport is within a non-attainment or maintenance area for any of the criteria pollutants.

General Conformity refers to the specific requirements under Section 176(c) of the CAA for Federal agencies other than the Federal Highway Administration and the Federal Transit Administration. Applicability of the General Conformity Rule is dependent on whether construction emissions will affect attainment as set forth in the SIP. The threshold levels, or *de minimis* levels, for each criteria pollutant are established under the CAA to determine if a proposed action could affect attainment status. According to the EPA, Washington County is in attainment for all criteria pollutants. Since the project area is within a county that is in attainment for all criteria pollutants, an emissions inventory and applicability analysis for construction equipment is not required.

5.1.3 Alternative 2: Sponsor's Proposed Action

The proposed tree removal will result in short term air quality impacts, such as fugitive dust and exhaust from construction equipment. These impacts will be minimized by limiting the area of disturbance, hand felling trees in sensitive areas, limiting the number of vehicles servicing the site, and seeding after tree removal when not located in wetlands, wetland buffer, or an ASA. Any construction equipment would be properly maintained and outfitted with emission-reducing exhaust equipment. Diesel construction vehicles typically use selective catalytic reduction (SCR) and/or diesel particulate filters (DPF) to control emissions as required by EPA emission standards. In addition, the construction soil and erosion control plan would mitigate potential impacts from fugitive dust. The Sponsor's Proposed Action will not have significant impacts to air quality when compared to the No Action Alternative.

5.1.4 Alternative 3: No-Action Alternative

No tree obstruction removal would occur with this alternative; therefore, there would be no impact on air quality.

5.2 BIOLOGICAL RESOURCES

Section 7(c) of the ESA requires that potential impacts to rare, threatened, and endangered species of flora and fauna and their critical habitats be identified to avoid adverse impacts to these species. Federally listed species include those designated as threatened, endangered, or candidate species by the USFWS. Impacts to state listed animals or plants or significant natural communities must also be assessed. As discussed in Chapter 4, the USFWS IPaC tool and the ANR Natural Resources Atlas were reviewed to determine the species that may be found in the study area. Additionally, the ANR Fish & Wildlife Department was contacted to further determine the presence of state-listed species.

Section 7 of the ESA provides the mechanism for federal agency coordination to ensure that federal actions do not jeopardize any listed species. Refer to Section 5.2.2 for details regarding coordination with state and federal agencies.

5.2.1 Significance Threshold

According to FAA Order 1050.1F Desk Reference (v2), a significant impact to biological resources would occur when *"The U.S. Fish and Wildlife Service or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a Federally listed threatened or endangered species or would result in the destruction or adverse modification of federally-designated critical habitat."* It should be noted that the FAA does not have a significant threshold for non-listed

species. FAA Order 1050.1F provides additional guidance on evaluating potential environmental impacts to biological resources, which include:

- a long-term or permanent loss of unlisted plant or wildlife species.
- adverse impacts to special status species (state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats
- substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats
- adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance

5.2.2 Alternative 2: Sponsor's Proposed Action

The proposed obstruction removal will clear approximately 4.8 acres of trees within the Runway 17 approach and 28 acres of trees within the Runway 35 approach. The obstruction clearing will remove the tree, grind the stump, and replace topsoil and seed. Within wetlands and their buffer, as well as any of the identified ASAs, the tree stumps would be left in place. Any smaller trees and understory would remain.

The USFWS IPaC website indicated that the northern long-eared bat, a threatened species, and the monarch butterfly, a candidate species may occur or could potentially be affected by activities at the project location (**Appendix B**). No critical habitats have been identified within the project area.

The ANR Fish & Wildlife Department indicated that upland sandpiper, a state Endangered grassland bird, has been observed on Airport property in grass areas on the edge of the runway and open ground (**Appendix B**). They also noted that there are no nearby records of northern long-eared bat hibernaculum or maternity roost trees; however, in Vermont all forest is considered potential summer habitat for the northern long-eared bat. No other rare, threatened, or endangered species were identified.

As per the Vermont Fish and Wildlife Department, Regulatory Review Guidance for protecting Northern Long-eared Bats and Their Habitats (2017), the proposed level of forest clearing represents >2% of the forested cover within 1-mile which triggers the requirement for bat acoustic surveys. Acoustic surveys must be conducted during the appropriate season, by a qualified biologist, and results are good for 5-years. It is understood that VTrans proposes to conduct surveys in the summer of 2022 in accordance with the guidance. The results of those surveys will determine if additional conditions or restrictions to meet State threatened and endangered species regulations is necessary.

There are no Essential Fish Habitats (EFHs), Habitat Areas of Particular Concern, or EFH areas protected from fishing located within the project areas.

CHA completed a field investigation in July 2021 to document the habitats within the project areas. Vegetative communities identified within the project areas consist of open upland, northern hardwood forest formation, palustrine emergent, scrub shrub and forested wetlands and vernal pools.

Northern Long-eared Bat: Forested areas with trees that are 3-inches dbh or larger, including some with exfoliating bark, crevices, and cavities, as currently exist on the site, are considered suitable summer habitat for northern long-eared bats. As noted above, there are no nearby records of northern long-eared bat hibernaculum or maternity roost trees. The project will require tree removal, which will be conducted

during the winter (between November 1 and March 31) when northern long-eared bats will be hibernating and not using trees.

The project was submitted to the IPaC and received a USFWS verification letter under the January 5, 2016, Programmatic Biological Opinion (PBO) on Final 4(d) Rule for the Northern Long-eared Bat and Activities Exempted from Take Prohibitions (**Appendix B**). The letter indicates that based on the IPaC submission “the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur because of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.” The USFWS did not advise within 30 days that the determination was incorrect. As discussed above, acoustic surveys need to be completed for the Vermont Fish and Wildlife Department. The results of these surveys will be included in permitting documentation during the design phase. Due to the winter cutting and abiding by any conditions or restrictions to meet State threatened and Endangered species regulations, there would be no significant impact to the northern long-eared bat. During obstruction removal activities, dead snags not penetrating airspace, as well as understory and trees species that will not grow into the airspace will be left in place.

On March 22nd, 2022, the USFWS announced a proposal to reclassify the northern long-eared bat as endangered under the ESA. Endangered species are those that are currently in danger of extinction while threatened species are defined as likely to become endangered in the foreseeable future. The comment period for this proposal is open until May 2022 with a final decision expected in November 2022. Given the timeline of the decision, a change in classification will not impact the information in this EA.

Monarch Butterfly: The USFWS Species Status Assessment Report, version 2.1 dated September 2020, indicates that the primary drivers affecting the health of the North American migratory monarch populations are primarily: “*loss and degradation of habitat (from conversion of grasslands to agriculture, widespread use of herbicides, logging/thinning at overwintering sites in Mexico, senescence and incompatible management of overwintering sites in California, urban development, and drought), continued exposure to insecticides, and effects of climate change.*” The Sponsor’s Proposed Action does not include the conversion of grassland to agriculture.

The state of Vermont is within the summer breeding area; therefore, the monarch butterflies would not be present over the winter months, when the trees are proposed to be cut, as the monarchs will be in their overwintering area at that time. As previously discussed, the monarch butterfly can be found in a variety of habitats where it searches for milkweed (*Asclepias spp.*), which is its host plant. Since the Proposed Action proposes impact to forested areas, where most milkweed species (*primarily Asclepias spp.*) are not typically found there would be no impact to the monarch butterfly. Creating open habitat by removing trees may have net benefits for the Monarch butterfly, as the removal of trees would likely improve conditions for pollinator species.

Upland Sandpiper: The upland sandpiper is a grassland bird. The project proposes impacts to wooded areas and not grassland areas. Additionally, the cutting is proposed over winter, outside of the breeding season. Therefore, there would be no significant impact to the upland sandpiper.

Migratory Birds: Of the eight species of migratory birds listed as “Birds of Conservation Concern” in Section 4.5.2, no suitable habitat is present within the project areas for the bald eagle, bobolink, and the

lesser yellowlegs. The bald eagle would be a transient within this area. The bobolink is a grassland bird, and the lesser yellowlegs is a shorebird, so their habitat is not present within the project areas. No impact to these habitat types is proposed.

The black-billed cuckoo occupies dense wooded habitats that are associated with water. Their breeding season is May 15 to October 10. The Canada warbler prefers coniferous or deciduous forest with mossy and shrubby understory and breeds May 20-August 10. The evening grosbeak can be found in mixed coniferous-deciduous woodlands and coniferous areas that are primarily spruce and fir and breeds May 15-August 10. The olive-sided flycatcher breeds in forest and woodland habitats and its non-breeding habitat are forest, woodland, and open areas with scattered trees. The breeding season for the olive-sided flycatcher is May 20-August 31. The wood thrush can be found in mature deciduous and mixed forests with a breeding season of May 10-August 31. Although the tree removal will include the removal of “potential” habitat for these species, the removal is not proposed within the breeding season.

The Proposed Action would not cause a long-term or permanent impact on migratory birds. There would be no adverse impacts to special status species or their habitats, nor would there be substantial impacts on native species’ habitats or populations. There would be no adverse impacts on a migratory bird species’ reproductive success rate, natural mortality rates, non-natural mortality, or ability to sustain the minimum population levels required for population maintenance. Suitable habitat for some of the migratory birds does not exist within the proposed impact areas; therefore, those species will not be displaced by this project. For some species, the tree removal project could improve the habitat over time by reducing tree cover. Tree cutting will be completed between November and March to avoid the breeding season, as cutting within this timeframe is the preferred approach to minimize potential impacts. Therefore, there would be no significant impact to migratory birds.

Deer Wintering Area: The ANR Natural Resources Atlas identified forest mapped as deer wintering area within the limits of the southern project area (refer to **Figure 4-6**). The project proposes tree cutting within approximately 8.67 acres of area mapped as deer wintering area. This area is considered Necessary Wildlife Habitat and is protected via Vermont’s Land Use and Development Law (Act 250). A significant area of mapped deer wintering area will remain after the project is completed. Additionally, smaller trees and understory would remain. During the permitting process, an Act 250 permit will be obtained. There would be no significant impact to deer wintering area.

Invasive Plant Species: The removal of trees could make the impact areas susceptible to invasive plant infestations once disturbed. During construction, measures would be implemented to prevent the spread of invasive plant species within the project areas. All equipment used within the project areas must be cleaned and inspected before delivery to the site. All visible soils and vegetation on equipment must be thoroughly removed prior to site access. Additionally, for the wetland impact areas, it is anticipated that a condition of the Vermont DEC wetland permit will be monitoring of the impacted wetlands annually during early July for five years following completion of the project for purple loosestrife and common reed (*Phragmites australis*). If found, these species must be treated and removed to prevent establishment. An invasive species management plan will be developed as part of the permitting or post permitting process. Therefore, no significant impacts are anticipated.

5.2.3 Alternative 3: No-Action Alternative

The No-Action Alternative would not affect federally or state protected species, critical habitat, essential fish habitat, or migratory birds.

5.2.4 Mitigation Measures

Tree cutting will take place over winter, acoustic surveys will be completed by VTrans, and additional conditions or restrictions to meet State threatened and Endangered species regulations may be required. All appropriate permits will be obtained during the permitting process. Mitigation, in the form of conserving other lands, may be required during permitting for the removal of deer wintering areas.

5.3 CLIMATE

Although there are no federal standards for aviation related Greenhouse Gas (GHG) emissions, it is well-established that GHG emissions can affect climate. The CEQ has indicated that climate should be considered in NEPA analyses.

5.3.1 Significance Threshold

As per the 1050.1F Desk Reference, the CEQ has noted, *“it is not currently useful for the NEPA analysis to attempt to link specific climatological changes, or the environmental impacts thereof, to the particular project or emissions; as such direct linkage is difficult to isolate and to understand.”*

FAA Order 1050.1F Desk Reference guidance states that a discussion of the potential climate impacts be documented in a NEPA document. Any projected GHG emissions associated with proposed actions can be used to assess a proposed action’s climate change effects. Climate change results from the addition of GHG emissions from millions of individual sources. As such, the FAA has not established a significance threshold for climate and GHG emissions.

5.3.2 Alternative 2: Sponsor’s Proposed Action

The Sponsor’s Proposed Action will not include the installation of any emission sources and would not cause permanent increases in air or local vehicular traffic. The temporary increase in emissions from construction equipment will not cause an increase in GHG emissions. Any construction equipment would be properly maintained and outfitted with emission-reducing exhaust equipment. Given the non-mechanical removal methods proposed within wetlands and ASAs, the amount of diesel construction vehicles will be limited.

5.3.3 Alternative 3: No-Action Alternative

The No-Action Alternative will have no impact on GHGs.

5.4 FARMLANDS

Farmlands are defined as those agricultural areas considered important and protected by Federal, state, and local regulations. These significant farmlands include all pasturelands, croplands, and land considered to be prime, unique, or of statewide or local importance. According to the FAA Order 1050.1F Desk Reference, the NRCS FPPA and its implementing regulations (7 CFR § 657.5) define prime, unique, statewide, and locally important farmlands:

- Prime farmland: farmland with the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops
- Unique farmland: farmland that is classified as producing high-value food and fiber crops
- Statewide and locally important: farmland that has been designated as “important” by either a state government, by county commissioners, or by an equivalent elected body.

The FPPA (7 USC 4201-4209) of 1984 was implemented to protect and preserve farmland for agricultural use as part of the 1980 Farm Bill (PL 97-98, Title XV, Subtitle I; 7 USC 4201-4209). This policy, however, does not apply to land already committed to urban development or water storage, regardless of its importance as defined by the NRCS. Impacts to prime agricultural soils and areas being farmed require submission of the NRCS AD-1006 form under the FPPA.

5.4.1 Significance Threshold

According to FAA Order 1050.1F Desk Reference, the FAA's significant threshold for farmlands occurs when the total combined score on Form AD-1006 ranges between 200 and 260 points. The potential for a proposed action or alternative to convert important farmlands to non-agricultural use should also be considered.

5.4.2 Alternative 2: Sponsor's Proposed Action

As discussed in Section 4.9, there are soils within the project area mapped as Prime Farmland and Farmland of Statewide Importance, if drained (refer to **Figure 4-11**). The Sponsor's Proposed Action will not convert any existing agricultural production to non-agricultural use or impact areas being farmed; therefore, there will be no significant impact. These soils are deemed Primary Agricultural Soils according to the Vermont Agency of Agriculture, Food and Markets and would be addressed during the ACT 250 permit that will be completed during design.

5.4.3 Alternative 3: No-Action Alternative

The No-Action Alternative would not have an impact on any prime, unique, or statewide-important soils.

5.5 HAZARDOUS MATERIALS, SOLID WASTE, & POLLUTION PREVENTION

This section provides an impact analysis for hazardous materials, solid waste, and pollution prevention. The analysis considers impacts as defined by the FAA's thresholds of significance contained in the FAA Order 1050.1F Desk Reference, which defines a significant impact for hazardous materials, pollution prevention, and solid waste as one where the proposed action or connected action involves a property on or eligible for the NPL.

5.5.1 Significance Threshold

The FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention; however, an effect on any of the listed criteria below would indicate a potential for significant adverse effects on hazardous materials, solid waste, or pollution prevention.

- Impact a contaminated site.
- Violate hazardous waste or solid waste management laws and regulations.
- Produce hazardous waste.
- Produce solid waste that would exceed local capacity.
- Adversely affect human health and the environment.

5.5.2 Alternative 2: Sponsor's Proposed Action

Alternative 2 was evaluated for the potential to result in impacts associated with the generation, use, and/or disposal of hazardous materials and municipal solid waste. The opportunities for Alternative 2 to undertake pollution prevention measures are also identified.

Hazardous Materials

Based upon the review of Federal and State environmental regulatory agency databases and the observations recorded during a field inspection of the detailed study area, there is no potential to encounter hazardous materials or contaminated subsurface media within the southern detailed study area. There were two areas of concern in the northern detailed study area: three abandoned rusted drums were observed near Wetland Flag C-32 and Pike Industries (adjacent to the detailed study area on Granger Road) was identified as a SHWS. Given the construction impacts and method of tree clearing within this area, there will be no impact on hazardous waste or produce hazardous waste.

Solid Waste

Solid waste generated would be limited to timber and associated vegetative matter. Tree removal activities would be conducted by a licensed and insured tree removal contractor. Except for limited vegetative matter that may be spread on site for decomposition, all materials, such as salvageable timber (lumber), firewood, and woodchips for landscaping or pellets, would be recycled, removed, or transported off site by the contractor, as specified in the design plan. No significant solid waste impacts are anticipated.

Pollution Prevention

Erosion and sedimentation of all exposed soils during tree removal would be minimized using erosion and sedimentation control measures for tree removal, including temporary silt fence, check dams, straw mulch, and geotextile fabric on steeper slopes, as necessary. These measures are to be employed until the impacted areas are stabilized, and vegetative coverage is adequate to minimize erosion. Adherence to the soil and erosion control plan as required in the Stormwater Pollution Prevention Plan (SWPPP) would mitigate any potential impacts. The SWPPP would be prepared prior to construction.

5.5.3 Alternative 3: No-Action Alternative

The No Action Alternative assumes that there would be no construction of facilities at the Airport beyond those projects that have already received environmental approval and that would occur independent of the Sponsor's Proposed Action. No hazardous waste or solid waste impacts are expected under this alternative.

5.5.4 Mitigation

Due to the onsite presence of the three abandoned drums as well as the immediately adjacent SHWS (Pike Industries), tree clearing work in the vicinity of these areas should avoid ground disturbance to avoid contact with potentially contaminated media. Trees can be trimmed/cut, but stumps should not be removed.

5.6 HISTORIC, ARCHAEOLOGICAL, ARCHITECTURAL, AND CULTURAL RESOURCES

The proposed undertaking has been evaluated in compliance with Section 106 of NHPA, which requires Federal agencies to consider the effects of their actions on properties that may be eligible for listing or are listed in the NRHP. The Section 106 process generally requires four steps:

Step 1: Initiate the 106 process through early coordination with the State Historic Preservation Office (SHPO) and other interested parties (36 CFR§800.3: *Initiation of the Section 106 process*).

Step 2: Identify cultural resources that are listed in or are eligible for listing in the NRHP (36 CFR§ 800.4: *Identification of Historic Properties*)

Step 3: Assess the effects the project will have on eligible or listed properties (36 CFR§800.5: *Assessment of Adverse Effects*)

Step 4: Resolve adverse effects in consultation with the SHPO and, if necessary, the Advisory Council on Historic Preservation (36 CFR§800.6: *Resolution of Adverse Effects*)

The methodology for identifying potential historic resources is that of 36 CFR 800.4, Identification of Historic Properties. The methodology for assessing the effects the Proposed Project might have on listed or eligible for listing NRHP resources is that of 36 CFR 800.5, Assessment of Adverse Effects. The methodology for providing a resolution for any such adverse effects is that of 36 CFR 800.6, Resolution of Adverse Effects.

5.6.1 Significance Threshold

According to FAA Order 1050.1F, the FAA does not have a threshold for significant impacts for cultural resources; however, it has identified “factors” to consider when evaluating the “context and intensity” of potential impacts. *“This factor includes, but is not limited to, situations in which the proposed action or alternative(s) would result in a finding of Adverse Effect through the Section 106 process. For historic properties subject to Section 4(f) of the DOT Act, a significant impact would occur when the action involves more than minimal physical use of a Section 4(f) resource or constitutes a “constructive use” based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource”*²

5.6.2 Alternative 2: Sponsor’s Proposed Action

Coordination with the VDHP was initiated on June 8, 2021, when CHA Consulting, Inc, on behalf of FAA, sent a letter describing the project to the VDHP and other interested parties. Through that communication and a review of online databases, it was determined that the project area could potentially contain historic and archaeological resources. An ASA was prepared in August in 2021 and amended in December 2021. The VDHP concurred with the findings on October 10, 2021, and February 4, 2022. In addition, an evaluation of above ground resources was conducted on the in-direct APE which identified 21 resources; however, only one resources (existing airport terminal building) was eligible for the NRHP. The VDHP concurred with those findings on February 4, 2022 (see **Appendix C**).

Effects Finding

Pursuant to 36 CFR 800.5, the FAA issued a No Adverse Effect finding, which was submitted to the VDHP for 30-day review and comment on January 3, 2022. The finding included tree clearing methods agreed upon between the VTrans archaeologist and VDHP. The language developed by VDHP and VTrans must be included in any project related contracts to satisfy the conditions.

The Section 106 No Adverse Effect documentation [36 CFR 800.11(e)] was accepted by VDHP on February 4, 2022. In accordance with 36 CFR §800.8(3)(c), the EA will utilize the NEPA process to fulfill the

² FAA Order 1050.1F Desk Reference (v2), Chapter 8

requirements of Section 106. As such, the public notice for the Draft EA will service as the notice of availability for the No Adverse Effect Finding.

5.6.3 Alternative 3: No-Action Alternative

The No-Action Alternative would not impact historical, architectural, archaeological, or cultural resources as this alternative would not include any tree removal.

5.6.4 Mitigation Measures

Tree removal activities would be conducted by a licensed and insured tree removal contractor. The contract documents to remove the obstructions within the ASAs will contain the following requirements, per the No Adverse Effect Finding:

- A full-time resident engineer will be assigned to monitor tree clearing and ensure that the work is carried out under frozen ground conditions or other suitable winter conditions such as adequate packed snow, and/or with timber matting in wetland areas.
- The full-time resident engineer will assess the ground conditions daily and inform the contractor of the need to halt construction if there is a thaw or if ground disturbance is occurring. Use of mechanized equipment shall not resume until appropriate conditions are confirmed by the resident engineer.
- If there is a winter thaw or ground disturbance is identified, work will be limited to that which can be cut by hand. Mechanized equipment work will be suspended until appropriate ground conditions are confirmed by the resident engineer.
- Topsoil removal, grading, scraping, soil stockpiling, grubbing, or stumping shall not occur within the ASAs
- Access to tree removal will occur on existing haul roads and no new roads will be created.
- The contractor assigned to tree clearing activities will be notified of the above restrictions and any contract will explicitly refer to the required job conditions listed here.

If any archeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, construction in the immediate area would be stopped, and the VDHP would be notified immediately.

5.7 DEPARTMENT OF TRANSPORTATION (DOT) ACT, SECTION 4(F)

Section 4(f) of the DOT Act of 1966 [recodified in 1983 as Title 49, Section 303(c) of the USC] provides for the protection of publicly owned recreational resources and requires the analysis of potential impacts to these resources arising from DOT actions. Resources protected under Section 4(f) include public parks and recreation areas, as well as wildlife and waterfowl refuges or management areas of national, state, or local significance. Section 4(f) also applies to historic sites of national, state, or local significance as determined by the official that has jurisdiction over these historic resources. This section describes the significance threshold(s) pertaining to Section 4(f) resources, describes methodologies used to determine the potential effects, and identifies the potential Section 4(f) resource impacts.

5.7.1 Significance Threshold

FAA Order 1050.1F Desk Reference provides the FAA's significance threshold for Section 4(f), which states that a significant impact would occur if *"the action involves more than a minimal physical use of a Section*

4(f) resource or constitutes a 'constructive use' based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource." For Section 4(f) purposes, an action would "use" a resource in one of two ways.

- **Physical Use:** The action physically occupies and directly uses the Section 4(f) resource. A physical taking of Section 4(f) property through purchase of land or a permanent easement, physical occupation of a portion or all the property, or alteration of structures or facilities on the property would classify as a "use"
- **Constructive Use:** The action indirectly uses a Section 4(f) resource by substantially impairing the resource's intended use, features, or attributes.

5.7.2 Alternative 2: Sponsor's Proposed Action

As identified in Section 4.7, there are no publicly owned parks, recreational areas, or wildlife management areas within the vicinity of the Sponsor's Proposed Action; however, there are 11 potentially archeological sensitive areas within the tree clearing area, including a state-listed historic farmstead.

Archeological Areas

According to the Federal Highway Administration's *Section 4(f) Policy Paper*, Section 4(f) applies to archeological sites that are on or eligible for the NR and that warrant preservation in place. Although there are eleven areas identified as having the potential to be archeologically sensitive, a Phase I investigation was not completed because the Proposed Action will have no ground disturbance within the ASAs. As specified in the No Adverse Effect Finding (refer to **Section 5.6.2**), there will be requirements during tree removal within the ASAs to limit ground disturbance. Since the ASAs are not on the NR, do not warrant preservation in place, and the sites will have no ground disturbance during tree removal, they were determined not to be a Section 4(f) resource. There will be no impact to Section 4(f) archeological resources.

Historic Sites

The only resource identified within the APE to be eligible for the NRHP was the airport terminal. The other 20 resources identified did not warrant inclusion; therefore, the Sponsor's Proposed Action will not impact Section 4(f) historic resources. Although portions of the obstruction removal would be in the viewshed of the terminal building, the tree removal would not impact the historic integrity of the building.

5.7.3 Alternative 3: No-Action Alternative

The No-Action Alternative would not impact or disrupt any Section 4(f) resources.

5.8 LAND USE

The assessment of potential land use and planning effects of the No-Action Alternative and the Sponsor's Proposed Action focuses on identifying applicable federal, regional, state, and local land use plans and policies and assessing the alternatives' consistency to these plans and policies. The CEQ regulations require discussing environmental impacts, including possible conflicts between the Proposed Action and the objectives of federal, regional, state, and local land use plans, policies, and controls for the area concerned. Where an inconsistency exists, the NEPA document should describe the extent to which the FAA would reconcile its actions. Airport actions, such as disruption of a community, relocation of

residences/businesses, or impacts to other impact categories may potentially affect land use compatibility.

5.8.1 Significance Threshold

The FAA has not established a significance threshold for land use or identified specific factors to consider in making a significance determination for land use. The FAA cannot approve funding unless the project is consistent with the plans of public agencies for development of the area in which the airport is located. Additionally, the determination of whether a significant impact exists for land use is often dependent on impacts of the Proposed Action or alternatives on other environmental resource categories.

5.8.2 Alternative 2: Sponsor's Proposed Action

As discussed in Section 4.4.1, a portion of the southern detailed study area is within an area designated as private conservation land by the VLT. According to the VLT, this property, also known as the Dodge Farm, is subject to a grant of Development Rights and Conservation Restrictions. The principal objectives of the Grant are *"to conserve productive agricultural and wood lands, wildlife habitats, non-commercial recreational opportunities and other natural resource and scenic values of the protected property"* (see **Appendix B**). The Dodge Farm property includes 25 acres of tillable land, 7.7 acres of pasture, 137 acres of forest, 2 acres of an existing barn complex, and 3.2 acres classified as "development zone". The total protected property is 176.4 acres with 129 acres excluded from the easement. According to correspondence received from the VLT, the conservation easement requires that any removal of timber on the conserved property, except for firewood for on-site use, is conducted to serve the silvicultural objectives of a forest management plan that has been approved by the VLT. As such, VLT may also consider and approve a request for the conversion of forestland to serve agricultural purposes or other permitted uses of the property. Alternative 2 would require approximately 1.7 acres of obstruction removal within the conservation easement.

To enter into an agreement with VTrans for obstruction removal, the VLT would need to review and approve a revised forest management plan describing this silvicultural treatment or receive a request for a conversion of this forestland to serve other purposes permitted by the grant, such as agriculture. The final project approval may include a consultation with the landowners' foresters or other related professionals and would consider the features and ecological attributes on the property, such as wetlands, watercourses, or other sensitive natural communities. An approval may stipulate how the tree removal or clearing should take place to minimize impacts on water quality and other resources. In addition, the VLT grant requires that the owner of the conserved property seek VLT's prior written approval before conveying any rights of way, easements of ingress or egress, other easements or use restrictions on the conserved property. This coordination would take place during easement negotiations between the property owner, VTrans, and VLT. According to VLT, they may grant permission for such easements or use restrictions if it determines that the plan is consistent with the purposes of the grant.

5.8.3 Alternative 3: No-Action Alternative

The No-Action Alternative would not impact or disrupt communities, relocate residential properties or business and there would be no change in land use.

5.9 NATURAL RESOURCES AND ENERGY SUPPLY

Airport operations require energy in the form of electricity, natural gas, aviation fuel, diesel fuel, and gasoline to power, cool, heat, and provide lighting. Energy requirements associated with airport development generally fall into two categories: those for stationary facilities (terminal and other buildings) and those for aircraft operations. Stationary facilities use utility energy (electric energy and natural gas) to provide lighting, cooling, heat, and hot water to buildings, the airfield, and parking areas. Aircraft operations consume fuel to operate the aircraft and power GSE that service the aircraft. Finally, natural resources, such as sand, gravel, water, wood, concrete, asphalt, and steel, are typically used during airport construction projects.

5.9.1 Significance Threshold

FAA Order 1050.1F does not establish a significance threshold for natural resources or energy supply. Normally, a significant impact would be considered when construction or operation of a proposed action causes the demand for limited consumable natural resources and energy to exceed available or future supplies.

5.9.2 Alternative 2: Sponsor's Proposed Action

The Sponsor's Proposed Action will not result in a change in operations or facilities at MPV, so natural resources and energy supply will not be impacted after project completion. The project does require a limited increase in fuel consumption during construction for machinery and transportation of workers to and from the project area. This increase is not anticipated to be significant, and the additional demand could be met by existing fuel supply.

5.9.3 Alternative 3: No-Action Alternative

Under the No-Action Alternative, no construction activities requiring consumable natural resources or energy would take place; therefore, no effects related to natural resources or energy supply would occur.

5.10 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

According to FAA Order 1050.1F, the FAA must evaluate proposed actions and their effect on the socioeconomics of surrounding communities. Socioeconomic resources include population, income, employment, and economics. Socioeconomic resources also include sensitive populations, such as minorities, low-income communities, and children, as mandated by EO 13045 *Protection of Children from Environmental Health Risks and Safety Risks* and EO 12898 *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. EO 13045 states that federal agencies shall identify and address environmental health and safety risks from their activities, policies, or programs that may disproportionately affect children. EO 12898 serves to avoid the disproportionate placement of adverse environmental, economic, social, or health impacts from federal actions and policies on minority and low-income populations.

The EPA defines environmental justice as 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. Title VI was enacted as part of the Civil Rights Act of 1964 to protect against discrimination based on race, color, and national origin in programs and activities receiving federal financial assistance. To prevent further occurrences, EO 12898 *Federal*

Actions to Address Environmental Justice in Minority Populations and Low-Income Populations was authorized in 1994.

5.10.1 Socioeconomics

Social impacts can consist of a wide range of considerations, as discussed below. The social and economic concerns are always specific to a proposed action and may include impacts such as displacement of residents, neighborhood disruption, tax base reduction, school population changes, change in public services, and other community concerns. Socioeconomic impacts are typically defined as disruptions to surrounding communities, including shifts in patterns of population movement and growth, changes in public service demands, loss of tax revenue, and changes in employment and economic activity stemming from airport development. These impacts may result from the closure of roads, increased traffic congestion, acquisition of business districts or neighborhoods, and/or disproportionately affecting low income or minority populations.

According to Chapter 12 of the FAA Order 1050.1F, Desk Reference, the FAA has not established significance thresholds for socioeconomic effects. The FAA has identified issues to consider when evaluating potential environmental impacts for socioeconomics. If any of the issues exist, they are evaluated to determine if the impact is significant. Some of the factors to consider include, but are not limited to, circumstances in which a proposed action would have the potential to:

- induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area).
- disrupt or divide the physical arrangement of an established community.
- cause extensive relocation when sufficient replacement housing is unavailable.
- cause extensive relocation of community businesses that would cause severe economic hardship for affected communities.
- disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding community; or
- produce a substantial change in the community tax base.

Alternative 2: Sponsor's Proposed Action

The potential for socioeconomic impacts from an airport project is primarily related to the direct effects of land acquisition, the relocation of homes and/or businesses, and alteration of transportation systems and public/cultural facilities. The Sponsor's Proposed Action does not include any of the above actions or result in circumstances with the potential to impact socioeconomics. Therefore, the project would not impact the socioeconomics of the surrounding communities.

Alternative 3: No-Action Alternative

The No-Action Alternative would not alter current socioeconomic factors of nearby communities.

5.10.2 Environmental Justice

According to FAA Order 1050.1F, the FAA has not established a significance threshold for environmental justice; however, the FAA has identified factors to consider. *"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.”*

Alternative 2: Sponsor’s Proposed Action

While the project area is located within census tracts that have minority & low-income population groups, the Sponsor’s Proposed Action, which only includes tree removal, does not create significant or unique environmental impacts. Given the minor construction-period impacts, no high and adverse impacts are anticipated that would disproportionately impact EJ communities when compared to non-EJ communities. Any short-term construction impacts would be anticipated to be experienced by EJ and non-EJ communities alike.

Alternative 3: No-Action Alternative

The No-Action Alternative would not have an effect on an EJ population.

5.10.3 Children’s Environmental Health & Safety Risks

The FAA does not have a significance threshold for children’s environmental health and safety risks. However, if a proposed action would make available products or substances that could harm children by contact or ingestion through the air, food, drinking water, recreational waters, or soil, the project could potentially create a significant impact on children’s health or safety. None of the Alternatives would create environmental health risks or safety risks for any person, regardless of age.

5.11 VISUAL EFFECTS

Any Impacts from light emissions were determined by evaluating changes in airport, as well as evaluating the potential for the change to create an annoyance for land uses in the Study Area. Impacts to visual resources and character were determined by considering the potential changes in landscape and viewshed within the detailed study area.

5.11.1 Significance Threshold

According to FAA Order 1050.1F Desk Reference, the significant determination for both light emissions and visual effects is dependent on the following criteria:

Light Emissions

- Would the proposed action have the potential to create annoyance or interfere with normal activities from light emissions?
- Would the action have the potential to affect the visual character within the study area from new light emissions?

Visual Effects

- Would the action have the potential to affect the area’s visual character, including the uniqueness and aesthetic value?
- Would the action have the potential to contrast with the visual resources in the area?
- Would the action have the potential to block or obstruct the views of visual resources?

5.11.2 Light Emissions

All tree removal will take place during daylight hours. Therefore, no impacts from light emissions are anticipated from either Alternative during construction or after completion. The removal of trees on the Runway 17 end of the runway may allow the MALSR to be more visible; however, the property the abuts the airport on the 17 end is made of up of commercial/industrial.

5.11.3 Visual Resources & Visual Character

Visual resources and visual character impacts are typically related to a decrease in an area's aesthetic quality, resulting from development, construction, or demolition. An analysis of visual impacts considers whether the alternatives would affect, obstruct, alter, or remove visual resources, including buildings, historic sites, or other landscape features such as topography or vegetation, which are visually important or have unique characteristics.

Alternative 2: Sponsor's Proposed Action

The Sponsor's Proposed Action will alter the landscape in the project area by removing vegetation. Some areas will change from forested to more open habitat, with brush and small trees. For the Runway 17 clearing, the areas of tree removal are not anticipated to affect the visual character or aesthetic value of the area and would not contrast with the visual resources in the area given the surrounding properties are commercial. The Runway 35 obstruction removal will clear approximately 28 acres of trees and will have more of a visual impact than the 17 end. Trees and tree species with the ability to grow into the approach would be removed; however, smaller trees and understory would remain. The method of clearing outside of any wetlands, buffer, and ASAs would be negotiated with each landowner during easement acquisition. Given the limited number of residential areas within the clearing area; there would be no significant impact to the visual character is Alternative 2 was implemented.

Alternative 3: No-Action Alternative

No tree removal would be proposed under the No-Action Alternative. Therefore, no impacts to the existing visual character would occur.

5.12 WATER RESOURCES

Water resources are comprised of surface waters and groundwater that are important in providing drinking, recreation areas, essential habitat for wildlife, and aquatic ecosystems. Wild and scenic rivers, surface water, groundwater, floodplains, and wetlands are all included under the water resources category.

5.12.1 Wetlands

Significance Threshold

Wetlands would be significantly impacted if the Sponsor's Proposed Action were to:

- Adversely affect the function of a wetland relative to the quality and quantity of municipal water supplies and maintenance of natural systems
- Substantially alter the hydrology necessary to sustain a wetland
- Substantially reduce the ability of a wetland to retain floodwaters or storm runoff
- Promote the development of secondary activities that would cause the circumstances listed above

Alternative 2: Sponsor's Proposed Action

The Proposed Action involves the removal of trees from approximately 4.4 acres of wetland and 1.81 acres of wetland buffer. Small trees and understory would be retained, with the goal to preserve these areas as undeveloped meadow and scrub shrub communities. As previously discussed, ANR verified the wetland boundaries on September 8, 2021, and determined that all the delineated wetlands are Class II, which have a 50-foot buffer. Alternative 2 would limit the removal method of trees within wetlands and associated buffers to cutting with hand tools and pulling out as needed over winter during frozen ground conditions to the extent practical. Additionally, no grubbing or ground disturbance would occur, no heavy equipment would be allowed into the wetlands or buffers, and no decrease in wetland acreage would result from the project. The cutting and removal will be accomplished through hand falling and skidding with equipment designed to provide minimal disturbance to the surrounding vegetation. The contractor would be responsible for identifying suitable areas for access and staging that are outside of wetlands and buffers. Sedimentation and erosion controls would be incorporated into the design plans.

The Vermont Wetland Rules also protect vernal pools. Given the timing of the EA, the delineation was not completed during the spring amphibian breeding season; therefore, the evaluation of the vernal pools and their ability to support or provide habitat, should be evaluated during the permitting phase. During the permitting process the vernal pools should be evaluated in the spring and the results should be coordinated with Vermont Fish and Wildlife Department.

The Vermont Wetland Rules (2020) identify ten functional criteria for evaluating a wetland's significance, which are listed below:

- Water Storage for Flood Water and Storm Runoff
- Surface and Ground Water Protection
- Fish Habitat
- Wildlife Habitat
- Exemplary Wetland Natural Community
- Rare, Threatened, and Endangered Species Habitat
- Education and Research in Natural Sciences
- Recreational Value and Economic Benefits
- Open Space and Aesthetics
- Erosion Control through Binding and Stabilizing Soil

The functions and values of the wetlands will be fully evaluated during the permitting process; however, impacts are not anticipated to Rare, Threatened, and Endangered Species, Habitat, Education and Research in Natural Sciences, Recreational Value and Economic Benefits or Open Space and Aesthetics. Refer to Section 5.2.2 for discussion on how threatened and endangered species will not be impacted. Additionally, the project areas are not dedicated to education or research, nor have they been in the past, the project areas do not contribute to recreational activities and the project areas are not important open space areas.

Pertaining to the remaining functions and values, there are wetlands within the study area that provide storage for flood water and storm runoff. However, there will be no loss of flood water or stormwater runoff storage because of the proposed project.

Streams and ponds are present and some have adjacent wetland, additionally fish habitat is present. No direct impact to streams or ponds is proposed. Some of the study area is within a groundwater source protection area, however, no adverse impacts to this function are anticipated based on the cutting method proposed.

Wildlife habitat is present, and the study area contains areas of northern white cedar swamp, a deer wintering area, evidence of beavers, various amphibians and vernal pools. The ecological impact is that the community type will change, initially, from a forested to a scrub shrub or meadow community. Within a year, stump sprouting and the existing shrub response to increased sunlight will result in full establishment of a scrub shrub community. This will change the associated wildlife composition from forested species to scrub shrub species. Many of the species' present thrive in various community types and this change will not impact them significantly. Other species are likely to thrive in the converted cover type. Those most likely impacted will be the forest-dependent species, which are primarily birds. As discussed in Section 5.2.2 the Proposed Action would not cause a long-term or permanent impact on migratory birds. Suitable habitat for some of the migratory birds does not exist within the proposed impact areas; therefore, those species will not be displaced by this project. For some species, the tree removal project could improve the habitat over time by reducing tree cover. Tree cutting will be completed between November and March to avoid the breeding season, as cutting within this timeframe is the preferred approach to minimize potential impacts. Therefore, there would be no significant impact to migratory birds.

Lastly, there are wetlands within the study area that provide erosion control. Since the trees will be cut over winter and the understory will remain, no adverse impacts are anticipated to this function.

Measures to minimize impacts to the wetland functions and values that are present include the following:

- Use of erosion and sedimentation control measures.
- Cut over winter during frozen ground conditions.
- Access and staging areas outside of wetlands and buffers
- Smaller trees and understory will remain.
- Stumps will be left in place to reduce soil disturbance.
- Hand cutting, no mechanized clearing.
- No fill or dredging proposed.

Only trees/ tree groups that have been determined to be obstructions would be cut. A wetland permit would be required for the wetland and buffer impacts from the Vermont Department of Environmental Conservation. Due to the proposed method of tree removal within the wetlands, there would be no loss of wetland, and therefore, no significant impact.

Due to the wetland tree removal method described above, it is not anticipated that a Section 404 permit would be required from the USACE. The project does not involve discharge of dredged and/or fill material, excavation, or mechanized land clearing in waters of the United States.

Alternative 3: No-Action Alternative

The No-Action Alternative would not involve tree removal within the project areas; therefore, there would be no impact to wetlands.

Mitigation Measures

If required, compensatory mitigation for impacts to wetlands and wetland buffers could include the creation of wetland, the expansion of an existing wetland, or the payment of fees to a federal “in-lieu fee” program. Due to the potential for wetlands to attract potentially hazardous wildlife, it is assumed that any required compensatory mitigation will be achieved using an existing offsite “in-lieu fee” program. This will be determined during the permitting process. In addition, the vernal pools should be re-evaluated in the spring months.

5.12.2 Surface Waters**Significance Threshold**

A significant impact on surface waters would exist if the action were to impact water quality standards established by federal, state, local, or tribal regulatory agencies or contaminate the public drinking water supply, including an aquifer used for public water supply.

Alternative 2: Sponsor’s Proposed Action

There would be no impact to any of the streams within the project areas. There would be no increase in impervious surfaces resulting from the Sponsor’s Proposed Action as the proposed removal techniques will minimize soil exposure.

Erosion and sedimentation of all exposed soils during tree removal would be minimized using erosion and sedimentation control measures for tree removal, including temporary silt fence, check dams, straw mulch, and geotextile fabric on steeper slopes, as necessary. These measures are to be employed until the impacted areas are stabilized, and vegetative coverage is adequate to minimize erosion.

Alternative 3: No-Action Alternative

The No-Action Alternative would not involve tree removal within the project areas; therefore, there would be no impact to surface waters.

5.12.3 Groundwater**Significance Threshold**

A significant impact on groundwater would exist if the action were to impact water quality standards established by federal, state, local, or tribal regulatory agencies or contaminate the public drinking water supply, including an aquifer used for public water supply.

Alternative 2: Sponsor’s Proposed Action

There are groundwater SPAs within the project area. However, the release of contaminants is not proposed, and no new impervious surfaces or drainage changes are proposed. Erosion and sedimentation control measures are proposed as described above. The contractor will follow the Acceptable Management Practices (AMPs) for Maintaining Water Quality on Logging Jobs in Vermont and refer to the recent 2019 manual issued by VT Forest Parks and Recreation. Any release or accidental spill of hazardous materials within the SPA needs to be reported to the VT Spill Program and the water system notified. Pursuant to the Water Supply Rule, pesticides and herbicides will not be applied within 200 feet of the public water source and the water system should be notified prior to application. Given the nature of the proposed action, impacts on the SPAs are not anticipated.

Alternative 3: No-Action Alternative

The No-Action Alternative would not involve tree removal within the project areas; therefore, there would be no impact to groundwater.

5.13 CUMULATIVE IMPACTS

Cumulative effects are defined by the CEQ in 40 CFR 1508.7 as impacts on the environment which result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

The CEQ regulations also state that the cumulative impacts addressed should not be limited to those from actual proposals but must include impacts from actions being contemplated or that are reasonably foreseeable. The CEQ regulations further require that NEPA environmental analyses analyze connected, cumulative, and similar actions in the same document (40 CFR 1508.25). This requirement prohibits segmentation of the project into smaller components to avoid required environmental analysis. CEQ suggests analyzing only those resources that could be incrementally affected by the proposed action and other actions within the same geographic area and time period. The proposed project, as documented throughout this section, will not cause a significant impact to any of the resource categories contained in FAA environmental orders. As a cumulative impact analysis is part of the NEPA process, the projects contained in MPV's Airport Capital Improvement Plan (ACIP) were examined and documented.

5.13.1 Past, Present, & Reasonably Foreseeable Actions

To identify and describe past, present, and reasonably foreseeable actions, CEQ suggests the use of best available information. Therefore, the most recent ALP, the ACIP, and coordination with airport staff were all used to identify past, present, and foreseeable future projects.

Past Projects

According to VTrans, although small maintenance projects have been completed over the past three years, the Airport has not completed a major capital improvement project that would have had an impact on environmental resources.

Present Projects

In August of 2021, the Airport Sponsor received notification from the FAA that the 20:1 penetrations to Runway 17 impact the ILS and LPV approaches, and that they would be published "not available" if these obstructions were not removed. The FAA identified five (5) "points" representing penetrations that impact both procedures. The five (5) points highlight the tops of a tree canopy rather than individual trees. An obstruction study completed by VTrans in November 2020 identified each individual 20:1 penetration in the vicinity of the five (5) FAA points. The proposed project would clear all the identified 20:1 obstructions (approximately one acre) that are located on Airport property. This project was excluded from the EA given the impact of losing the ILS approach for Runway 17. The proposed tree clearing is scheduled for winter of 2021-2022. Like the Sponsor's Proposed Action, the cutting and removal within wetlands, buffer, and ASAs would be accomplished through hand felling and skidding with equipment designed to provide minimal disturbance to the surrounding vegetation. All removal activities would occur during the dormant season for the northern long-eared bat, between October 1 and March 31. A state wetland permit was submitted in December 2021.

Reasonably Foreseeable Projects

According to the ACIP, the projects that are proposed in the next three years are associated with the Sponsor's Proposed Action that is analyzed in this EA. Over the next three years, VTTrans will negotiate and acquire aviation easements, complete the design for the obstruction removal, and remove the obstructions via a construction contract. The airport is also conducting an Act 250 permitting, stormwater analysis, and cultural resources review for future hangar development that may take place over the next three years, but more likely the five-year time frame.

5.13.2 Potential Impacts

The Sponsor's Proposed Action discussed in this EA, in conjunction with the other past, present, and future planned projects will not have a significant cumulative impact on the environment. All future projects will be funded by FAA and will be required to undertake their own NEPA process, as well as complying with other Federal, State, and local regulations.

5.14 PERMITS

The following permits will be required before elements of Alternative 2 can begin:

- Construction General Permit 3-9020 and a SWPPP
- Vermont Department of Environmental Conservation- Wetland Individual Permit
- Vermont Natural Resources Board Act 250 Land Use Permit

6 PUBLIC INVOLVEMENT

This section provides a summary of the agency coordination and public involvement efforts that have been conducted during this EA process.

6.1 EARLY AGENCY COORDINATION

In June 2021, at the beginning of the EA process, early agency letters were sent to various federal, state, and local agencies to solicit comments on the Sponsor's Proposed Action and how the project elements could impact the resources each agency has the authority to regulate. The letters included an exhibit illustrating the actions proposed. Agencies were asked to submit any specific concerns they had with the project, any available technical information that would aid in the development of the EA, or any permitting/mitigation requirements that would be necessary for implementation. Agency responses were received through e-mails that have been cataloged and included within **Appendix B**.

6.2 DRAFT EA

The Draft EA was made available for review via a public Notice of Availability (NOA), which was published in the Times Argus on Saturday, March 12th and Saturday, March 19th, 2022 (Affidavit of Publication included in **Appendix E**). The Draft EA was made available electronically on the MPV public website (<https://vtrans.vermont.gov/aviation/airports/knapp>). Hard copies were made available at the following addresses:

- Kellogg-Hubbard Library, 135 Main Street, Montpelier, VT
- Aldrich Public Library, 6 Washington Street, Barre VT

The NOA invited the public to send written comments through mail or email by April 22, 2022, with responses to each comment included in the EA. However, no comments were received.

6.3 PUBLIC MEETING

A hybrid public meeting was conducted in an open house format on Wednesday, April 13, 2022 from 6:00 P.M. to 7:30 P.M. The meeting provided an overview of the NEPA process, background on the Airport and its facilities, a project schedule, the purpose and need for the project, preliminary alternatives being considered, and a description of the technical studies that were completed. A presentation was given to the eight attendees, followed by an informal question and answer (Q&A) session. No questions were asked during the Q&A session. A recording of the hybrid public meeting was posted to the Airport's website. The public notice, presentation slides, and a list of attendees can be found in **Appendix E**.

7 LIST OF PREPARERS

The names and responsibilities of the principal persons contributing information to this EA are identified below.

Preparer	Title	Responsibility
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Vermont Agency of Transportation		
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Jeannine Russell	Archaeology Officer	Document Review
Judith Ehrlich	Historic Preservation Officer	Document Review
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