



**CALEDONIA COUNTY STATE AIRPORT  
LYNDON, VERMONT**

**OBSTRUCTION ANALYSIS AND RUNWAY 2-20  
RECONSTRUCTION  
AIP #3-50-009-004-2016**

**ENVIRONMENTAL ASSESSMENT**

**NOVEMBER 2018**

**PREPARED FOR:  
Vermont Agency of Transportation**



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- Appendix B - VTrans Section 106 Project Review Memorandum, April 28, 2017.
- Appendix C - USFWS IPaC (Information for Planning and Consultation) Species List
- Appendix D - VT Fish and Wildlife Department Comments, 03.30.18

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## SECTION 1 - INTRODUCTION

### 1.0 OVERVIEW

This Environmental Assessment (EA) has been prepared to assist the Federal Aviation Administration (FAA) in evaluating the potential environmental consequences for a range of proposed capital improvements at the Caledonia County State Airport (CDA) in Caledonia County, Vermont.

The Agency of Transportation (VTrans) has prepared a Capital Improvement Plan (CIP) for CDA. As outlined in the current CIP, the proposed improvements addressed in this EA are intended to upgrade the Airport, which would allow CDA to operate in a safe and efficient manner, meet FAA design criteria, and achieve its airside goals. The EA will address the environmental impacts of those projects identified in this CIP, including a shift of the runway 500' south, removal of the existing runway in the area of the southerly shift at the north end of the airport, associated taxiway and apron reconstruction and removal of obstructions.

This EA has been prepared in accordance with the National Environmental Policy Act of 1969, 42 United States Code (USC) 4321 et seq. (NEPA, 1969) and the Council on Environmental Quality implementing regulations CEQ; 40 CFR 1500-1508 (CEQ, 2005). The FAA's *Environmental Impacts: Policies and Procedures* (FAA Order 1050.1F) was used as guidance for the format and content of this EA, as was the *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions* (FAA Order 5050.4C). This EA also addresses the criteria set forth in the Vermont Land Use and Development Law (ACT 250).

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## 1.1 EXISTING FACILITY

The Caledonia County State Airport (CDA) is located in central Caledonia County in the Northeast Kingdom region of Vermont and the Town of Lyndon (see Figures 1.1 & 1.2). The Airport is a general aviation airport approximately 2.4 miles northwest of the Village of Lyndonville. The Town of Lyndon had an estimated population of 5,981 in 2010 while the 2007 Village of Lyndonville population was estimated at 1,227 residents. The Airport is owned by the State of Vermont and managed by the Agency of Transportation, Policy and Planning & Intermodal Development Division, Aviation Program.

The Airport encompasses approximately 68.2 acres, and is located within the Town's designated Commercial Zone with surrounding properties zoned as Rural Residential. Airport infrastructure includes a single runway (RW 2-20) measuring 3,302 feet long by 60 feet wide. The runway is supported by a partial parallel taxiway Alpha measuring 925 feet long by 40 feet wide, a stub taxiway Bravo measuring 145 feet long by 32 feet wide and a stub taxiway Charlie measuring 300 long by 30 feet wide. The Airport supports a tie-down apron and 15 hangers, one of which includes the office, briefing room, and lounge.

North of the Airport is Airport Road, several farms and woodland. The terrain rises to the northwest. To the east are a few residential properties, agricultural and forest land. The land slopes gently to the east from the Airport across Pudding Hill Road to a point where it drops off more steeply. To the south, there is an existing ledge knob on the airport property before the land drops off to woodlands. To the west it is open agricultural land with interspersed residential properties and woodlands.

Operations at the Airport include business transportation, military and recreational flying. According to the VTrans CDA Operator, the Airport has approximately 1,460 annual operations. The Airport provides aircraft fuel (Avgas).

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The FAA Advisory Circular 150/5300-13A (FAA, 2014) sets the recommended standards for design of civil airports along with 14 Code of Federal Regulations Part 77 Standards. The design aircraft for this airport is B-1

## 1.2 OPERATIONS AND AIRCRAFT

Operations at the Airport include business transportation and recreational flying. According to the VTrans CDA Operator, the Airport has approximately 1,460 annual operations.

## 1.3 PROJECT BACKGROUND

The *Safe, Efficient Use, and Preservation of Navigable Airspace*, is described in 14 CFR Part 77 and AC 150/5300-13A as surfaces established in relationship to an airport and each runway end to identify those objects that may impact airport planning and flight operations. The size of this surface depends on the type of approach (visual, non-precision instrument, and precision instrument) planned for the runway. Five principle surfaces are defined in 14 CFR Part 77:

- Primary Surface – A surface longitudinally centered on the runway that extends 200 feet beyond the end of the runway at a width of 500 feet for Runways 2 and 20.
- Approach Surface – A basic definition of an Airport’s Approach Surface is an imaginary surface that is the same width as the Primary Surface which begins at the Primary Surface end and extends upward and outward from the Primary Surface end and is centered along an extended runway centerline. The Runway 2 approach is currently a non-precision approach with an approach slope of 34:1 and is identified in the Airport Master Plan to remain as a non-precision approach. Runway 20 is currently identified as a visual approach with an approach slope of 20:1. The Runway is projected to remain as a visual approach runway in the Airport’s Master Plan.

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- Transitional Surface – A surface that extends outward and upward at right angles to the runway centerline extending at a slope of 7:1 from the sides of the primary surface and the sides of the approach surfaces.
  - Horizontal Surface – A horizontal oval shaped area at 150 feet above the established airport elevation. Its dimensions are determined by using 5,000 foot arcs for Runway 2/20, which are centered 200 feet beyond each runway end, then connected tangentially to the arcs.
  - Conical Surface – A surface that extends outward and upward from the horizontal surface at a slope of 20:1 to an elevation 350 feet above the established airport elevation.

Based on field survey and aerial drone survey, both runway approaches contain significant obstructions that pose a potential hazard to aircraft operations. The obstructions consist mostly of trees primarily off airport property. A small area of land mass on airport property penetrates the approach to Runway 20. Airport Road, a Town Highway, crosses the approach just north of the Runway. Trucks operating on this roadway penetrate the approach surface to Runway 20, creating an obstruction. A more significant land mass (knob) on airport property penetrates the approach to Runway 2 along with several trees both on and off airport property.

The State does not have aviation easements in place on the off airport properties which would allow for the removal/lighting of current obstructions, and the maintenance of these areas free of obstructions in the future.

An evaluation of the pavement condition for Runway 2/20 was completed in 2015. The Pavement Condition Index (PCI) for the runway was 53 for the north end and 51 at the south end. These fall well below the minimum value of 65. The runway was last overlaid in 1989. The runway does not meet minimum pavement conditions standards and has not been

reconstructed in over 28 years. The runway centerline is concave with up to a 21-foot differential between the low and high points of the runway. The runway slope ranges between -0.9% and 1.08%. This is within the AC design standard of 2%.

The partial parallel taxiway and apron pavement are in poor condition. The Taxiway does not meet current FAA Standard for Runway to Taxiway separation. Current centerline to centerline separation is 200 feet. The design standard separation as presented in AC 150/5300-13A (FAA, 2014) for B-1 aircraft with approach minimums of Not Lower than 1 Mile, is 225 feet.

## **1.4 PROPOSED IMPROVEMENTS**

The proposed action consists of the following elements:

- 1.4.1** Secure Avigation Easements on the two parcels within the approach to Runway 2 and four parcels to Runway 20. The Avigation Easements will permit the State to remove existing obstructions (cut/remove trees and remove ledge), prevent the construction/placement of manmade obstructions within the approaches in the future and to maintain these areas free of obstructions in the future.
- 1.4.2** Shift the runway 500' south, and remove 500' of existing runway at the northern end of Runway 20. This will allow trucks to travel on Airport Road without penetrating the approach surface.
- 1.4.3** Remove the land mass penetrations on airport property to an elevation below the approach surfaces.

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#### 1.4.4 Runway 2/20

Complete full depth reconstruction of the Runway 2/20. Runway reconstruction will include raising the centerline profile by up to 7 feet at the runway midpoint to meet FAA Standards for profile grade as well as to improve drainage performance. As noted previously, the runway will be shifted 500' south, addressing the obstruction issue on Airport Road. The Runway 2 end will be extended 500 feet to the south to maintain a usable runway length equal to the existing 3,302 feet. An existing ledge knob, on airport property, will be removed to accommodate the 500' southerly shift and the runway safety area, provide fill for the runway reconstruction and to eliminate the obstruction caused by the shift in the runway to the south. The pavement section is anticipated to include pavement reclamation. New runway/taxiway lighting, signage and markings will be installed as a part of the reconstruction project.

#### 1.4.5 Taxiways

The existing parallel, stub taxiways and apron will be reconstructed to meet current FAA standards including runway to taxiway separation. Full depth reconstruction is anticipated.

Caledonia County State Airport

Environmental Assessment

Section 1 – Introduction

November 2018



Aviation Division

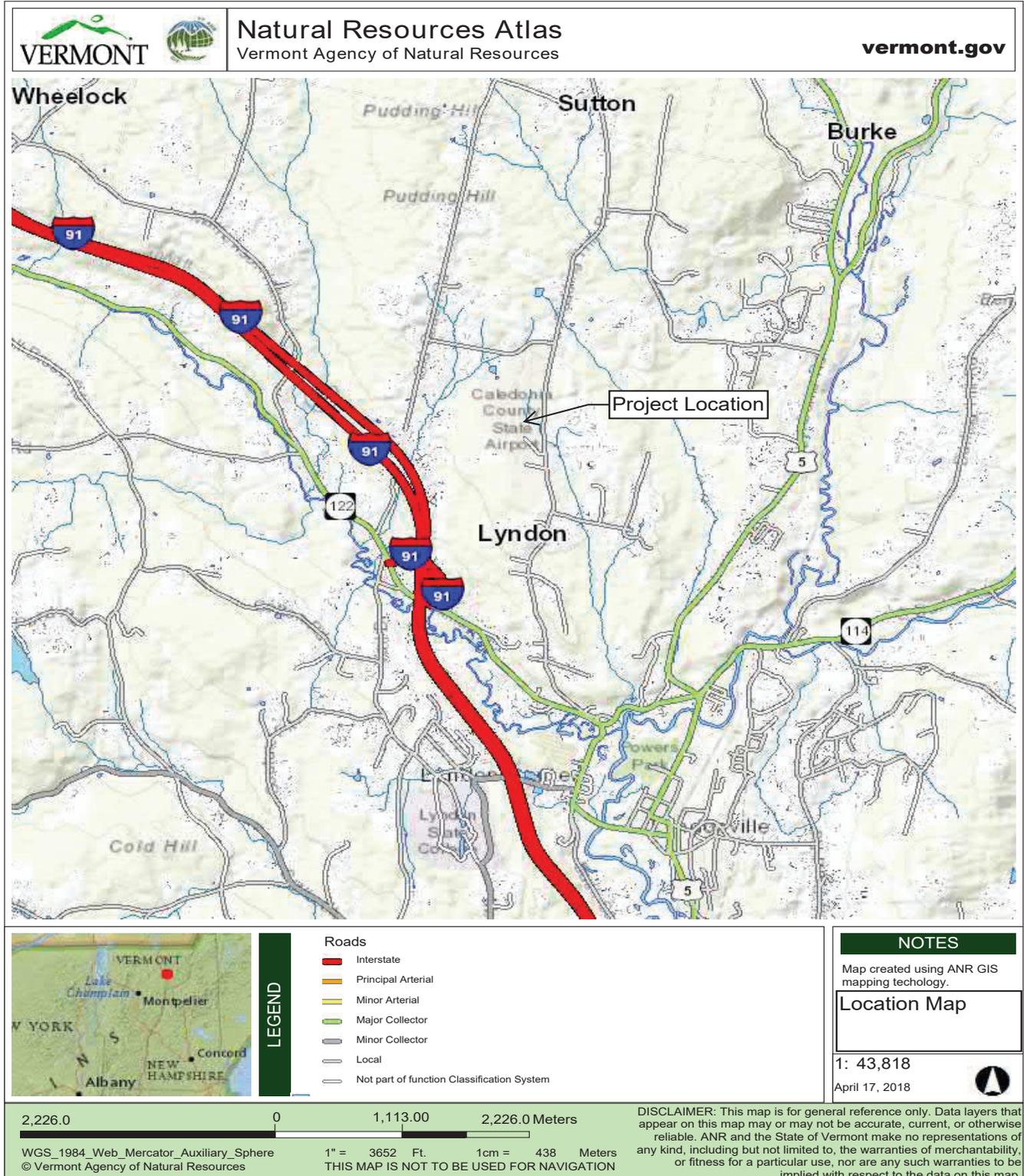


Figure 1-1. Location Map

Caledonia County State Airport

Environmental Assessment

Section 1 – Introduction

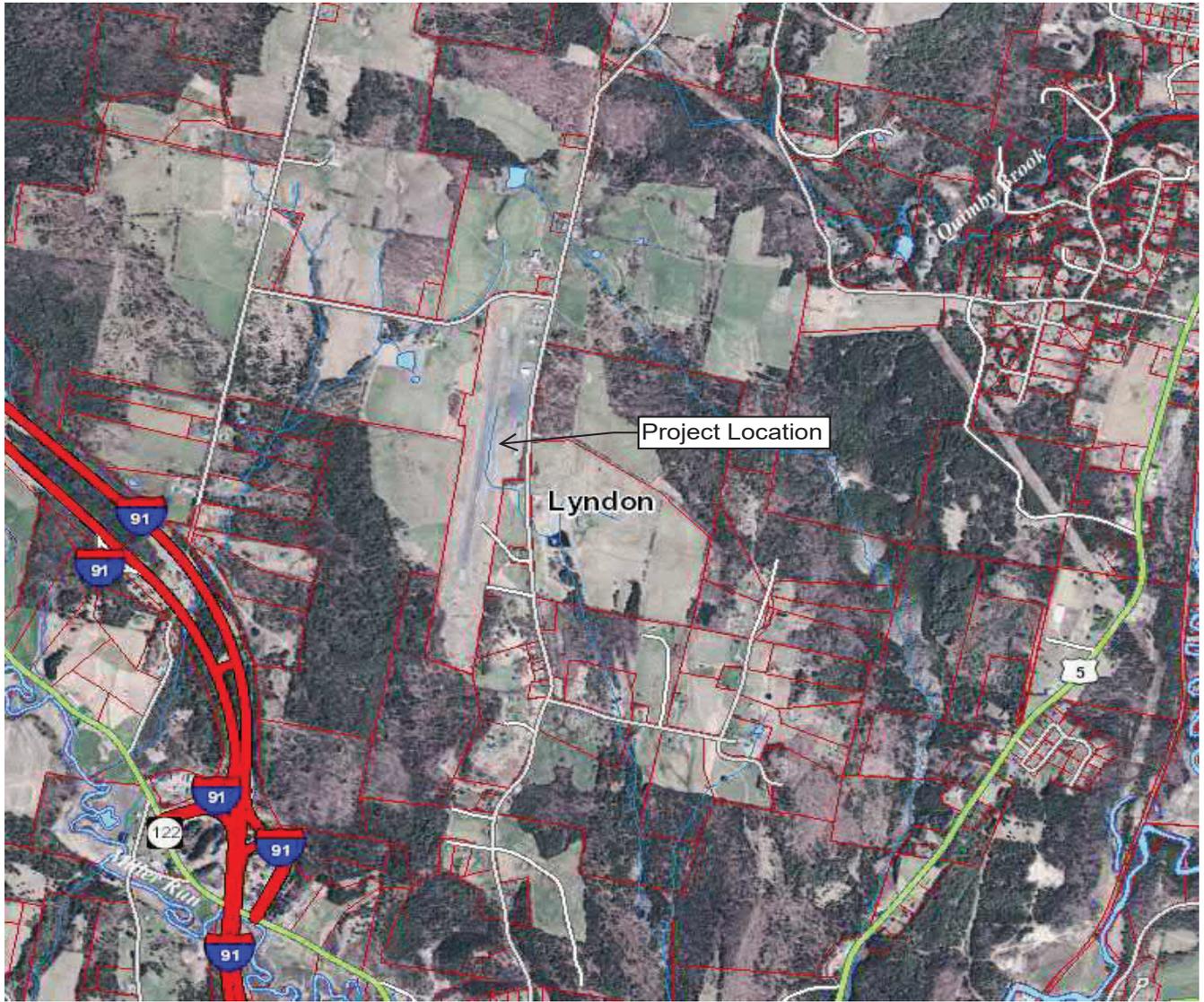
November 2018



Aviation Division



**Natural Resources Atlas**  
 Vermont Agency of Natural Resources
 **vermont.gov**



**LEGEND**

-  Parcels (Standardized)
- Roads**
-  Interstate
-  Principal Arterial
-  Minor Arterial
-  Major Collector
-  Minor Collector
-  Local

**NOTES**

Map created using ANR GIS mapping technology.

1: 21,909

April 17, 2018



1,113.0      0      556.00      1,113.0 Meters  
 WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere      1" = 1826 Ft.      1cm = 219 Meters  
 © Vermont Agency of Natural Resources      **THIS MAP IS NOT TO BE USED FOR NAVIGATION**

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

Figure 1-2. Vicinity Map

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## SECTION 2 – PURPOSE AND NEED

### 2.0 PURPOSE AND NEED

The proposed Action includes the establishment of avigation easements for off-airport properties, a 500' southerly shift of Runway 2/20, removal of the northernmost 500' of existing runway, the removal or marking of obstructions (trees and ledge) within the approaches to Runway 2/20 and the reconstruction of Runway 2/20 and associated Taxiways and Apron. The Vermont Agency of Transportation (VTrans) and the Federal Aviation Administration (FAA) have initiated this Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) to identify, assess and consider in their decision making process, the potential impacts on the human and natural environment associated with the proposed Action. The FAA has adapted procedures for implementing NEPA for Airport Actions in FAA Orders 1050.1F and 5050.4C (FAA, 2015 and FAA, 2018). This Section of the document sets forth the foundation for determining the range of alternatives to be considered, based on the stated purpose of the Action and why it is needed.

### 2.1 PURPOSE

The Proposed Action is to improve safety at the Caledonia County State Airport by addressing obstructions (trees) within the runway approaches, pavement conditions and taxiway/runway separation. FAA requirements are outlined in 14 CFR Part 77, *Safe, Efficient Use, and Preservation of Navigable Airspace*, and FAA Advisory Circular 150/5300-13A, *Airport Design* (FAA, 2014). VTrans has established a Pavement Condition Index minimum rating for State Airport Runways of 65. The State currently does not have permanent avigation easements for off-airport properties that would allow for the removal or marking of obstructions now and into the future.

## 2.2 NEED

The need for the Proposed Action is presented in three parts, obstructions, pavement condition and taxiway/runway separation as follows:

Obstructions – For this Proposed Action are defined as obstacles (natural or manmade) which penetrate the primary approach surface to Runway 2 or Runway 20. Trees which penetrate the approach surface are also considered obstructions. To comply with current FAA requirements noted above and the FAA Grant Obligations, the Airport Owner must remove, relocate, lower or properly mark obstructions and maintain markings or maintain the approaches free of obstructions into the future. Currently there are obstructions within the approach surfaces and the Airport Owner (State) does not have clear rights (Avigation Easements) to address obstruction on off-airport properties.

Pavement Condition – An evaluation of the pavement condition for runway 2/20 was completed in 2015. The Pavement Condition Index (PCI) for the south end of the runway was 51 and for the north end, 53. The PCI's for Runway 2/20 fall well below the minimum value of 65. The runway was last overlaid in 1989 and there is no record of when the runway was last reconstructed. The runway has received block patching and crack sealing several times since 1989. The runway does not meet minimum pavement conditions and it has been over 28 years since it was last reconstructed.

Taxiway/Runway Separation- The FAA Advisory Circular 150/5300-13A establishes Design Standards for Airports. Chapter 4 of this AC sets out design criteria for Taxiways including separation distances between parallel taxiways and runways. The purpose of these standards (minimums) are to allow aircraft to operate safely on both facilities at

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the same time without interference. The current parallel taxiway separation distance to runway 2/20 at the Caledonia County State Airport is 200 feet. This does not meet the minimum separation distance of 225 feet.

### **2.3 TIMEFRAME OF THE PROPOSED ACTION**

The EA anticipates the Proposed Action to be completed in Phases with all work completed by 2023. The timeline of the Proposed Action is contingent upon a Finding of No Significant Impact (FONSI) to this EA in 2018 and future FAA funding of the construction projects. Phase I, Obstructions, anticipates acquisition of aviation easements in 2019 and removal or marking of obstructions in 2020/21. Phase II, runway/taxiway improvements, anticipates completion of preliminary design and acquisitions of permits in 2020, Final Design and Bidding in 2021 and Construction in 2022/23.

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## SECTION 3 – PROPOSED ACTION AND ALTERNATIVES

### 3.0 ALTERNATIVE EVALUATION PROCESS

This section presents a brief discussion of the reasonable alternatives, including the No Action Alternative, considered in meeting the purpose and need for the project and why certain Alternatives were eliminated from further study. Only the Preferred Alternative and the No Action Alternative are discussed further in the EA document.

### 3.1 NO-BUILD – NO ACTION ALTERNATIVE

#### 3.1.1 The No Build

The No Action Alternative would not address the runway condition deficiencies, the obstructions within the approach to runways 2 and 20, or the runway/taxiway separation deficiency. As such, this alternative does not satisfy the stated Purpose and Need. This alternative is carried forward in the EA as a comparison to the Preferred Alternative.

### 3.2 BUILD ALTERNATIVES

#### 3.2.1 Alternative A – Preferred Alternative

Alternative A includes:

##### Runway 2/20

- Full depth reconstruction of the runway.
- Modification of the runway profile to reduce the sag to the extent practicable.
- Shift of Runway 20 500' to the south to eliminate the off-airport obstruction caused by box trucks operating on Airport Road.

- Extend existing Runway 2 by 500 feet to the south to maintain the current runway length of 3,302 feet.
- Remove the on-airport knoll obstruction at the end of Runway 2; use that material to improve the runway profile.
- Remove the northernmost 500' of existing runway to maintain the current runway length of 3,302 feet.
- Upgrade the runway lighting, signage and markings to current standards.
- Associated drainage improvements.

#### Taxiways

- Full depth reconstruction of the existing taxiways.
- Adjust the separation distance between the parallel taxiway and runway to comply with current standards.
- Upgrade the taxiway lighting, signage and markings to meet current standards.

#### Apron

- Full depth reconstruction of the existing apron.

#### Obstructions

- Secure Avigation Easements on three parcels within the approach to RW 2.
- Secure Avigation Easements on four parcels within the approach to RW 20.
- Remove the on-airport obstruction of the ledge knob south of the RW 2 end.
- Remove trees identified as obstructions, both on- and off-airport.
- Minor impacts to a stand of mature maple trees being used in a current sugaring operation; least tree cutting of all alternatives; avoids the taking of a roost tree used by federally protected bald eagles for feeding.

The proposed action for this Alternative is depicted in Figures 3.1 and 3.2.

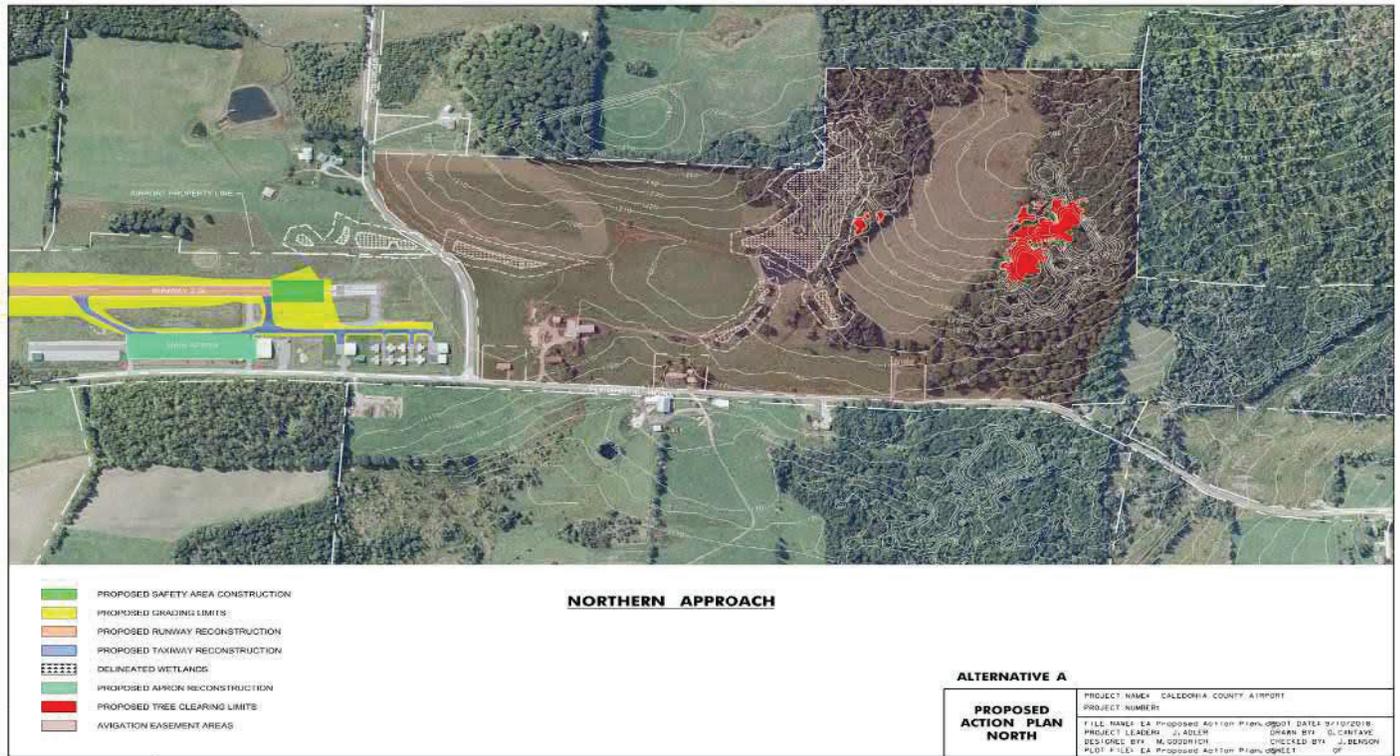


Figure 3-1. Proposed Action – Alternative A, Northern End of Airport

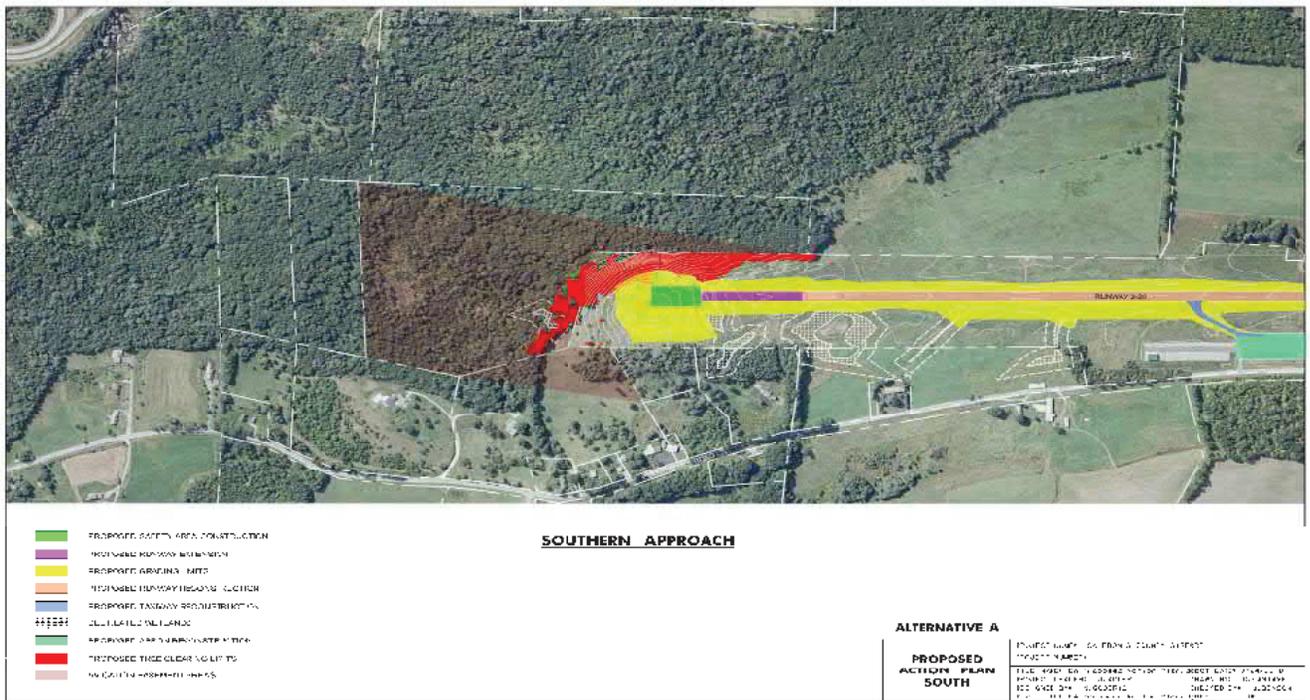


Figure 3-2. Proposed Action – Alternative A, Southern End of Airport

Wetland impacts associated with this Alternative include 0.2 acre of wetland fill, 1.5 acres of wetland buffer fill, 0.003 acre of wetland tree clearing and 0.2 acre of buffer tree clearing.

Tree clearing impacts associated with this Alternative total 5.6 acres.

Impacts to agricultural soils total 10.46 acres of prime agricultural soils and 2.94 acres of statewide agricultural soils, almost all of which is within airport property.

### **3.2.2 Alternative B**

Alternative B includes:

#### Runway 2/20

- The existing runway position and length would be maintained.
- Full depth reconstruction of the runway.
- Modification of the profile to reduce the sag to the extent practicable.
- Relocation of Airport Road to the north to eliminate the off-airport obstruction conditions caused by box trucks operating on this roadway. This would require the taking of a single family residence and relocation of its residents, acquisition of new road Right-of-Way and airport property and reconstruction of approximately 1,000 feet of town highway.
- Upgrade the runway lighting, signage, and pavement markings to current standards.
- Associated drainage improvements.

#### Taxiways and Apron

- Same as Alternative A.

#### Obstructions

- Secure Aviation Easements on four parcels within the approach to RW 2.

- Secure Avigation Easements on four parcels within the approach to RW 20.
- Remove the on-airport obstruction of the ledge knob south of the RW 2 end.
- Remove trees identified as obstructions both on- and off-airport.
- This alternative would impact more of the sugar maple stand than Alternative A, the same amount as Alternative C, and less than Alternatives D and E. It would result in the taking of the roost tree used by federally protected bald eagles for feeding.

The proposed action for this Alternative is depicted in Figures 3.3 and 3.4.

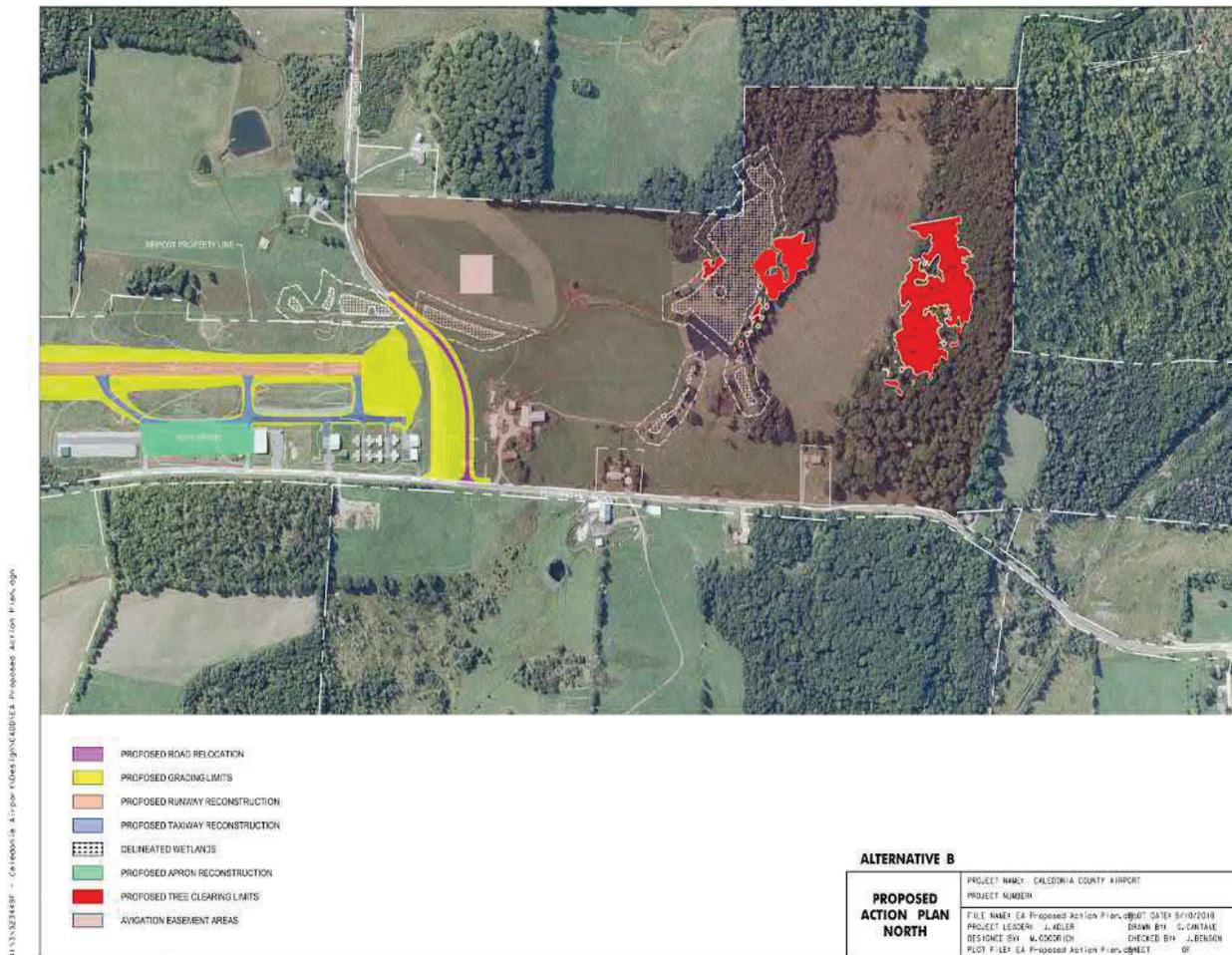
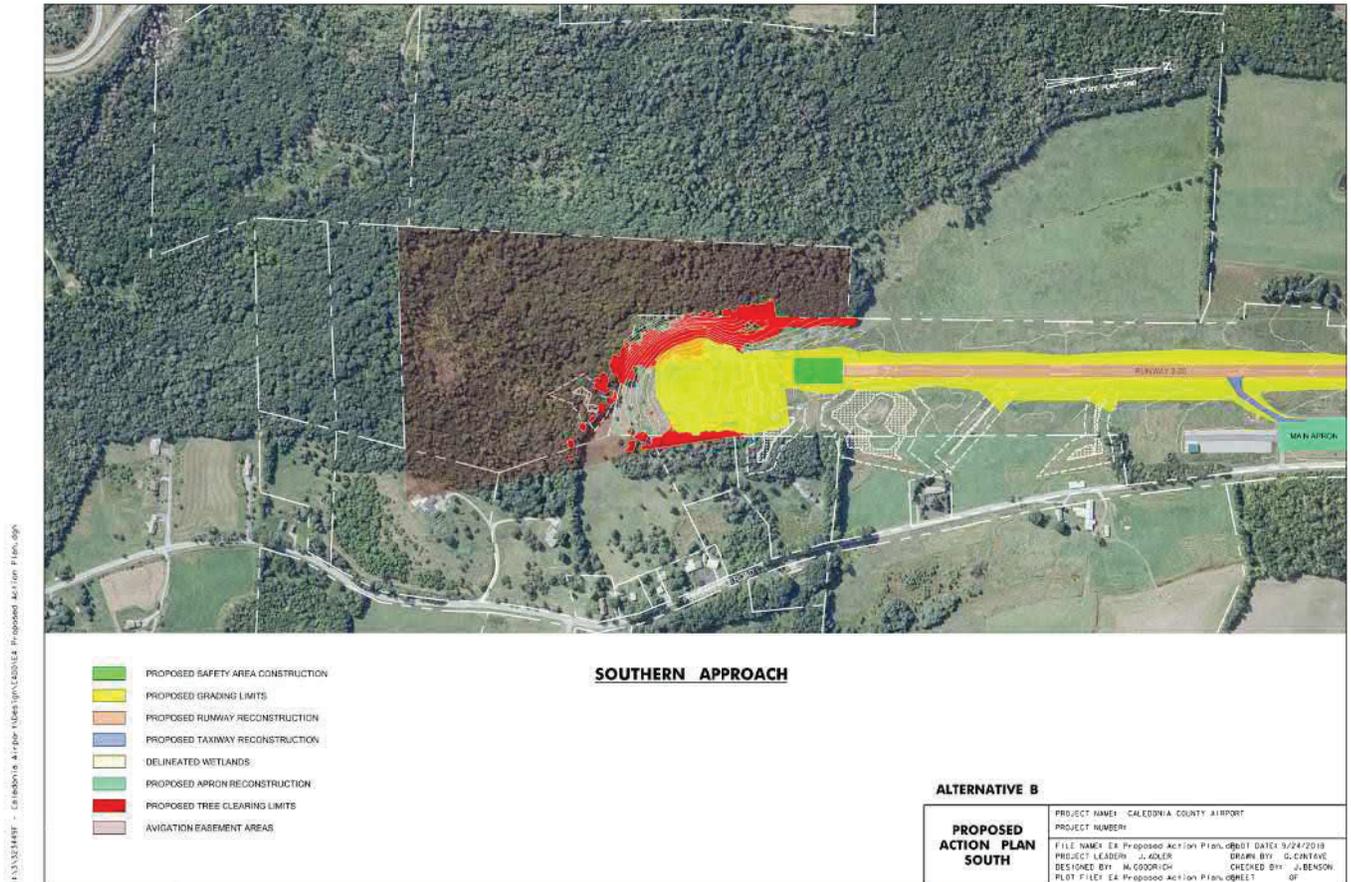


Figure 3-3. Proposed Action – Alternative B, Northern End of Airport



**Figure 3-4. Proposed Action – Alternative B, Southern End of Airport**

Wetland impacts associated with this Alternative include 0.4 acre of wetland fill, 2.0 acres of wetland buffer fill, 0.1 acre of wetland tree clearing and 0.6 acre of buffer tree clearing.

Tree clearing impacts associated with this Alternative total 10.2 acres.

Impacts to agricultural soils total 12.53 acres of prime agricultural soils and 5.27 acres of statewide agricultural soils, almost all of which is within airport property.

### 3.2.3 Alternative C

Alternative C includes:

#### Runway 2/20

- The existing runway position, length and profile would be maintained.
- Full depth reconstruction of the runway.
- Upgrade the runway lighting, signage, and pavement markings to current standards.
- Associated drainage improvements.

#### Taxiways and Apron

- Same as Alternative A.

Note, since the runway would remain at its current elevation there will be less earth fill required for this alternative.

#### Obstructions

- Secure Avigation Easements on four parcels within the approach to RW 2.
- Secure Avigation Easements on four parcels within the approach to RW 20.
- Remove the on-airport obstruction of the ledge knob south of the RW 2 end.
- Remove trees identified as obstructions both on- and off-airport.
- This alternative would impact more of the sugar maple stand than Alternative A, the same amount as Alternative B, and less than Alternatives D and E. It would result in the taking of the roost tree used by federally protected bald eagles for feeding.
- This alternative does not remove the off-airport obstruction of box trucks on Airport Road.

The proposed action for this Alternative is depicted in Figures 3.5 and 3.6.



Figure 3-5. Proposed Action – Alternative C, Northern End of Airport



Figure 3-6. Proposed Action – Alternative C, Southern End of Airport

Wetland impacts associated with this Alternative include 0.006 acre of wetland buffer fill, 0.09 acre of wetland tree clearing and 0.6 acre of buffer tree clearing.

Tree clearing impacts associated with this Alternative total 10.2 acres.

Impacts to agricultural soils total 1.37 acres of prime agricultural soils and 0.16 acres of statewide agricultural soils.

### **3.2.4 Alternative D**

Alternative D includes:

#### Runway 2/20

- Full depth reconstruction of the runway.
- Displace the Runway 20 threshold 120' south to eliminate the off-airport obstruction caused by box trucks operating on Airport Road (thereby avoiding the need to relocate Airport Road).
- Extend existing RW 2 by 120 feet to the south to maintain the current runway length of 3,302-feet.
- Modification of the profile to reduce the sag to the extent practicable.
- Upgrade the runway lighting, signage, and pavement markings to current standards.
- Associated drainage improvement.

#### Taxiways and Apron

- Same as Alternative A.

#### Obstructions

- Secure Avigation Easements on six parcels within the approach to RW 2.
- Secure Avigation Easements on four parcels within the approach to RW 20.
- Light the on-airport obstruction of the ledge knob south of the RW 2 end, but do not remove.
- Light the on- and off-airport tree obstructions, but do not remove.



Wetland impacts associated with this Alternative include 0.07 acre of wetland fill, 0.8 acre of wetland buffer fill, 0.05 acre of wetland tree lighting and 0.5 acre of buffer tree lighting. The eagle perching tree would remain.

Tree obstructions would be lit, not removed, totaling 8.55 acres.

Impacts to agricultural soils total 10.26 acres of prime agricultural soils and 3.56 acres of statewide agricultural soils.

### **3.2.5 Alternative E**

Alternative E includes:

#### Runway 2/20

- Full depth reconstruction of the runway.
- Displace the Runway 20 threshold 120' south to eliminate the off-airport obstruction caused by box trucks operating on Airport Road (thereby avoiding the need to relocate Airport Road). This alternative would impact more of a stand of mature sugar maple trees being used in a current sugaring operation than Alternative A, less than Alternatives B and C, and the same as Alternative D. It would take a roost tree used for feeding by federally protected bald eagles.
- Extend existing RW 2 by 120 feet to the south to maintain the current runway length of 3,302-feet.
- Modification of the profile to reduce the sag to the extent practicable
- Upgrade the runway lighting, signage, and pavement markings to current standards.
- Associated drainage improvements.

Taxiways and Apron

- Same as Alternative A

Obstructions

- Secure Avigation Easements on six parcels within the approach to RW 2.
- Secure Avigation Easements on four parcels within the approach to RW 20.
- Remove the on-airport obstruction of the ledge knob south of the RW 2 end.
- Remove trees identified as obstructions both on- and off-airport.

The proposed action for this Alternative is depicted in Figures 3.9 and 3.10.

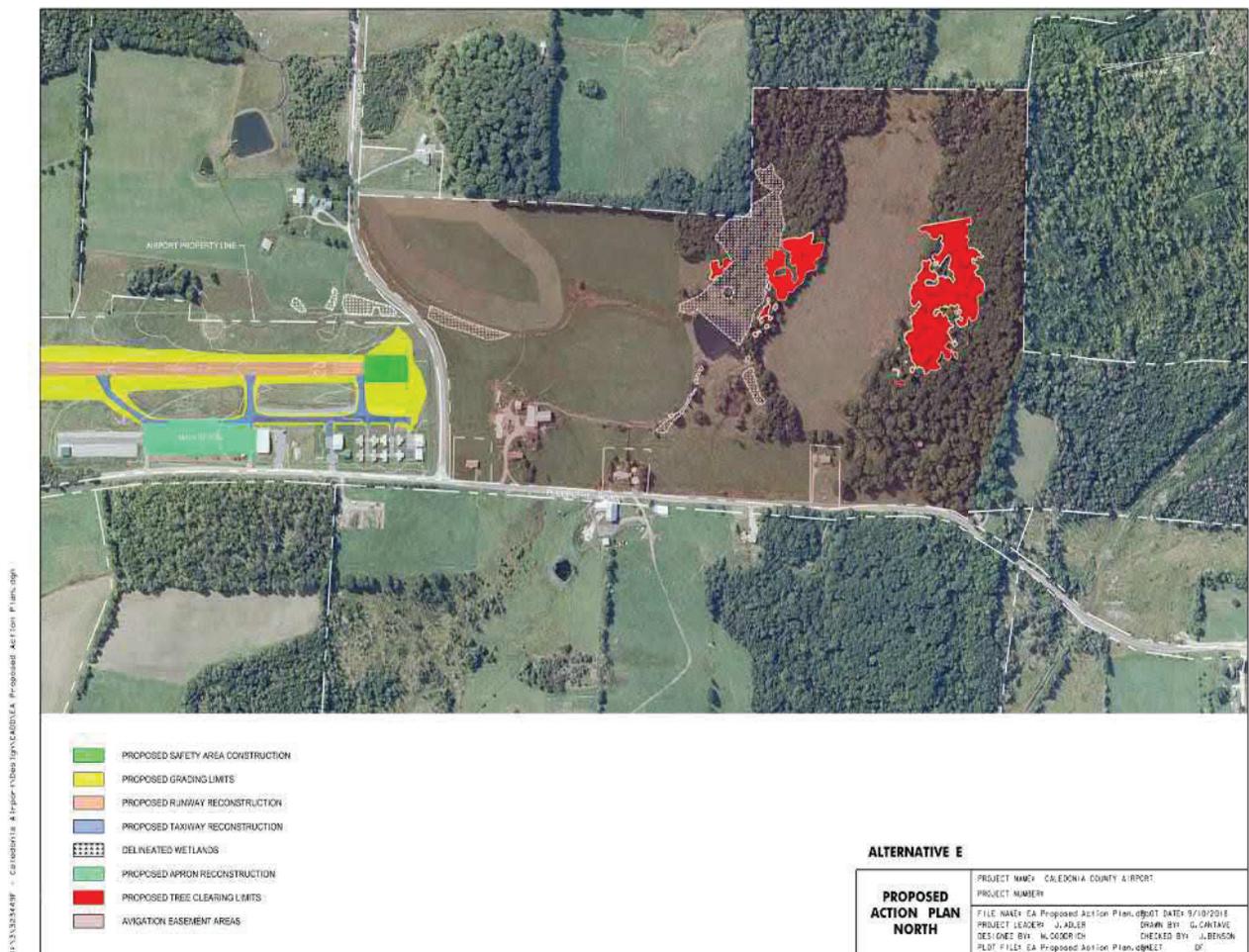
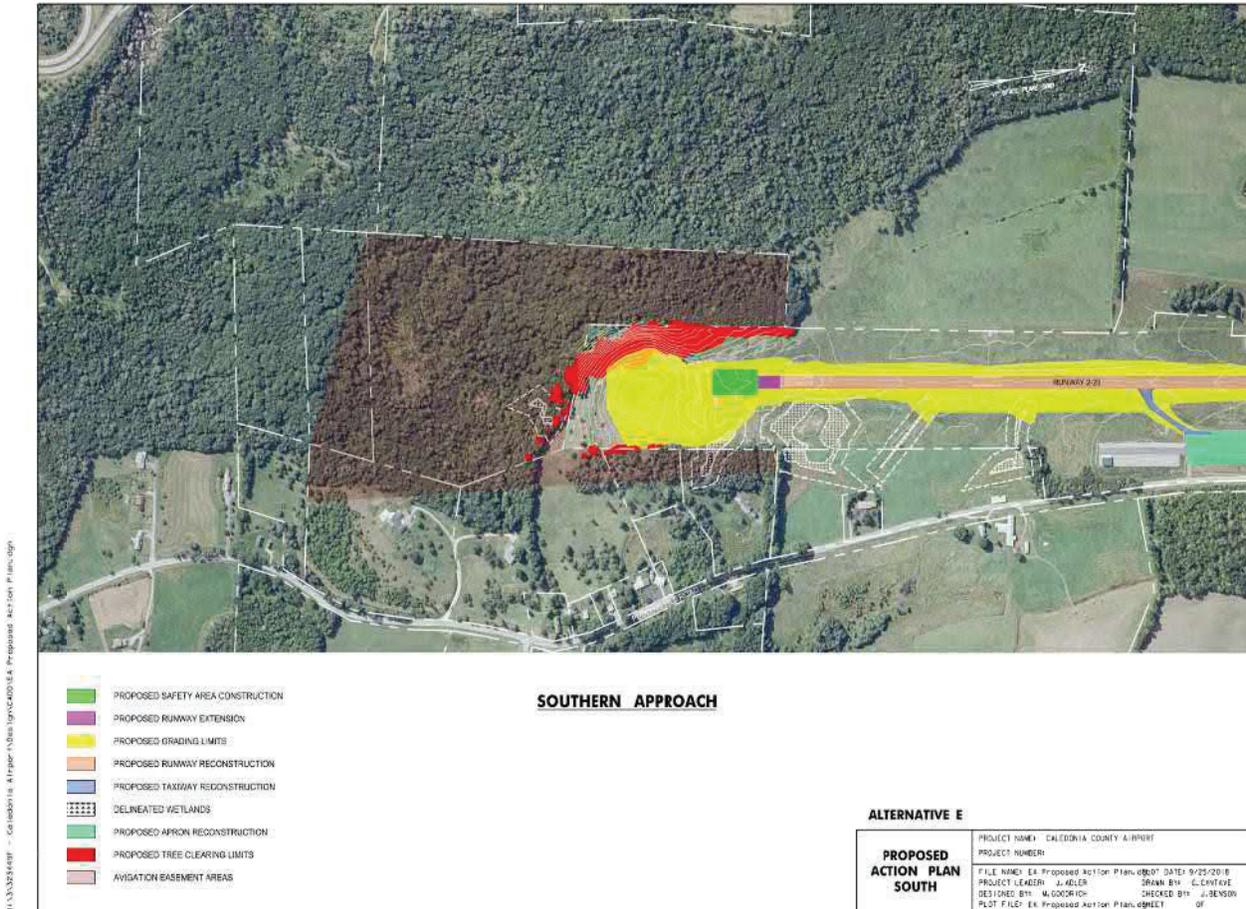


Figure 3-9. Proposed Action – Alternative E, Northern End of Airport



**Figure 3-10. Proposed Action – Alternative E, Southern End of Airport**

Wetland impacts associated with this Alternative include 0.4 acre of wetland fill, 1.9 acres of wetland buffer fill, 0.05 acre of wetland tree clearing and 0.5 acre of buffer tree clearing.

Tree clearing impacts associated with this Alternative total 8.55 acres.

Impacts to agricultural soils total 10.26 acres of prime agricultural soils and 4.01 acres of statewide agricultural soils.

### 3.3 ALTERNATIVE DISCUSSION, SELECTION OF PREFERRED ALTERNATIVE

#### 3.3.1 No Build or No Action Alternative

As noted previously, this Alternative does not satisfy the stated Purpose and Need for the project and as such is not selected as the Preferred Alternative.

#### 3.3.2 Build Alternatives

A comparison of all alternatives is provided in Figure 3.11.

	No Build Alternative	Alternative A 500' Runway Shift South	Alternative B No Runway Shift South	Alternative C No Runway Shift South	Alternative D 120' Runway Shift South	Alternative E 120' Runway Shift South
Meets Purpose & Need	No	Yes	Yes	No	Yes, but less safe due to lit obstructions	Yes
Improve Runway Profile	No	Yes	Yes	No	Yes	Yes
Eliminate Airport Road Obstruction	No	Yes	Yes	No	Yes	Yes
Remove Ledge (On-Airport) Obstruction	No	Yes	Yes	No	No, lighting only	Yes
Remove Tree Obstructions On-Airport	No	Yes	Yes	Yes	No, Lighting only	Yes
Remove Tree Obstructions Off-Airport	No	Yes	Yes	Yes	No, lighting only	Yes
# Aviation Easements Required	N/A	4 North 2 South	4 North 4 South	4 North 4 South	4 North 4 South	4 North 4 South
Wetland Fill (acres)	None	0.2	0.4	0	0.07	0.4
Tree clearing (acres)	None	5.6	10.2	10.2	8.55 lit	8.55
Impact to Maple Sugar Stand	None	Least cut	Most cut	Most cut	Lighting only	Moderate cut
Bald Eagle Perching Tree	Remain	Remain	Take	Take	Remain, lit	Take
Agricultural Soil Impacts (acres)	None	10.46 prime 2.94 statewide	12.53 prime 5.27 statewide	1.37 prime 0.16 statewide	10.26 prime 3.56 statewide	10.26 prime 4.01 statewide
Approximate Cost M= Million	\$0.00	\$7.4 M	\$6.2 M	Not priced, does not meet purpose and need	\$5.4 M	\$6.7 M

Figure 3-11. Comparison of Alternatives

Alternatives A, B, D and E would satisfy the stated Purpose and Need for the project.

In comparison to Alternative A, Alternative B would require the acquisition of two additional aviation easements and additional property, the relocation of a residence, and the relocation/construction of 1,000-feet +/- of Town roadway and would result in more wetland, tree clearing, sugar maple stand and agricultural soil impacts, and would require the taking of the bald eagle perching tree.

Alternative C was not selected as it does not eliminate the sag in the runway and does not meet the project purpose and need in that it does not eliminate the obstruction conditions caused by the current proximity/elevation of Airport Road to RW 20.

Alternative D was not selected as the preferred Alternative as it marks but does not remove the known obstructions. Thus, this Alternative is not considered to be as safe to operations as the other alternatives.

In comparison to Alternative A, Alternative E would require four additional aviation easements, and would result in more wetland, tree clearing, sugar maple stand and agricultural impacts, and would require the taking of the bald eagle perching tree.

Thus Alternative A was selected as the Preferred Alternative over Alternatives B, C, D and E.

In conclusion, Alternative A was selected as the Preferred Alternative, and is discussed further in the EA.

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## SECTION 4 – AFFECTED ENVIRONMENT

### 4.0 OVERVIEW

As presented in the Town Plan, Lyndonville is located in the Northeast Kingdom of Vermont. The Town was founded in 1791, the same year that Vermont was accepted as the fourteenth state in the Union. The Town is six square miles in area and has a population of 5,981 residents as reported in the 2010 census. The Village of Lyndonville is the Town’s population and business center, being Vermont’s only railroad-built community.

The Airport is located approximately 2.4 miles northwest of the Village center. The area is rural, surrounded by single family home lots, agricultural fields and woodland. There are no major water courses, ponds or lakes in the immediate vicinity of the airport. In general, the land is mountainous, sloping upward to the northwest from the airfield. Approximately 1% of the Town surface area is in agriculture and 16% is forested.

The region is known for its natural resources, mountainous terrain and scenery. Appropriately, the region offers both recreational and educational opportunities. These include Burke Mountain Ski Area, Burke Mountain Academy and Lyndon State College. The highest point in the Town is Diamond Hill at 1,660 feet above sea level (4.5 miles south). Burke Mountain is at 3,267 feet, and is located approximately 6.5 miles east of the airport. The Airport is located at 1,187 feet above mean sea level.

### 4.1 GEOLOGIC CONDITIONS

Geologic data was obtained from Vermont Geologic Survey Geologic Maps. Bedrock geology in the vicinity of the Caledonia County State Airport is mapped as the carbonaceous phyllite and limestone member of the Waits River Formation. Bedrock is comprised of dark gray to silver gray lustrous carbonaceous muscovite-biotite-quartz phyllite containing abundant beds of punky brown weathering and a dark bluish gray micaceous quarts-rich limestone in beds

ranging from 10 cm to 10 meters thick. The Waits River Formation is located within the Connecticut Valley Trough in eastern Vermont and consists of Silurian to Devonian metasedimentary and metavolcanic rocks that were deposited in an extensional basin.

## **4.2 SOILS AND FARM LAND**

The U.S. Natural Resources Conservation Service (NRCS) soil units within the Proposed Action area and their Vermont agricultural ratings are mapped on the Vermont Agency of Natural Resources' (VANR) Natural Resource Atlas (VANR, 2017). Figure 4-1 and 4-2 present the soils and their agriculture value groups. Of these, Prime agricultural soils include Dummerston very fine sandy loam, 3-8% slopes (16B) and Buckland fine sandy loam, 3-8% slopes (20B). Statewide agricultural soils in the Proposed Action area include Vershire-Lombard complex, 8-15% slopes, rocky (14C), Dummerston very fine sandy loam, 8-15% slopes (16C) and Cabot silt loam, 3-8% slopes (22B).

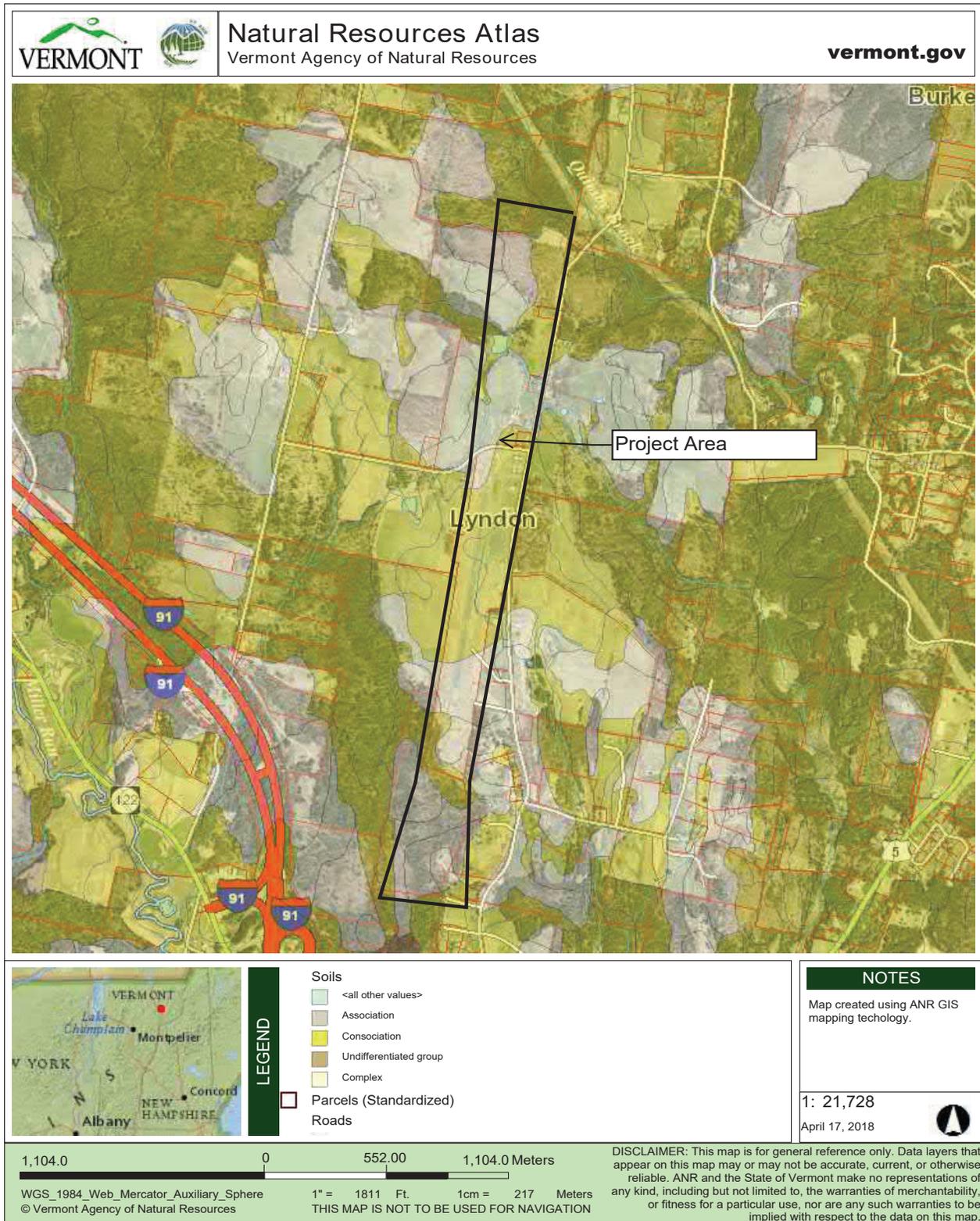


Figure 4-1. NRCS Soils Map

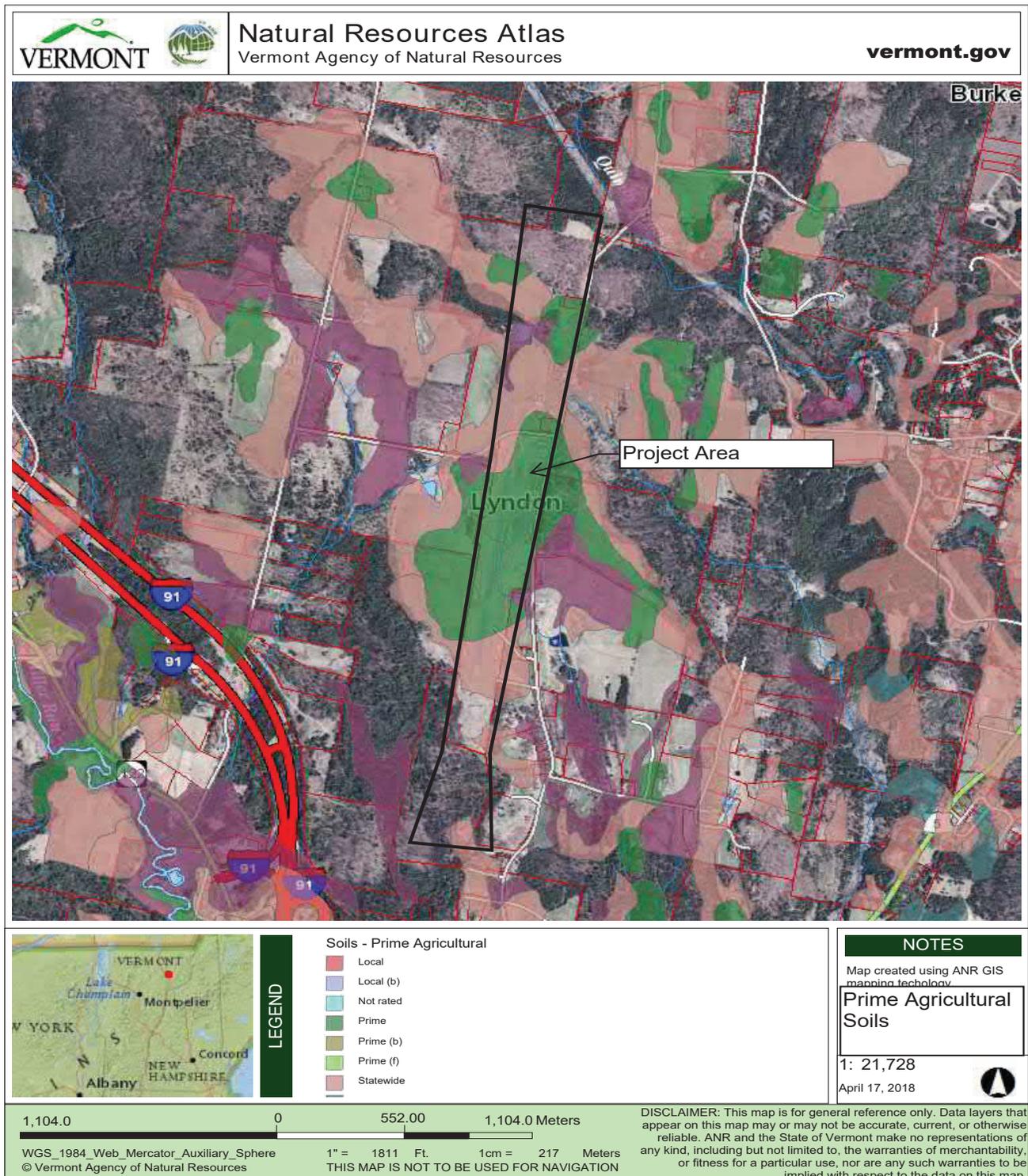


Figure 4-2. Primary Agricultural Soils

### 4.3 SURFACE WATER RESOURCES

**Surface Waters:** Surface waters from the airport drain southerly and southeasterly to three small tributaries to the Passumpsic River, one of which is variously referred to as Miller Run and Quimby Brook, and the other two of which are unnamed (see Figure 4-3).

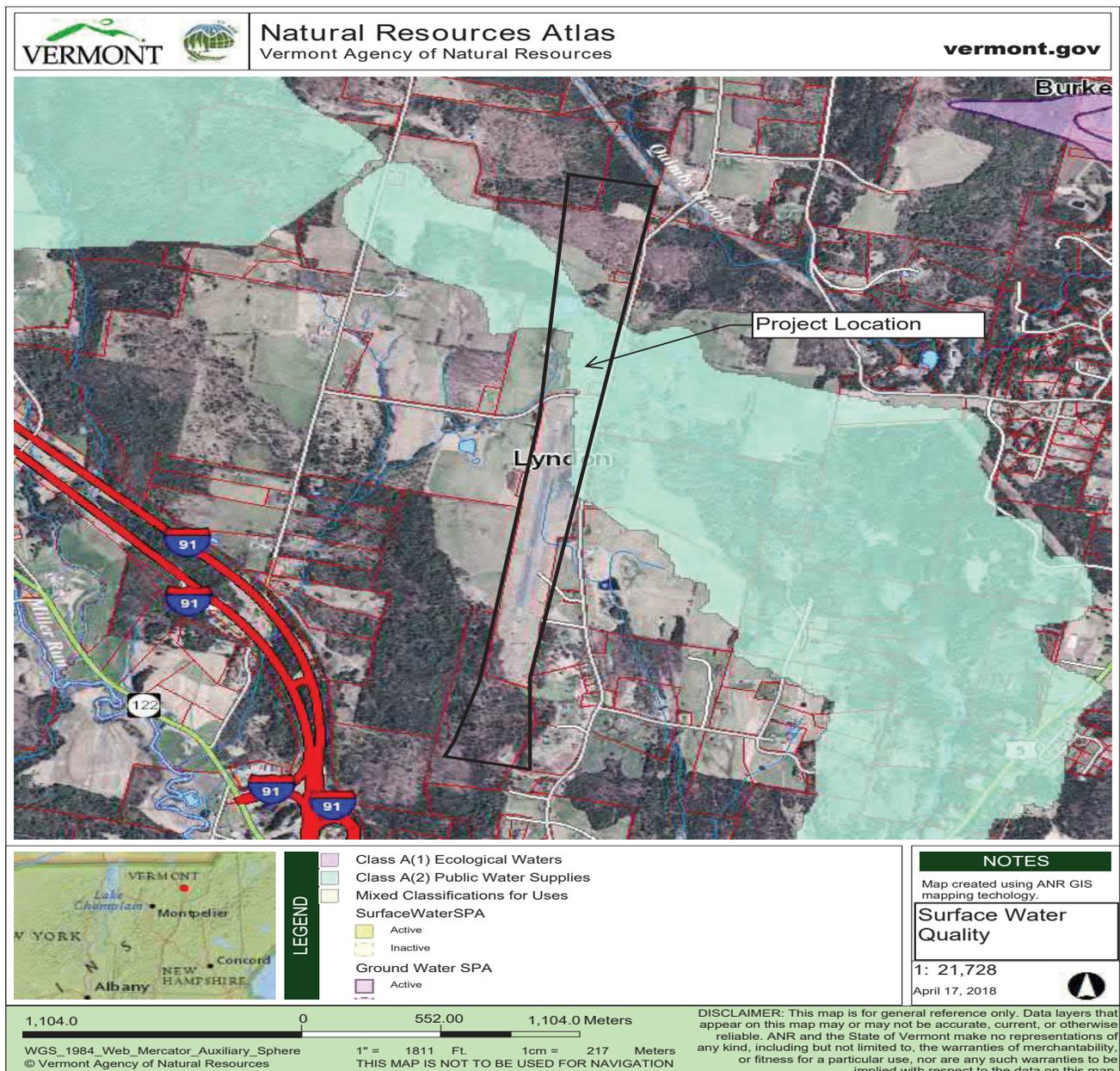


Figure 4-3. Surface Water Quality

Class A2 Public Water Supply surface waters are mapped by the Vermont Agency of Natural Resources Natural Resource Atlas (VANR, 2017) within the Proposed Action area (Figure 4-3, NRA, Surface Water Quality). The current status of this water supply is abandoned.

There are no Clean Water Act Section 303(d) impaired lakes, ponds, streams or other waterbodies, no Vermont Priority Waters List or Stressed Waters List waterbodies, and no surface water source protection areas in the vicinity of the Proposed Action.

**Stormwater:** Stormwater runoff from impervious surfaces is subject to the State of Vermont Stormwater and the National Pollution Discharge Elimination policies. Runoff from the impervious surfaces is treated through a combination of sheet flow across vegetated surfaces and by grass lined swales. Two Stormwater Discharge Permits have been issued to the Airport, Permit 4199-9015 and Permit 3896-9015. Figure 4-4 illustrates the current stormwater management system and existing stormwater management plan.

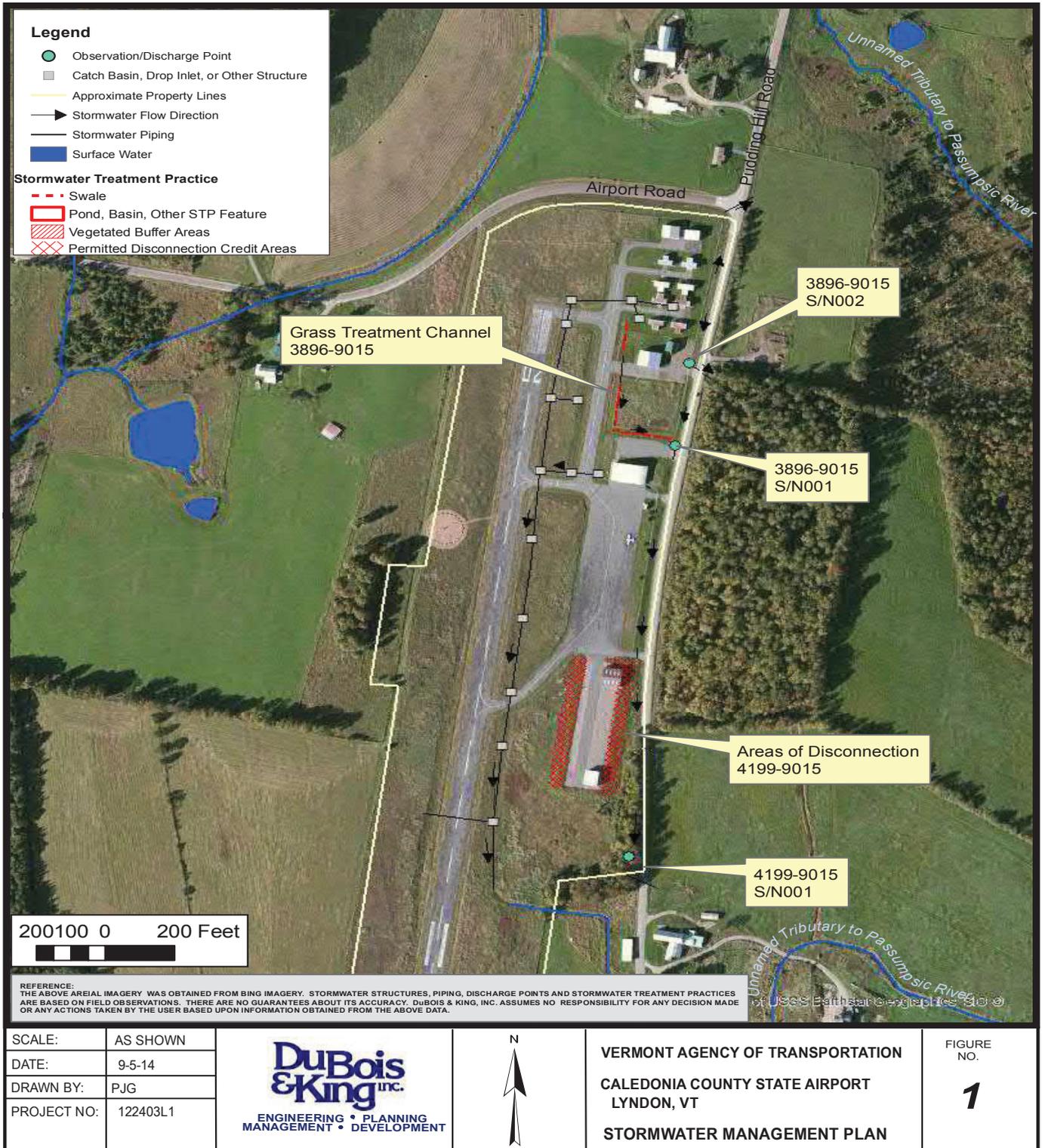


Figure 4-4. Existing Stormwater Management Plan

#### 4.4 GROUNDWATER RESOURCES

According to the VANR NRA mapping (VANR, 2017), the Proposed Action area is underlain by glacial till over phyllite and metal limestone bedrock. Well depths to bedrock in the immediate vicinity of the Airport range from three to 51 feet, with yields ranging from two to 60 gallons per minute. There are no groundwater source protection areas in the vicinity. One public water supply is mapped on the VANR NRA, that being the drilled well on airport property (See Figure 4-5). The direction of the groundwater flow typically follows the local topography; thus the flow would be generally southerly to southeasterly.

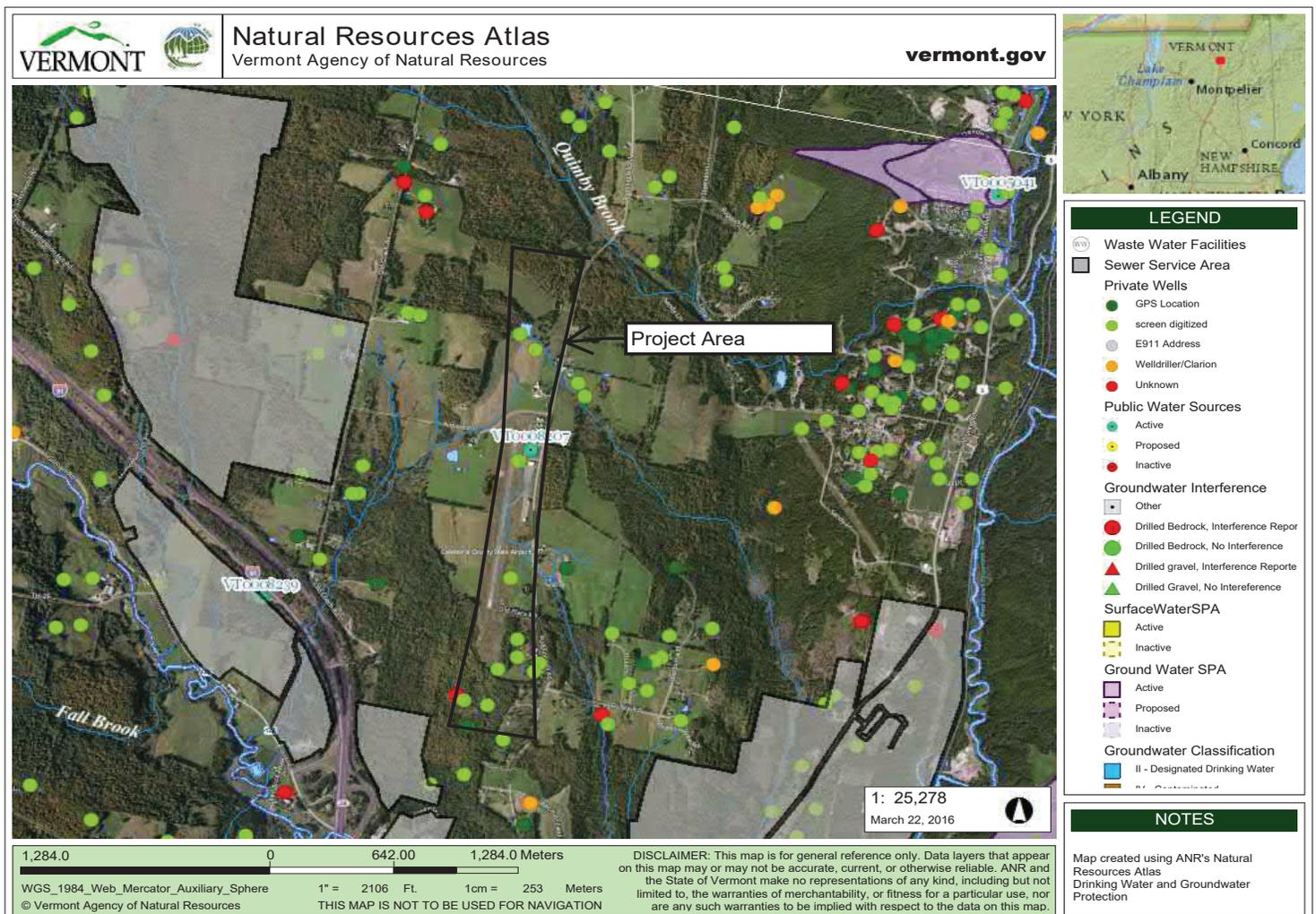


Figure 4-5. Existing Wells

#### **4.5 LAND USE AND ZONING**

The Airport is located in the north-central portion of the Town of Lyndon, in a landscape setting characterized by agricultural land, rural residential development and forest land. The airport facility includes the runway, taxiways, hangars and an administration building. The majority of the undeveloped land on the airport property is in closely mowed field, with some seasonally mowed field and woodland south of the runway.

Existing aviation easement land north of the runway includes a Town road, a farmstead, agricultural fields and wetland. The runway approach zone north of the existing aviation easement land includes agricultural fields, wetland and forestland.

Potential aviation easement land at the southern end of the runway is primarily forested, with one residence and some open field. The runway approach zone to the south of the potential aviation easement land includes a mix of forestland, agricultural land, rural residential areas and roads, Interstate I-89 and a residential subdivision.

The airport lies within the Town of Lyndon's Commercial District, with the surrounding properties being in the Rural Residential District (see Figure 4-6). Public facilities are a Conditional Use within the Commercial District.



## 4.6 AIR QUALITY

The National Environmental Protection Act (NEPA) and the Clean Air Act (CAA) require the FAA to evaluate the impacts of a Proposed Action on air quality. Air quality in Vermont is regulated by the Vermont Air Pollution Control Division (VAPCD) of the Vermont Department of Environmental Conservation (VTDEC). The VAPCD enforces both state and federal air quality regulations including the Clean Air Act of 1990 and Amendments, and the Vermont Air Pollution Control Regulations.

All of Caledonia County is considered either an “attainment area,” meaning that the pollutant levels are below the thresholds of regulatory concern, or “unclassifiable,” meaning that there is not enough data to make a determination of classification for all regulated air quality pollutants. As can be seen in Figure 4-7 below, all reported data for Vermont counties are below the National Ambient Air Quality Standards.

**Air Quality Statistics Report**

**Geographic Area:** Vermont

**Summary:** by County

**Year:** 2016

**Exceptional Events:** Included (if any)

Statistics in red are above the level of the respective air quality standard

County	CO 1-hr 2nd Max	CO 8-hr 2nd Max	NO2 98th %ile	NO2 Ann. Mean	O3 1-hr 2nd Max	O3 8-hr 4th Max	SO2 99th %ile	SO2 24-hr 2nd Max	SO2 Ann. Mean	PM2.5 98th %ile	PM2.5 Wtd. Mean	PM10 24-hr 2nd Max	PM10 Annual Mean	Lead Max 3-mo Avg
Bennington County, VT	.	.	.	.	0.08	0.067	.	.	.	12	5	.	.	.
Chittenden County, VT	0.9	0.7	.	6	0.07	0.06	2	1	0	13	5.5	.	.	.
Rutland County, VT	1.5	0.7	32	7	0.07	0.063	2	1	0	25	6.8	.	.	.

Get detailed information about this report, including column descriptions, at <https://www.epa.gov/outdoor-air-quality-data/about-air-data-reports#con>

AirData reports are produced from a direct query of the AQS Data Mart. The data represent the best and most recent information available to EPA from state agencies. However, some values may be absent due to incomplete reporting, and some values may change due to quality assurance activities. The AQS database is updated by state, local, and tribal organizations who own and submit the data.

Readers are cautioned not to rank order geographic areas based on AirData reports. Air pollution levels measured at a particular monitoring site are not necessarily representative of the air quality for an entire county or urban area.

This report is based on monitor-level summary statistics. Air quality standards for some pollutants (PM2.5 and Pb) allow for combining data from multiple monitors into a site-level summary statistic that can be compared to the standard. In those cases, the site-level statistics may differ from the monitor-level statistics upon which this report is based.

Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>  
 Generated: April 20, 2018

**Figure 4-7. National Ambient Air Quality in Vermont Counties**

#### **4.7 HISTORIC, ARCHITECTURAL, ARCHEOLOGICAL AND CULTURAL RESOURCES**

No historic or archeological resources or tribal resources of concern are known within the project area. An “Archeological Resource Assessment, Caledonia County State Airport Tree Clearing Project,” was performed for the project area by Hartgen Archeological Associates, Inc. in the autumn of 2017 (see Appendix 1). The review included documentary research and site reconnaissance. It found that much of the proposed project area had been previously disturbed. The undisturbed area which had potential for archeological resources had been found during field reconnaissance in 2004 to have no indication of pre-contact activity. Therefore, no further assessment of archeological resources was recommended.

A VTrans Section 106 Project Review Memorandum, dated April 28, 2017 and signed by the Vermont State Historic Preservation Officer (Appendix 2), documents that none of the buildings on the Airport are eligible for inclusion on the National Register of Historic Places.

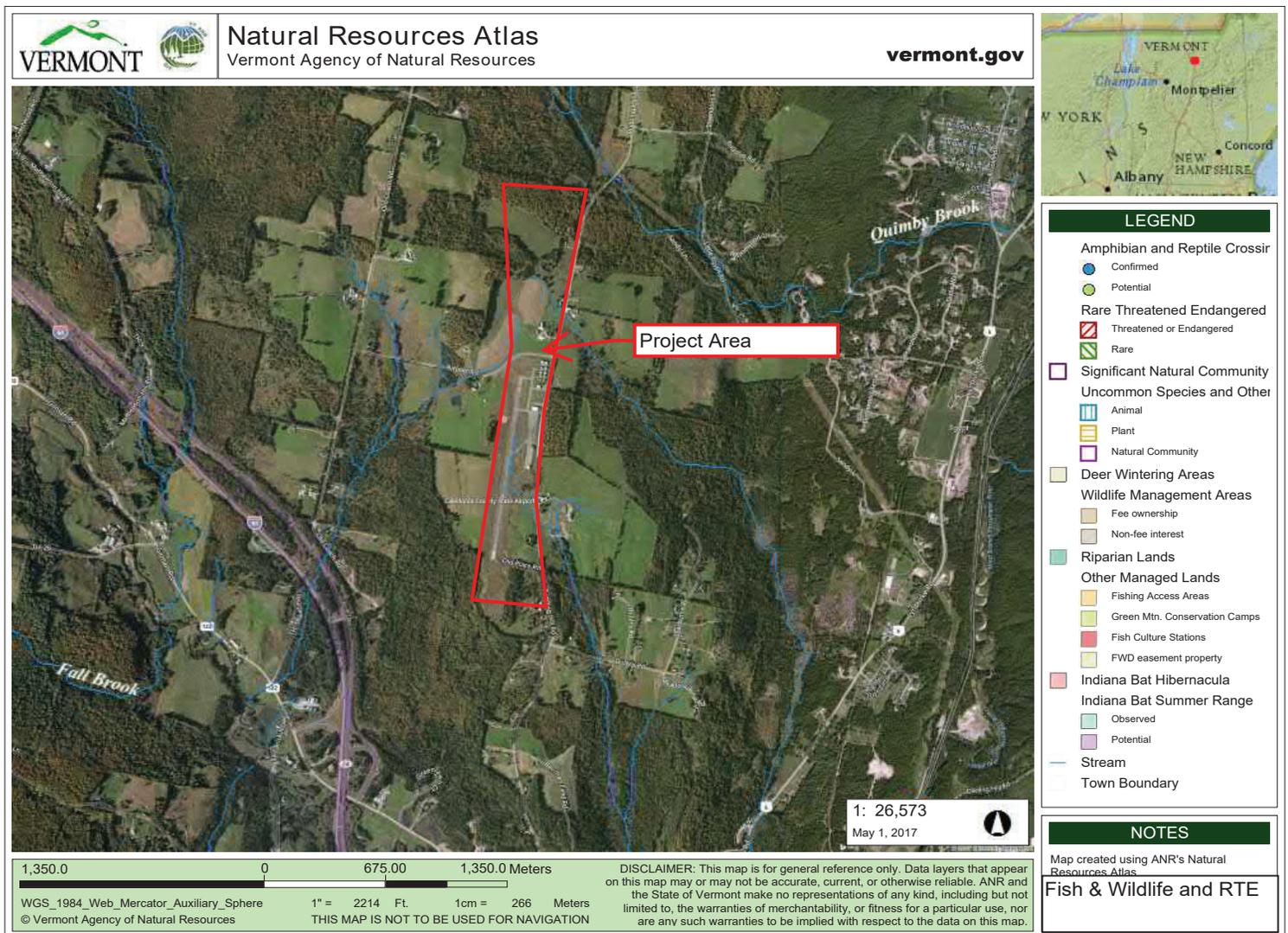
No federally recognized tribes have identified this area as an area of interest, for purposes of compliance with the National Historic Preservation Act.

#### **4.8 PLANT AND WILDLIFE COMMUNITIES AND RARE, THREATENED AND ENDANGERED SPECIES**

##### **4.8.1 Rare, Threatened and Endangered Species and Wildlife**

The Endangered Species Act of 1973 requires Federal Agencies to coordinate with Federal and State agencies regarding potential impacts to Federal and State-listed threatened and/or endangered species in the vicinity of a Proposed Action. A review of the U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC) website (U.S.F.W. 2017b) indicates the potential presence of one Federal-listed Threatened species, the northern long-eared bat, in the vicinity of the Proposed Action, but no known Critical Habitats (see Appendix 3, IPaC species list).

The VANR Natural Resource Atlas (NRA) mapping indicates no rare, threatened or endangered species, deer winter range, wildlife management areas or other wildlife concerns in the vicinity of the Proposed Action (see Figure 4-8, VANR NRA Map- Fish & Wildlife and Rare, Threatened and Endangered Species). However, the entire state is considered to be potential habitat for the State-Endangered northern long-eared bat. No hibernacula (winter habitat) or maternity roost trees are known in the area.



**Figure 4-8. VANR NRA Map- Fish & Wildlife and Rare, Threatened and Endangered Species**

While no rare, threatened or endangered species are mapped by either the USFWS or VANR, airport staff and adjacent landowners have reported the presence of a number of bald eagles attracted by the compost facility across Pudding Hill Road from the northern end of the runway. Bald eagles are no longer listed as threatened or endangered by the USFWS, but are listed as endangered by the State. They are also protected under the Bald and Golden Eagle Protection Act.

Approximately eight to ten eagles typically arrive in the winter months, and use a tree within an avigation easement, approximately 1,150 feet north of Airport Road, for perching associated with feeding at the compost facility.

The USFWS National Bald Eagle Management Guidelines (May 2007) state that, "Where a human activity agitates or bothers roosting or foraging bald eagles to the degree that causes injury or substantially interferes with breeding, feeding, or sheltering behavior and causes, or is likely to cause, a loss of productivity or nest abandonment, the conduct of the activity constitutes a violation of the Bald and Golden Eagle Protection Act."

#### **4.8.2 Habitat Blocks**

The VANR Natural Resource Atlas provides mapping of blocks of contiguous forest and secure connections to other forest blocks for all or part of wildlife's habitat needs (see Figure 4-9, VANR NRA Map- Habitat Blocks). Each habitat block is given a final weighted score and a threat weighted score. The final weighted score reflects 11 biological and physical landscape diversity factors, with the highest scores in the state being 8.3. The threat weighted score reflects five factors of threat of fragmentation of habitat. The habitat blocks mapped to the east, south and southwest of the Proposed Action are rated as final weighted score 3 and threat-weighted score 2. The block to the northwest is final weighted score 6 and threat-weighted score is 6.

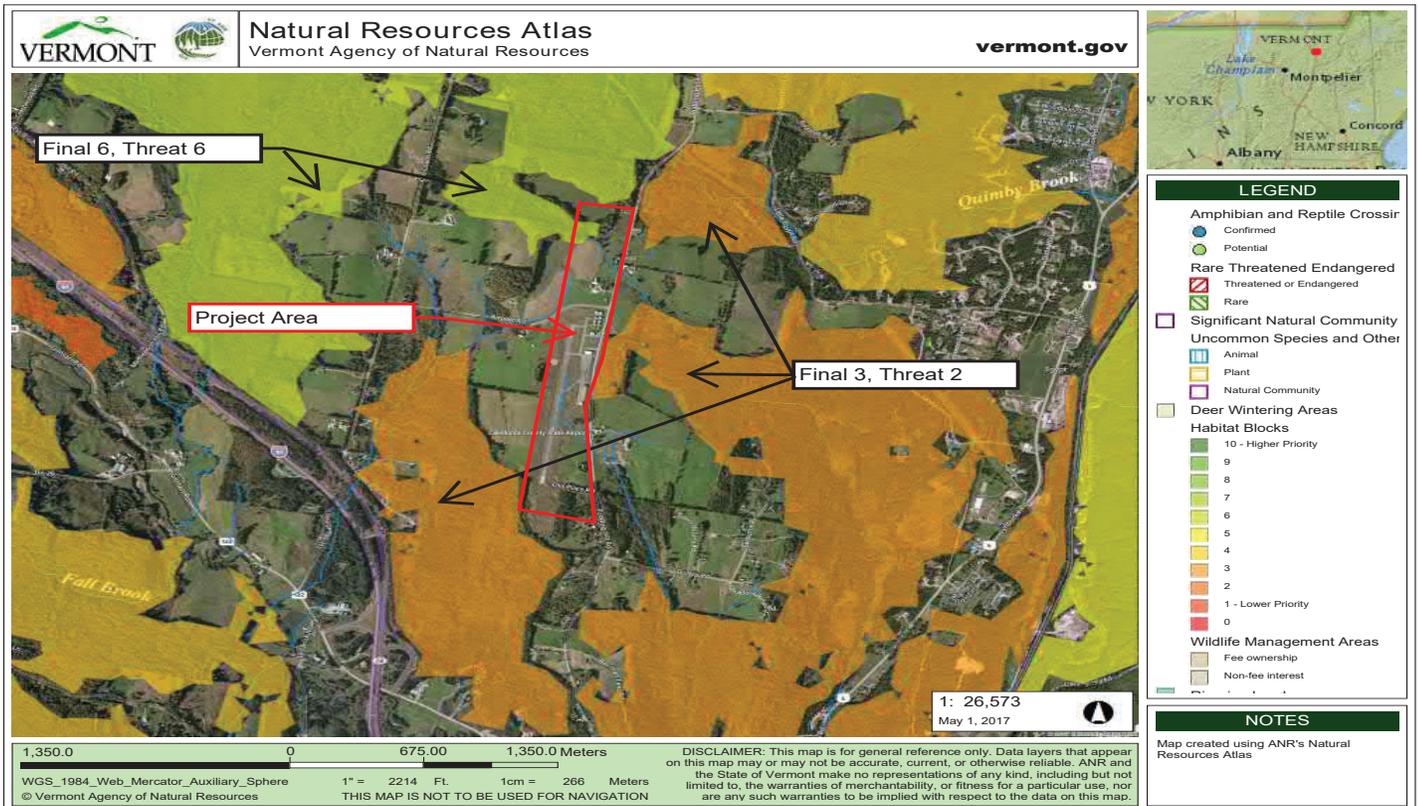


Figure 4-9. VANR NRA Map-Habitat Blocks

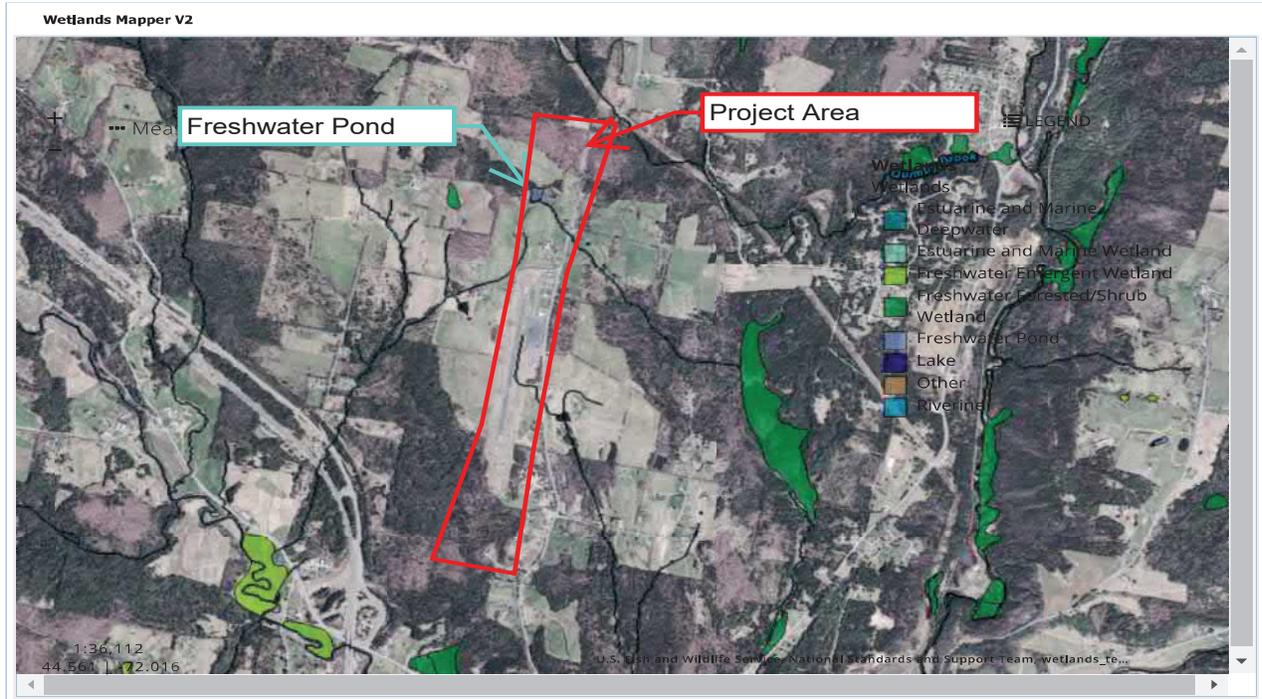
#### 4.9 WETLANDS

Executive Order 11990 requires federal agencies to avoid adverse impacts to wetlands to the extent possible. Section 404 of the Clean Water Act establishes a wetland permit program administered by the U.S. Army Corps of Engineers, with wetlands mapping at a national scale provided by the U.S. Fish and Wildlife Service. At the State level, the Vermont Wetland Rules provide guidance for the identification of significant (“Class I” and “Class II”) State wetlands and regulate activities in and near these wetlands.

The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory Mapping (USFWS, 2017a) indicates the presence of a Freshwater Pond approximately 1700’ north of the northern end of the runway (Figure 4-10, NWI Wetlands Mapper).

3/30/2017

Wetlands Mapper



 Search Documents and Website

**Please note:**

- Adobe Flash™ is required to access the Wetlands Mapper V1. Please visit the [Adobe Flash Player website](#) to download the latest version of the player. Adobe Flash is a trademark from Adobe Systems Incorporated.

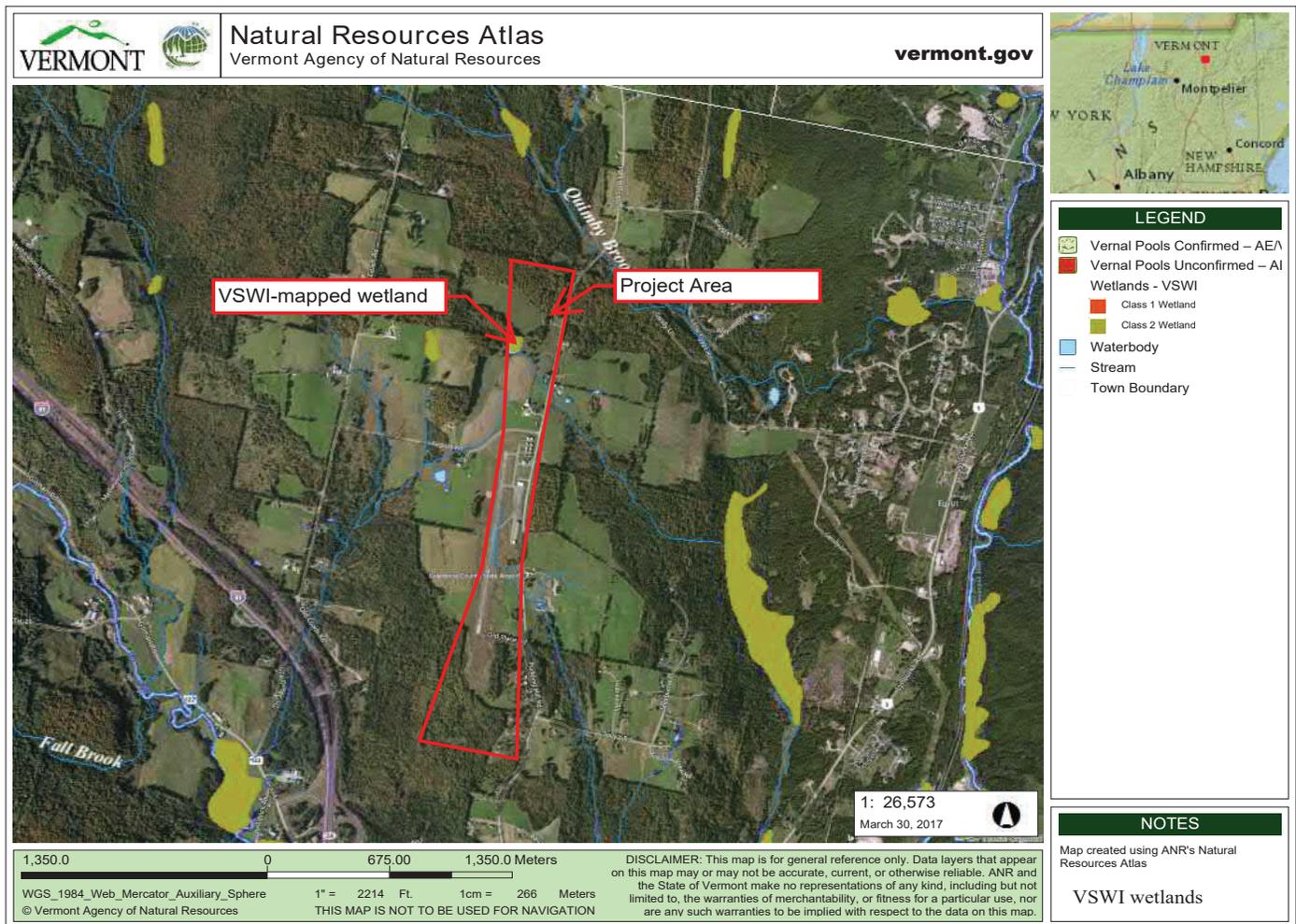
Last updated: March 20, 2017

<https://www.fws.gov/wetlands/data/mapper.html>

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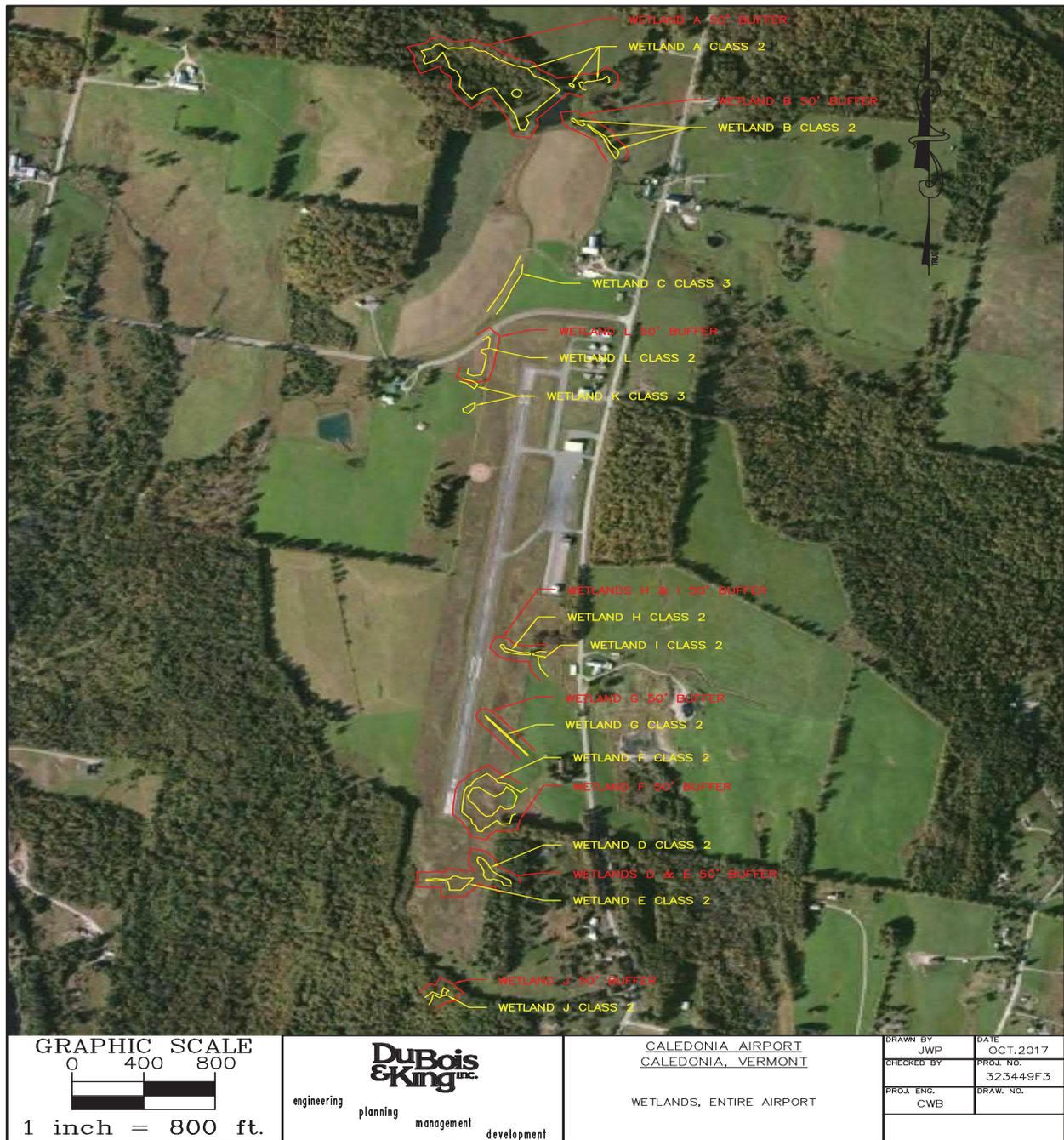
Figure 4-10. NWI Wetlands Inventory Map

The Vermont Agency of Natural Resources (VANR) Natural Resource Atlas (NRA) provides Vermont Significant Wetland Inventory (VSWI) mapping of State-jurisdictional wetlands (VANR, 2017). This mapping indicates the presence of a Vermont Significant (Class II) wetland in the area of the Freshwater Pond identified by the National Wetlands Inventory mapping (Figure 4-11, VANR NRA Wetlands Map).



**Figure 4-11. VANR NRA Wetlands Map**

Wetlands in the Proposed Action area were field-delineated in September and October, 2016. Wetland Class determinations were based upon VSWI mapping and field review by a Vermont District Wetlands Ecologist. The wetlands are shown in Figure 4-12.



**Figure 4-12. Delineated Wetlands**

The wetland boundaries and buffers were added to the existing conditions layer of the Proposed Action Plans. All wetlands are subject to the U.S Army Corps of Engineers Section 404 wetland regulations, and the Class II wetlands are also subject to the Vermont Wetland Rules.

#### **4.10 NOISE**

FAA Order 1050.1F states: “No noise analysis is needed for projects involving Design Group I and II airplanes (wingspan less than 79 feet) in Approach Categories A through D (landing speeds less than 166 knots) operating at airports whose forecast operations in the period covered by the NEPA document do not exceed 90,000 annual propeller operations (247 average daily operations) or 700 annual jet operations (2 average daily operations). Also, no noise analysis is needed for projects involving existing heliports or airports whose forecast helicopter operations in the period covered by the NEPA document do not exceed 10 annual daily average operations with hover times not exceeding 2 minutes.”

The aircraft operating out of the Caledonia County State Airport fall within the limits described above. Current annual propeller operations are reported at 7,380 (FAA 5010 report) with no reported jet traffic. Therefore, no further analysis is warranted.

#### **4.11 LIGHT EMISSIONS**

Runway 2-20 is equipped with medium intensity runway lights (MIRLs) and runway end identifier lights (REILs), all of which are pilot-activated. A rotating white and green beacon is also pilot-activated and operates only when the runway lights are on for night operations. There are a few hangars that are marked by steady red obstruction lighting. The aircraft parking area is illuminated through motion sensing with 5 pole-mounted lights (two are not active) and one floodlight on the end of the hangar building. These lights are LED and extinguish when timed out in 10 minutes.

#### **4.12 SOCIOECONOMIC IMPACTS AND CHILDRENS ENVIRONMENTAL HEALTH AND SAFETY RISKS**

The Uniform Relocation Assistance and Real Property Acquisition Act of 1970 was intended to ensure fair compensation and assistance for those whose property was compulsorily acquired

for public use under eminent domain law. The proposed work does not require acquisition or relocation of residences or businesses.

Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks (EO 13045, 1997), forms the basis of the EPA's Office of Children's Health Protection (OCHP), which works to protect children from negative environmental impacts and to coordinate community-based programs to eliminate threats to children's health. The existing airport facility does not pose any threats to children's health. The majority of the airside perimeter is protected by fencing. The State has an existing program to complete the perimeter fencing around this airport in the near future.

#### **4.13 FLOODPLAINS**

Executive Order 11988 directs Federal Agencies to take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains (EO 11988, 2015). FEMA Flood Insurance Rate Maps are used to define the base (100 year) floodplains. The Vermont DEC Floodplain Management Section works with FEMA to oversee the National Flood Insurance Program in Vermont. The VANR Natural Resource Atlas mapping indicates no FEMA floodplains or floodways, and no state-designated protected river corridors in the vicinity of the Proposed Action. The streams in the vicinity of the airport are small, with watersheds of two square miles or less, and are therefore assigned standard 50' setbacks for erosion minimization by the Vermont Floodplain Management Section (see Figure 4-13, VANR NRA, Floodplains).

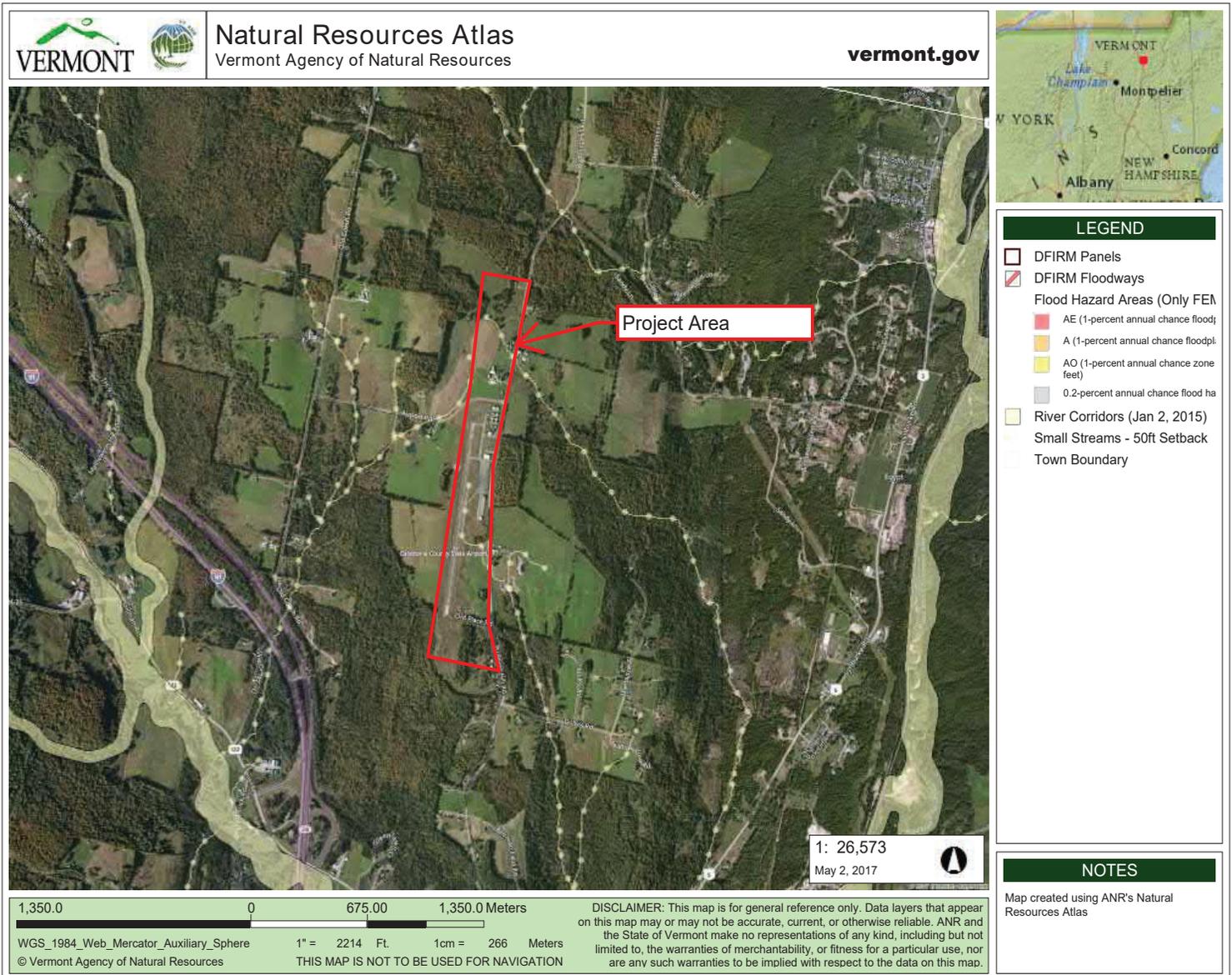


Figure 4-13. VANR NRA Floodplains

#### 4.14 COASTAL ZONE MANAGEMENT AND COASTAL BARRIERS

The project does not lie in a coastal zone or in proximity to the coast or to any coastal barriers.

#### **4.15 ENERGY**

Energy is used on both the air and land sides of the Airport. Electricity provides power for the lighting within the buildings, parking area, the runway, taxiway, apron lighting and fuel system. Electricity also powers mechanical equipment (fans, blowers, pumps) and other small items. Three phase power is presently provided to the Airport by the Lyndonville Electric Department. Current use of electricity is minimal.

Individual tanks of propane gas service individual buildings. The tanks serving the terminal building and the former Civil Air Patrol hangar are buried.

#### **4.16 SOLID WASTE**

The State contracts with Myers Trash Co. for the removal and disposal of solid waste. A solid waste recycling program is in place at the Airport.

#### **4.17 CONSTRUCTION IMPACTS**

There are no projects currently under construction which require an impacts review.

#### **4.18 ENVIRONMENTAL JUSTICE**

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898, 1994), requires all federal agencies to achieve environmental justice by not disproportionately impacting minority populations or low-income populations. The US Department of Transportation (DOT) has prepared a strategy and established procedures in Environmental Justice Order 5610.2(a), to comply with this Executive Order. A review of the Proposed Work in relation to Environmental Justice is presented in Chapter 5, Environmental Consequences.

#### **4.19 CUMULATIVE IMPACTS**

FAA 1050.1F, section 15, states, “The Council on Environmental Quality (CEQ) Regulations defines a cumulative impact as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions.”

Past, present and future projects on both the airport and adjacent properties are discussed in Chapter 5, Environmental Consequences.

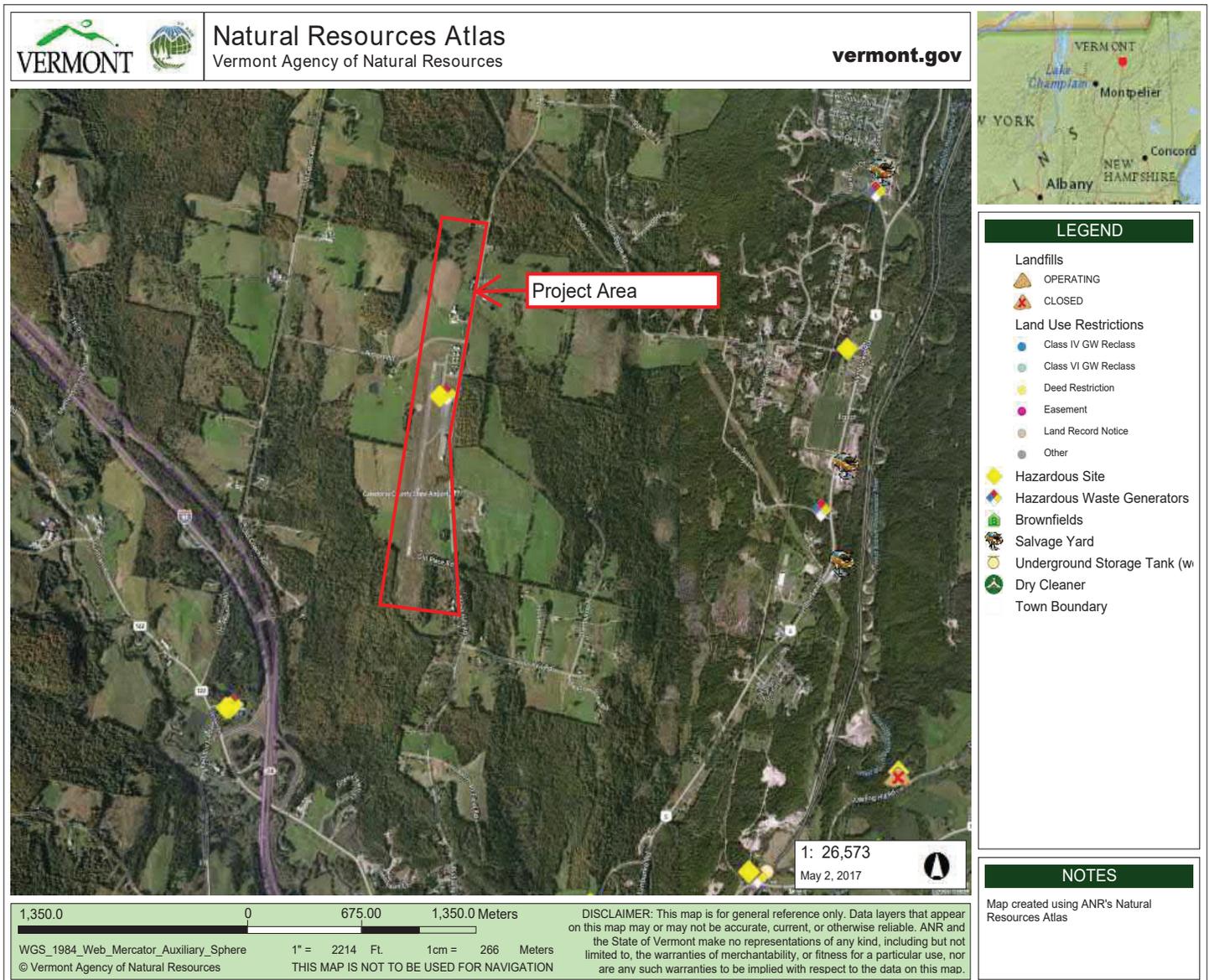
#### **4.20 DEPARTMENT OF TRANSPORTATION: SECTION 4(f)**

The Department of Transportation (DOT) Act of 1966 includes a special provision, Section 4(f), (FHWA, 2017) which restricts DOT Agency use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges or public and private historical sites. The Lyndon Town Plan (Town of Lyndon, 2017) identifies several public parks, recreation areas and trails within the Town, but none in the vicinity of the Airport. There are no waterfowl or wildlife refuges in the Town, and no historic sites in the project area.

#### **4.21 HAZARDOUS SITES AND MATERIALS**

The VANR Natural Resources Atlas mapping indicates the presence of one hazardous waste generator and one hazardous waste site in the vicinity of the proposed work, both on the airport property (see Figure 4-14, VANR NRA Hazardous Waste Sites). The Hazardous Waste Generator is identified by its EPA ID#, VTR000522110. The Vermont DEC Hazardous Waste Website (VT DEC, 2017) provides manifests for hazardous waste transfers, and indicates that for the time period of May 1, 2016 to May 1, 2017, the airport site transferred 30 gallons of waste petroleum distillates/aviation gasoline to a fully licensed RCRA Part B Permitted hazardous waste storage facility.

The Hazardous Waste site is identified on the Vermont DEC Hazardous Site List as Site #982350. An underground storage tank was removed, and a low level of petroleum contamination of soils and groundwater in the source area was found in 2001. However, sampling confirmed that there were no petroleum contaminants in excess of the Vermont Groundwater Enforcement Standards. The site management activities have been completed, and the site was closed on December 5, 2007.



**Figure 4-14. VNAR NRA Hazardous Waste Sites**

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## SECTION 5 – ENVIRONMENTAL CONSEQUENCES

### 5.0 OVERVIEW

Direct, indirect and cumulative impacts associated with the No-Action and the Preferred Alternatives are identified and evaluated for their potential impacts, and the potential need for mitigation measures are presented as appropriate based on the potential level of impact.

The Preferred Alternative consists of a full depth reconstruction of Runway 2-20, modification of the runway profile to reduce the sag, a shift of the runway 500' south, including an extension of runway 2 by 500' and the removal of the northernmost 500' of the existing runway to maintain the existing runway length, full depth reconstruction and shift of the taxiway to achieve runway-to-taxiway separation distance, reconstruction of the apron and upgrade of the runway/taxiway lighting and signage to current standards. It also involves the securing of Avigation Easements on six parcels, two to the south and four to the north of the airport, and the removal of obstructions within the approach to runways 2 and 20 both on airport property (ledge and trees) and on six off-airport properties (trees).

Under the NO ACTION ALTERNATIVE, the existing conditions would remain, the proposed improvements would not occur, and there would be no significant impacts to any of the resources identified in the project area.

### 5.1 GEOLOGIC CONDITIONS

The Preferred Alternative will reconstruct the runway, taxiways and apron. To maintain the current usable runway length and address the obstruction caused by Airport Road, RW 20 will be shifted to the south by 500 feet and RW 2 will be extended by 500 feet. The rocky knob at the south end of Runway 2 will be removed to eliminate this obstruction and the rock will be used for fill material as part of the project. The reconstruction of the runway, taxiway and



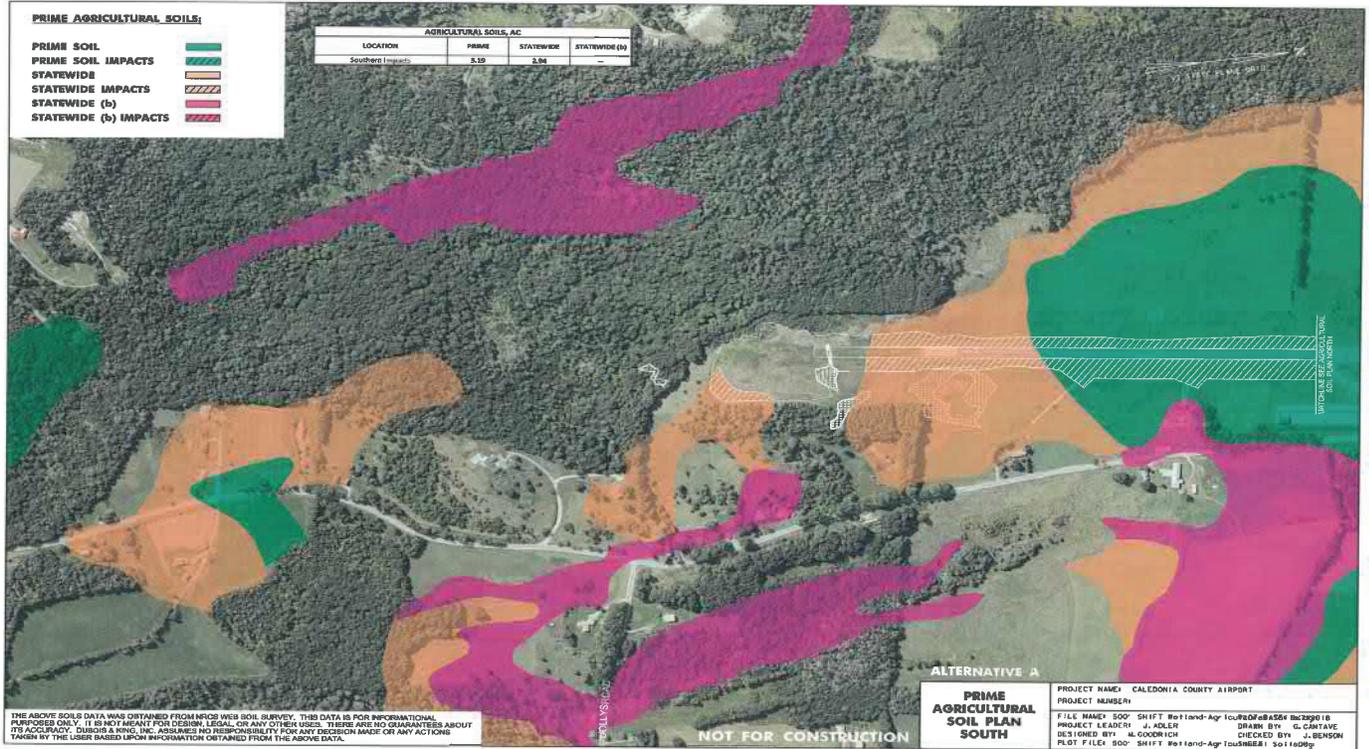


Figure 5-2. Impacts to Agricultural Soils, Southern End of Airport

Topsoil stripped to facilitate construction will be stockpiled and then reused to establish finish grades and to re-establish vegetative cover in no-pave areas.

The removal of tree obstructions off airport property will require minimal earth disturbance, and will not negatively affect the agricultural potential of the soils in those areas.

### 5.3 SURFACE WATER RESOURCES

There are no streams, ponds or lakes on the airport property, and no rivers which might be subject to protection under the Federal Wild and Scenic Rivers Program. However, runoff from the project eventually leads to surface water resources. Therefore, the following measures will be taken to protect the regional surface waters.

Stormwater pollution prevention measures have been established in the Airport's Stormwater Pollution Prevention Plan (SWPPP) and the Spill Prevention, Control and Countermeasures Plan (SPCCP) to protect surface water resources from spills and leaks of petroleum products, chemicals, paints, fuel and lubricants, storm water runoff from impervious surfaces and non-stormwater discharges into the stormwater conveyance system. These Plans will be updated to reflect the proposed improvements as a part of the final design and permit process. During construction of the proposed work, a central location for all construction machinery, refueling and mechanical work will be established in order to reduce the risk of potential surface water impacts. Measures will be taken to prevent the discharge of pollutants from construction materials and equipment such as fuels, lubricants or any other harmful or potentially harmful material into wetlands or any other water body on the project area or off-site. Dust created during construction will be controlled using water. Calcium chloride will not be used as dust control during the construction process. The project will require a VT ANR Construction Stormwater Permit prior to construction.

The project will include the implementation of a Stormwater Management Plan. The Plan will be developed in accordance with current State requirements for the treatment, control and conveyance of stormwater runoff from impervious surfaces using Best Management Practices.

#### **5.4 GROUNDWATER RESOURCES**

The Airport maintains a Stormwater Pollution Prevention Plan (SWPPP) and a Spill Prevention, Control and Countermeasures Plan (SPCCP), and will implement a Stormwater Management Plan to protect groundwater resources, as discussed under section 5.3 above.

No new water supplies or demand on the existing water supplies (wells) are anticipated as a result of this project. No new buildings or changes in current operations are proposed. Currently wastewater is treated and disposed of through two on-site subsurface disposal systems. These systems will not be impacted by the proposed construction.

If blasting is required, the Contract Documents will require that this work be completed by a Licensed Blasting Contractor. The Contractor will be required to complete a pre-blasting survey and to prepare/submit a compressive blasting plan to minimize any risk to wells or structures in proximity to the proposed blasting site.

## **5.5 LAND USE AND ZONING**

The Caledonia County State Airport is a Public facility owned and operated by the State of Vermont. The Airport is located within the Town's designated Commercial District. The Airport was activated in 1969 and has been a feature in the Pudding Hill region of the Town of Lyndon ever since. The Airport is a General Aviation facility used primarily by recreational flyers.

The runway, taxiway and apron improvements will all be confined to existing airport property. The 500' runway shift to the south and removal of the northernmost 500' of existing runway will maintain the overall length of runway and amount of runway pavement. The slight shift to the east for the taxiway will not alter the taxiway overall pavement footprint significantly. The elevation of the center section of the runway will be raised 6 to 7 feet above its current elevation to reduce the dominant sag in the current runway profile, but will not alter the horizontal alignment of the runway. Thus the proposed improvement will not alter the current land use.

The off-airport obstruction removal (trees) will not significantly alter the existing land use or landscape pattern. The area around the airport is zoned rural residential. This area consists of a mix of single family home lots and farms. The landscape pattern is a mix of open fields and forest. The removal of patches of trees from the designated wooded areas will not alter this overall landscape pattern.

## 5.6 AIR QUALITY

There are Federal Regulations and orders that establish air quality requirements applicable to airports. In addition, states and or local areas may have air quality requirements that address airports. Regulations considered in this evaluation include the National Environmental Policy Act of 1969 (NEPA), the General Conformity Rules, and the FAA orders pertaining to environmental analysis for airports.

The Federal Clean Air Act, last amended in 1990, requires EPA to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants considered harmful to public health and the environment. The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for six principal pollutants as presented in Figure 5-3:

Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
<a href="#">Carbon Monoxide (CO)</a>		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
<a href="#">Lead (Pb)</a>		primary and secondary	Rolling 3 month average	0.15 µg/m <sup>3</sup> <sup>(1)</sup>	Not to be exceeded
<a href="#">Nitrogen Dioxide (NO<sub>2</sub>)</a>		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb <sup>(2)</sup>	Annual Mean
<a href="#">Ozone (O<sub>3</sub>)</a>		primary and secondary	8 hours	0.070 ppm <sup>(3)</sup>	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
<a href="#">Particle Pollution (PM)</a>	PM <sub>2.5</sub>	primary	1 year	12.0 µg/m <sup>3</sup>	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m <sup>3</sup>	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m <sup>3</sup>	98th percentile, averaged over 3 years

Figure 5-3. EPA Air Quality Standards

Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
	PM <sub>10</sub>	primary and secondary	24 hours	150 µg/m <sup>3</sup>	Not to be exceeded more than once per year on average over 3 years
<a href="#">Sulfur Dioxide (SO<sub>2</sub>)</a>		primary	1 hour	75 ppb <sup>(4)</sup>	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m<sup>3</sup> as a calendar quarter average) also remain in effect.

(2) The level of the annual NO<sub>2</sub> standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O<sub>3</sub> standards additionally remain in effect in some areas. Revocation of the previous (2008) O<sub>3</sub> standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

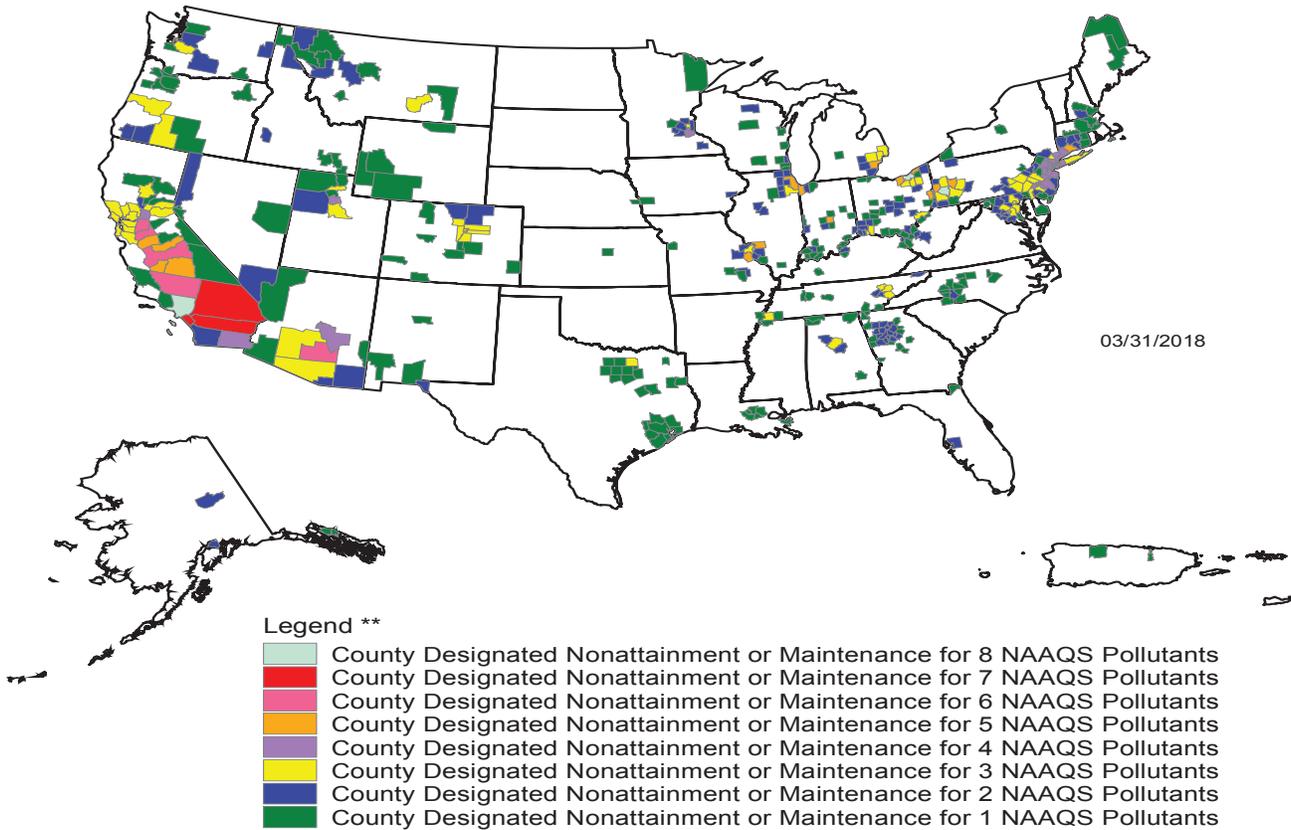
(4) The previous SO<sub>2</sub> standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO<sub>2</sub> standards or is not meeting the requirements of a SIP call under the previous SO<sub>2</sub> standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

**Figure 5-3. EPA Air Quality Standards**

The EPA monitors air quality throughout the United States and maintains a web-accessible data base of air quality data. Section 107 of the Clean Air Act requires EPA to publish a list of all geographic areas in compliance with the National Ambient Air Quality Standards (NAAQS) and those areas not attaining the NAAQS. Areas not in NAAQS compliance are identified as non-attainment areas. Areas that have insufficient data to make a definitive determination are

unclassified, which applies to Lyndon, VT, and are treated as being in attainment until proven otherwise. Specific data for several Vermont Counties is presented in Section 4.6 of this document. The map below (Figure 5-4) identifies the counties within the United States that are identified by EPA as nonattainment or maintenance areas. There are no such areas in Vermont.

**Counties Designated "Nonattainment" or "Maintenance"**  
 for Clean Air Act's National Ambient Air Quality Standards (NAAQS) \*



Guam - Piti and Tanguisson Counties are designated nonattainment for the SO<sub>2</sub> NAAQS  
 \* The National Ambient Air Quality Standards (NAAQS) are health standards for Carbon Monoxide, Lead (1978 and 2008), Nitrogen Dioxide, 8-hour Ozone (2008), Particulate Matter (PM-10 and PM-2.5 (1997, 2006 and 2012), and Sulfur Dioxide.(1971 and 2010)

\*\* Included in the counts are counties designated for NAAQS and revised NAAQS pollutants. Revoked 1-hour (1979) and 8-hour Ozone (1997) are excluded. Partial counties, those with part of the county designated nonattainment and part attainment, are shown as full counties on the map.

**Figure 5-4. EPA Non-Attainment or Maintenance Areas**

Section 176(c) of the Clean Air Act requires that any entity of the federal government that engages in an Action must demonstrate that the action conforms to the area’s commitment of

eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards. General conformity applies to all actions in nonattainment or maintenance areas not specifically covered by the transportation conformity. To determine whether general conformity requirements apply to an action, the agency in charge must consider the nonattainment and maintenance status of the area, the exemptions from presumption to conformity, the project's emissions, and the regional significance of the project's emissions. The conformity rule applies only to actions located in nonattainment and maintenance areas. Lyndon, VT or Caledonia County VT, are not identified by EPA as nonattainment or maintenance areas.

The proposed improvements are intended to address current safety issues including deteriorating pavement conditions, vertical and horizontal alignment/separation issues and the removal of runway approach obstructions. Since these improvements are not expected to increase operations over what is currently anticipated, the net increase in emissions from aircraft or ground support equipment is not likely to occur, and so will not adversely affect the environment.

Construction Period Air Quality – The proposed project would have a potential to temporarily affect air quality resulting from construction vehicles and equipment emissions, dust from earth moving operations, installation of fresh asphalt and tree removal. The air quality impacts will be minimal due to the relatively short duration of the proposed project. In addition, the air quality impacts are not expected to extend beyond the immediate vicinity of the project area or the duration of construction.

Applicable mitigation measures will be instated during construction as identified in FAA AC 150/5370-10 (FAA, 2017), *Standards for Specifying Construction at Airports*, including Item P-156, *Temporary Air and Water Pollution, Soil Erosion, and Siltation Controls*.

## **5.7 HISTORIC, ARCHITECTURAL, ARCHEOLOGICAL AND CULTURAL RESOURCES**

The 2017 Hartgen Archeological Associates' "Archeological Resource Assessment, Caledonia County State Airport Tree Clearing Project," (Appendix 1) identified no historic, architectural, archeological or cultural resources within the project area, and recommended no further archeological investigation.

A VTrans Section 106 Project Review Memorandum, dated April 28, 2017 and signed by the Vermont State Historic Preservation Officer (Appendix 2), documents that none of the buildings on the Airport are eligible for inclusion on the National Register of Historic Places. No federally recognized tribes have identified this area as an area of interest for purposes of compliance with the National Historic Preservation Act.

## **5.8 PLANT AND WILDLIFE COMMUNITIES AND RARE, THREATENED AND ENDANGERED SPECIES**

### **5.8.1 Northern Long-Eared Bat**

The USFWS and the Vermont Agency of Natural Resources acknowledge the potential presence of the northern long-eared bat, a Federal and State listed species, in the project area. Important habitat features for this species include hibernacula where the bats spend the winter months and roost trees where the young are raised. No existing hibernacula or roost trees are known in the vicinity of the project (see Figure 4-8 of this document). However, there is potential for roost trees within the project area which are currently unknown.

The project will result in the cutting of approximately 1.8 acres of forest at the northern end of the airport and 3.8 acres of forest at the southern end of the airport, totaling 5.6 acres of forest, as shown in Figures 5-5 and 5-6 below.

The VT F&W Department reviewed the proposed action in March of 2018, at which time the design included a runway shift of 120' to the south and 8.1 acres of tree cutting (see email correspondence from Tim Appleton, Wildlife Biologist, dated March 30, 2018, Appendix 4). The Department had no concerns with wildlife habitat based upon that review, and determined that the tree cutting would not meet the threshold requiring further review of bat habitat, and that time-of-year restrictions for tree cutting would not be required.

The project was revised subsequent to that review to the current design, which changes the southerly runway shift from 120' south to 500' south, and reduces the proposed tree cutting to 5.6 acres. An updated review of this design was accomplished by the VT F&W Department (see email correspondence from Tim Appleton, Wildlife Biologist, dated September 14, 2018, Appendix 4). The tree cutting is now further below the threshold requiring further review for bat habitat or time-of-year restrictions for cutting.

Coordination will be completed with the USFWS through the COE permitting process during the permitting phase of the project to ensure no adverse effects to the northern long-eared bat. Federal agencies may fulfill their project-specific Section 7 responsibilities by using the USFS framework. The framework relies on the finding of a programmatic biological opinion that the Service prepared for the northern long-eared bat 4(d) rule (USFWS, 2018). USFWS reviews typically conform with VT F&W in regards to assessments of potential impacts to this species. Therefore, no time of year or other restrictions or mitigation measures are expected to be required by the USFWS.

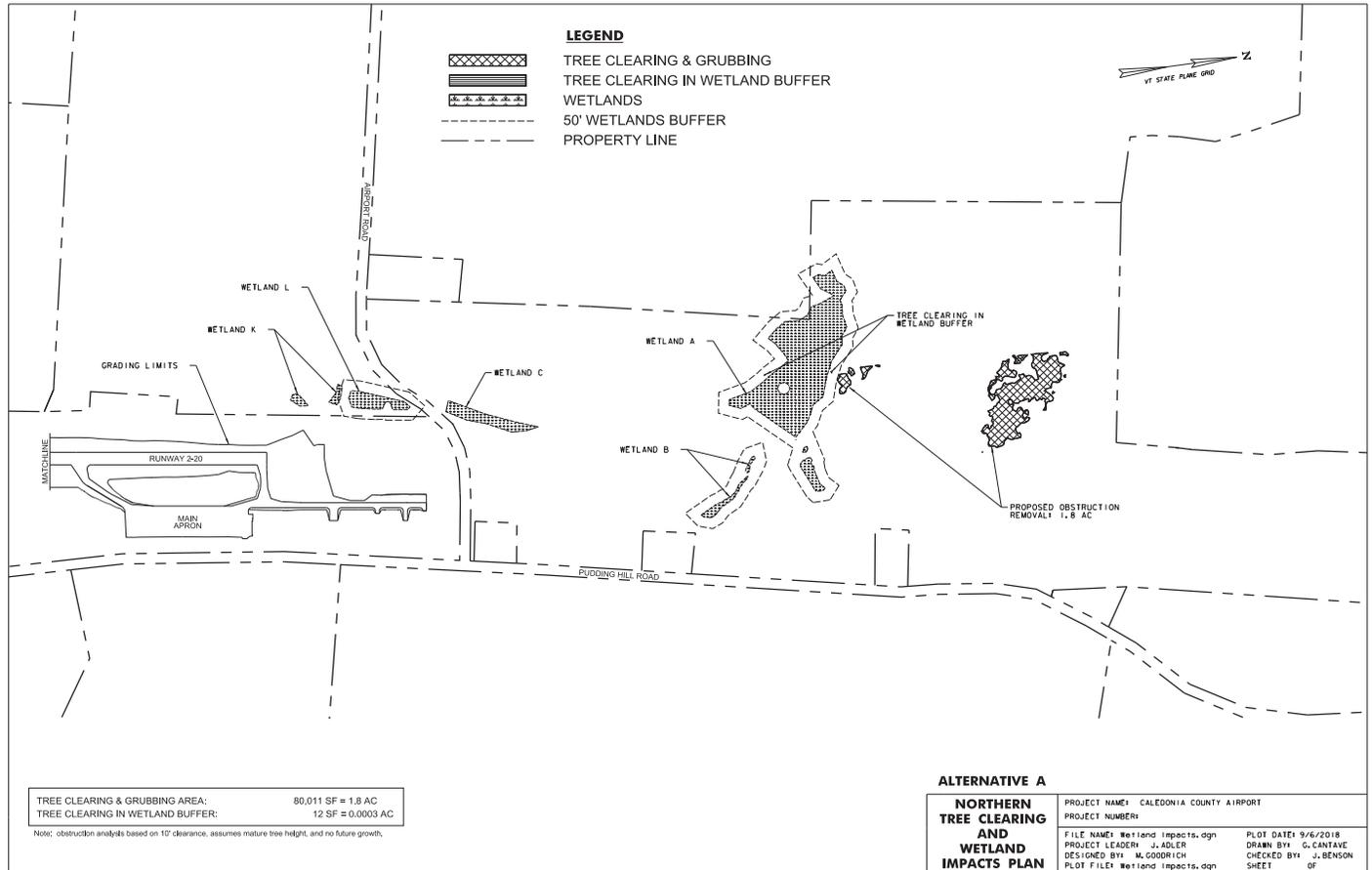


Figure 5-5. Tree Cutting, Northern End of Airport

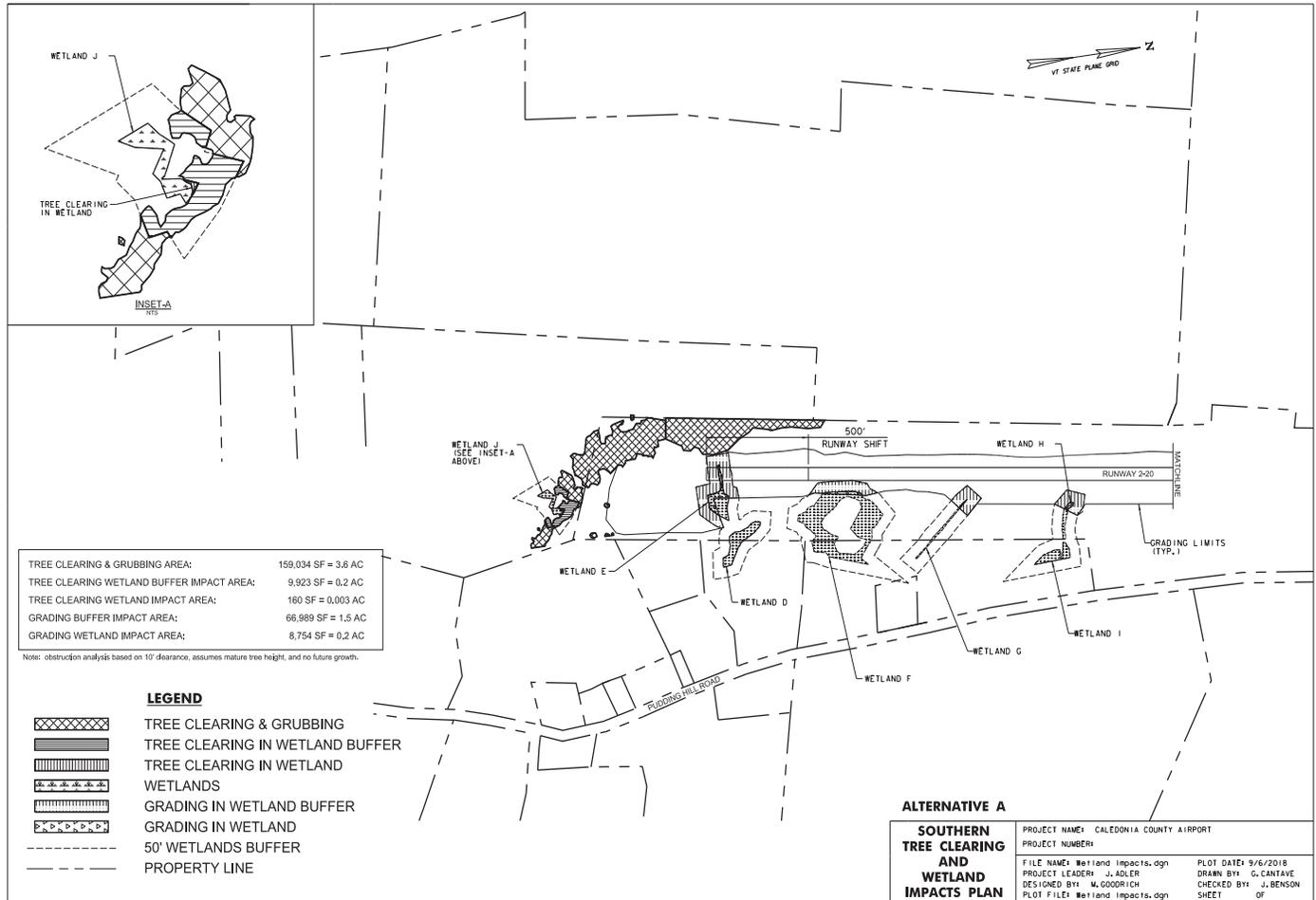


Figure 5-6. Tree Cutting, Southern End of Airport

### 5.8.2 Bald Eagles

Airport staff and neighbors have reported sightings of bald eagles in the vicinity of the winter months, attracted by and feeding at the compost facility across Pudding Hill Road from the northern end of the airport. According to the March 30, 2018 VT F&W review discussed above, the Department had no concerns with the proposed project as it related to bald eagles and the compost facility. VT F&W did request that if the airport operations come into conflict with the presence of eagles, VTTrans will work with the USFWS to mitigate such conflicts.

Subsequent to that review, it became apparent that the eagles use a tree approximately 1,150 feet north of airport road, within an aviation easement area, for perching in relation to feeding. While the eagles are no longer protected under the Endangered Species Act, they still receive protection through the Bald and Golden Eagle Protection Act. That Act protects habitat features critical to the birds' survival, including perch trees used for feeding. The project design with the 120' southerly shift of the runway would have required the cutting of the perch tree.

For this and other reasons, the southerly runway shift was increased from 120' to 500', which allows the perch tree to remain.

The VT F&W reviewed the revised project plans in September, 2018, and provided comments in an email dated September 14, 2018 (see Appendix 4). The Department commended the effort to avoid cutting of the perch tree, but cautioned about the potential for bird strikes, given feeding habitat present in the immediate vicinity of the airport, and recommended coordination with the USFWS (USDA Wildlife Services).

The Airport currently holds a USFWS Permit, Number MB95655C-0, which allows for non-lethal scare devices, scare tactics or frightening devices to move or disperse bald eagles endangering human safety due to a high risk of a serious bird strike to landing and departing aircraft.

Comments on the presence of the eagles in relation to the proposed project have been solicited from the USFWS Migratory Bird Division. Any comments received will be addressed during the permitting phase of the project.

### **5.8.3 Forest Habitat Blocks**

A forest habitat block with a final weighted score of 6 and a threat-weighted score of 6 occurs at the northwestern corner of the project, as discussed in Section 4.8 of this

document. Required tree cutting in this forest block for approach zone safety has been reduced from 4.5 acres to 1.8 acres as a result of the change in the shift of the runway from 120' to 500' south. This impact will be reviewed through Vermont's Act 250 Land Use permit process. Because the habitat block scores are not in the highest value range, the impacts are not expected to be unduly adverse.

Tree cutting to be required at the south end of the project has increased from 3.6 acres to 3.8 acres as a result of the shift of the runway 500' south. That cutting will be within a forest habitat block with a final weight of 3 and a threat weight of 2, thus at the low end of the spectrum of habitat block value. Because of the low rating for this block, impacts due to tree cutting are not expected to be unduly adverse.

According to the 2008 Lyndon Town Plan, the Town of Lyndon contains approximately 3,700 acres of forested land. The combined northern and southern areas of tree cutting, totaling 5.6 acres, is 0.15% of that forested land, and will have a negligible impact on the Town's or region's overall forested area and habitat.

## **5.9 WETLANDS**

The proposed action will result in wetland fill totaling 0.2 acre in State and Federal-jurisdictional wetland and fill in 1.5 acres of State-jurisdictional wetland buffer, as shown in Figures 5-5 and 5-6.

All wetland impacts will be permitted through the US Army Corps of Engineers, and the Class II (State-jurisdictional) wetland and buffer impacts will be permitted through the Vermont Wetlands Program. The total wetland impact associated with grading is 0.2 acre. The impacts will be primarily to emergent wetlands with low functions and values, located within the existing airfield and approach zone and maintained in an early successional state by mowing and brush-hogging. Therefore, no compensatory mitigation is expected to be required. Total

wetland buffer impact associated with grading is 1.5 acres, which is to emergent wetlands of low functions and values located within the mowed and brush-hogged airfield and approach zones. Tree cutting (with no soil disturbance) in wetland totals 0.003 acre and tree cutting in wetland buffer totals 0.2 acre. Impacts of tree cutting in wetlands and buffers will be minimized in coordination with the Vermont Wetlands Program during the permitting phase.

## **5.10 NOISE**

### **5.10.1 Aircraft Noise**

FAA Order 1050.1F, Section 4.10, states: “No noise analysis is needed for projects involving Design Group I and II airplanes (wingspan less than 79 feet) in Approach Categories A through D (landing speeds less than 166 knots) operating at airports whose forecast operations in the period covered by the NEPA document do not exceed 90,000 annual propeller operations (247 average daily operations) or 700 annual jet operations (2 average daily operations). Also, no noise analysis is needed for projects involving existing heliports or airports whose forecast helicopter operations in the period covered by the NEPA document do not exceed 10 annual daily average operations with hover times not exceeding 2 minutes.”

The aircraft operating out of the Caledonia County State Airport fall within the limits described above. According to the VTrans CDA Operator, the Airport has approximately 1,460 annual operations. No jet traffic is reported. Therefore, no further analysis is warranted.

### **5.10.2 Construction Noise**

Construction vehicles will include (but are not limited to) dump trucks, back hoes, graders, loaders, excavators, bull dozers, compactors, pavers and skidders. According to the FHWA Roadway Construction Noise Model, these vehicles have maximum sound levels that range from 77 dBA to 85 dBA at 50 feet. The closest resident is about 200

feet from the construction activity near the south end of the project. This distance would reduce those impacts by about 10 dBA.

No construction will occur at night. Noise during construction will be controlled by requiring all construction equipment to be equipped with standard noise abatement equipment (mufflers) and by limiting the hours of operation to normal construction work hours.

Given the relatively short duration and temporary nature of the construction activities, no significant construction noise impacts are anticipated to occur, and no mitigation is required.

## **5.11 LIGHT EMISSIONS**

The light emissions analysis considers the extent to which lighting on the Airport impacts the adjacent properties and the public. The lighting of the No Build- No Action Alternative and the Preferred Alternative are described below.

### **5.11.1 No Build- No Action Alternative**

Existing lights will remain, with no changes proposed, so there would be no impacts to light emissions from this alternative.

### **5.11.2 Preferred Alternative**

Runway – The proposed changes in lighting include the removal of existing edge lights along the northern 500' of runway to be removed, addition of new edge lights along the southern 500' runway extension, and replacement of the existing edge lights with new edge lights in the remaining section of runway. The existing runway end lights will be removed, and new runway end lights will be added to the finished runway. These lights

are pilot-actuated and are only on when the runway is active. The edge lights project no more than 36 inches above the ground surface. The majority of the new runway area is screened by existing vegetation from nearby residences. However, because of the removal of ledge at the end of Runway 2, the runway end lights may be visible from a distance by homes and roadways to the south for brief periods during aircraft operations.

Taxiway – New edge lights and internally illuminated signage at intersections will not extend more than 36 inches above the ground so as not to be a hazard to aircraft. These lights/signs are pilot-actuated and only on when the runway is in operation. The closest residence to the existing/relocated parallel taxiway is over 400 feet away.

Terminal Area, Hangars, Apron and Parking – No change in the existing terminal area, hangars, apron or vehicle parking areas are proposed as a part of this project.

The effects of lighting are influenced by the relationship of the source to the viewer (distance and elevation), the intensity of the source, the duration of lighting, and the screening (natural, fixture design or fencing). Given the limited change in the runway/taxiway edge lighting/signage from the existing conditions, the relationship of the proposed lighting to the potential viewers, the natural/manmade (vegetation and existing hangar buildings) screening and types of fixtures proposed, the impacts associated with the additional or relocated lighting will be minimal.

#### **5.12 SOCIOECONOMIC IMPACTS and CHILDREN’S ENVIRONMENTAL HEALTH AND SAFETY RISKS**

This evaluation considers the impacts as they pertain to; Executive Order 13045, Protection of Children from the Environmental Health Risks and Safety Risks (EO 13045, 1997); Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (URA, 1970); and the Surface Transportation and Uniform Relocation Act amendments of 1967 (HR 2, 1967).

### **5.12.1 No-Action Alternative**

Under the No-Action Alternative there will be no relocations, acquisition of property or any direct environmental impacts of the Airport on the health and safety of children. However, the obstructions in the current approaches to RW 2 and RW 20 pose a safety risk to pilots/passengers and people on the ground, should an accident occur. In addition, if the pavement conditions are not addressed, the pavement will continue to deteriorate to the point where it will begin to break up and lose its ability to support the force exerted on it by aircraft, thus creating unsafe conditions.

### **5.12.2 Proposed Action Alternative**

The proposed action alternative will not require the relocation of any residential or commercial property or residents. Acquisitions will be limited to obtaining off-airport aviation easements on six properties. These easements will allow for the removal of obstructions (trees) and the maintenance of all six of these properties free of obstructions in the future. These properties lie in or directly adjacent to the approach surfaces to runways 2 and 20.

As required by FAA, a fair market appraisal will be completed for each affected parcel as a part of the Aviation Easement process. Each Landowner will be then be justly compensated based upon the specific impacts/restrictions placed on that property.

## **5.13 FLOODPLAINS**

There is no designated 100-year floodplain in the vicinity of the Caledonia County State Airport. The proposed project is therefore not anticipated to increase the risk of flood loss or impacts of flooding on human safety, health or welfare.

#### **5.14 COASTAL ZONE MANAGEMENT OR BARRIERS**

The project does not lie in a coastal zone or in proximity to the coast. Therefore, these considerations are not applicable.

#### **5.15 ENERGY**

Energy use on the air side of the Airport would increase very slightly as a result of bringing the runway and taxiway lighting and signage up to current standards. The added low intensity edge lights and signs will not place a significant burden on the existing utility.

#### **5.16 SOLID WASTE**

During construction, small quantities of solid waste will be generated from packaging materials. The contract documents will require the Contractor to recycle these materials to the extent practicable. Waste asphalt removed from existing paved surfaces will be recycled. Trees removed off airport property that are not wanted by the property owner and are suitable for firewood will be made available to local low income residents.

Following construction there will be no increase in solid waste generation over the existing conditions. As noted in section 4.16, the Airport has a solid waste recycling program.

#### **5.17 CONSTRUCTION IMPACTS**

The proposed action will result in temporary, unavoidable impacts to air quality, noise, water quality, solid waste and transportation during construction. Construction activities will employ Best Management Practices to mitigate against significant impacts. These are only temporary impacts and limited to the period of construction.

The following is a discussion of the temporary construction-related impacts that would occur with the implementation of the proposed action.

**Air Quality** – Temporary emissions of air pollutants are possible from a number of sources during construction. These may include: construction equipment, stockpiled materials, vehicles delivering materials to the site and placement of pavement. Dust may be caused by the movement of equipment and movement and exposure of earth materials. Dust will be minimized through the implementation of an Erosion Prevention and Sediment Control Plan, which in addition to other measures will require dust control measures using water, not calcium chloride, will limit the area of exposed soil at any one time and will require placement of temporary and permanent stabilization measures (hydro seeding, pavement, etc.) shortly following final grading.

**Noise** – Temporary increases in noise associated with construction activities will be most noticeable in close proximity to the construction activity and will decrease with distance. To minimize the impacts of construction noise, construction activities will be limited to normal construction hours (7 am to 6 pm), Monday through Saturday. Construction vehicle staging areas will be designed to be as far away from residences as practicable.

**Water Quality** – Temporary water quality impacts during construction would be indirect and associated with such activities as vegetation removal, earth work, refueling/maintenance of construction equipment, temporary sanitary facilities, solid waste and construction vehicles both on and exiting the construction site. To minimize the potential for impacts, a number of actions will be taken:

- A detailed Construction Safety and Phasing Plan will be developed.
- An Erosion Prevention and Sediment Control Plan (EPSCP) incorporating Best Management Practices (BMP's), will be developed for the project which will minimize the risk of impacts to water quality and wetlands during construction. The measures will include protection of sensitive resources from construction

activities through establishing construction limits, use of temporary control measurers (silt fencing, erosion matting, mulch, stabilized construction entrance, check dams, etc.), minimization of exposed soil at any given time, and establishment of permanent measures (vegetation, pavement, etc.) as soon as possible following final grading.

- A Construction Staging area will be designated for storage of equipment, materials and fueling.
- Temporary portable sanitary facilities and solid waste containers will be provided and maintained during construction.
- Construction activities and the Contractor's adherence to approved plans will be under the observation of a State representative.

**Transportation** – Roadways: temporary impacts will be associated with vehicles transporting materials and workers to and from the construction site. Vehicles using the public roadways will be required to operate within legal weight limits.

### 5.18 ENVIRONMENTAL JUSTICE

The proposed project will not result in a disproportionate effect on any known minority population or low-income population. The proposed improvements are confined to the existing airport property and the six properties within the runway 2 and 20 approaches. The proposed improvements do not alter the design aircraft for the facility or significantly alter the approaches to Runway 2/20.

### 5.19 CUMULATIVE IMPACTS

Impacts of past, present and reasonably foreseeable future actions have been reviewed through communications with the Airport Manager and the Town Zoning Administrator. The following is a discussion of these actions and their resulting cumulative impacts.

### **5.19.1 Airport Property**

Development activity on airport property over recent years has been minimal, with the following projects having been completed over the past five years:

- Installation of a pilot-controlled rotating beacon immediately north of the terminal building. The foundation for the beacon is a 4'X4' concrete base, and the height of the beacon is 30'.
- Installation of perimeter fencing along the western side of the runway.
- Installation of FAA-compliant frangible runway lights.
- Pavement maintenance, including crack sealing and block patching.

No projects are currently under construction at the Airport. Projects to occur in the foreseeable future include:

- Installation of additional perimeter fencing and powered and manual gates. Currently, fencing exists around approximately one-third of the airport. The future fencing would complete the perimeter fencing. This work may occur within the next three to five years.
- Additional private hangars may be constructed just south of the apron, but the timeframe is uncertain.

### **5.19.2 Airport Vicinity**

Development in the vicinity of the Airport over recent years has also been minimal. The only project completed recently has been the establishment of a composting facility on the eastern side of Pudding Hill Road, opposite the northern-most hangar. The composting facility was grandfathered under Vermont Act 148, which regulates compost facilities. It is approximately one acre in size, and processes approximately 400 tons of food waste annually. The development attracts birds and wildlife to the airport vicinity,

and requires constant monitoring by airport staff of the runway for fixed objects and debris (FOD), as well as measures to remove live birds and animals from the runway. The compost facility owners have been in continuing discussions with the USDA in an effort to minimize the wildlife issues, and the airport has been in continuing discussions with FAA regarding mitigation measures. The Airport currently holds a USFWS Permit, number MB95655C-0, which allows for non-lethal scare devices, scare tactics or frightening devices to move or disperse bald eagles endangering human safety due to a high risk of a serious bird strike to landing and departing aircraft.

No additional projects in the vicinity of the airport are foreseen by Town officials.

In summary, development both on-airport and in the vicinity of the Airport has been minimal in recent years, and is expected to remain minimal, with the exception of the proposed action.

#### **5.20 DEPARTMENT OF TRANSPORTATION: SECTION 4(f)**

The proposed actions will not require the use of any publicly owned land from a public park, recreation area or wildlife and waterfowl refuge of National, State or local significance or land from an historic site of National, State or local significance.

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## SECTION 6 – PUBLIC INVOLVEMENT

**6.0** The Vermont Agency of Transportation and the FAA have prepared this EA in conformance with FAA Order 1050.1F, Policies and Procedures for Considering Environmental Impacts (FAA, 2015), FAA Order 5050.4C (FAA, 2018) and National Environmental Policy Act (NEPA) Implementation Instructions for Airport Projects. This EA examines the potential for construction and operation of the proposed airport facilities at the Airport to affect the quality of the human environment. The no-action alternative is also examined in this EA for comparison purposes.

**6.1** A notice of this EA has been published in the local newspaper (The Caledonia Record) and forwarded to government agencies. The FAA will accept comments regarding the possible environmental effects of undertaking the proposed project during the two-week comment period. FAA will not initiate construction activities until the environmental review process has been completed. A copy of the Document is available for Public Review at the Airport, the Offices of FAA in Burlington, MA and on the VTrans web site, <http://vtrans.vermont.gov/aviation/airports/caledonia-county>.

**6.2** Two public meetings regarding the proposed project have been held in the project vicinity. These included:

- A Public Information Meeting, held at the Airport on December 7, 2017 at 6:00 pm. The purpose of this meeting was to introduce the Public to the project, inform them of the intent to complete an Environmental Assessment and to explain the process and opportunities to participate.

**Caledonia County State Airport**

Environmental Assessment  
Section 6 – Public Involvement  
November 2018



Aviation Division

- 
- An Environmental Assessment Public Meeting will occur at the Caledonia County State Airport on November 15, 2018 at 6:00 pm to present and address questions on the published document (EA) during the Public Comment Period.

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## Caledonia County State Airport

Environmental Assessment

Section 7 – References

November 2018

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## SECTION 8 – CONCLUSIONS

**8.0** The EA document conforms to procedural and technical requirements set forth in FAA Order 1050.1F, Policies and Procedures for Considering Environmental Impacts (FAA, 2015), FAA Order 5050.4C (FAA, 2018) and National Environmental Policy Act (NEPA) Implementation Instructions for Airport Projects. This document examines the potential for construction and operation of the proposed airport facilities at the Airport to individually or cumulatively result in significant effects on the human and natural environments. Based on the detailed analyses contained in this EA, all projected environmental effects can be avoided or reduced to less than significant levels through application of sound project planning and the feasible mitigation measures described in this document.

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## SECTION 9 – LIST OF PREPARERS

**9.0** This EA was prepared by DuBois & King, Inc., Randolph, Vermont, under contract to the Vermont Agency of Transportation. The following DuBois & King, Inc. staff members worked on the preparation of this document:

- John K. Benson, P.E.; Principal Author / Editor
- Charlotte W. Brodie; Field Naturalist; Author/Editor
- Jeffery A. Adler, P.E., Editor
- Dawn L. Conant; Administrative Support

In addition to DuBois & King, Inc. the following individuals also contributed to the document:

- Jason Owen, Project Manager, Vermont Agency of Transportation
- Richard Doucette, Environmental Program Manager, Federal Aviation Administration, New England Region

**APPENDIX A**

**ARCHEOLOGICAL RESOURCE ASSESSMENT  
CALEDONIA STATE AIRPORT  
TREE CLEARING PROJECT**



**HARTGEN**

archeological associates inc

**ARCHEOLOGICAL RESOURCE ASSESSMENT**  
**Caledonia County State Airport Tree Clearing Project**

Town of Lyndonville,  
Caledonia County, Vermont

HAA # 5126-11

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October 2017

## **ARCHEOLOGICAL RESOURCE ASSESSMENT**

### **INTRODUCTION**

Hartgen Archeological Associates, Inc. (HAA, Inc.) was retained by DuBois & King, Inc. to conduct an Archeological Resource Assessment (ARA) for the proposed Tree Clearing and Runway Improvements project at the Caledonia County Airport located in the Town of Lyndonville, Caledonia County, Vermont (Map 1). The project includes tree clearing at the southern and northern ends of the runway, some tree clearing in the safety zone outside of the airport perimeter fence, and reconstruction of the runway and taxiway (Maps 2 and 3). An ARA is required according to Vermont Act 250 and Section 106 of the National Historic Preservation Act. The project is being funded and administered by the Federal Aviation Administration. The project is being overseen by the Vermont Agency of Transportation (VTrans), who will review the cultural resource investigation and ARA report.

### **Proposed Airport Improvements**

The following is a detailed description of the proposed improvements to the Caledonia County Airport which are depicted on Maps 2 and 3.

#### **Runway 20 Approach (north end)**

- Ground penetration on airport property next to Airport Road, as this area will be cut down by several feet (Photos 1 and 2).
- A small area of ground cutting on the north side of Airport Road (Photos 1 and 2).
- Trees penetrate the visual approach in two areas on the Easterbrook property, located approximately 2,000 to 3,000 feet north of the airport perimeter fence (Photo 3). The intent is to cut these trees down with no ground disturbance. In any tree clearing area, it is proposed that the trees would be cut, and the stumps ground to just below the ground surface, and topsoil placed over them.

#### **Runway 2 approach (south end)**

- Area of ground penetration on airport property – the ledge knob/knoll that will be removed. The material removed from this area will be used as fill for the runway reconstruction (Photo 4).
- Tree clearing is planned in the area south of and adjacent to the ground penetration. The tree clearing will be conducted both on and off the airport property (Photo 5). The intent is to remove the trees without ground disturbance.

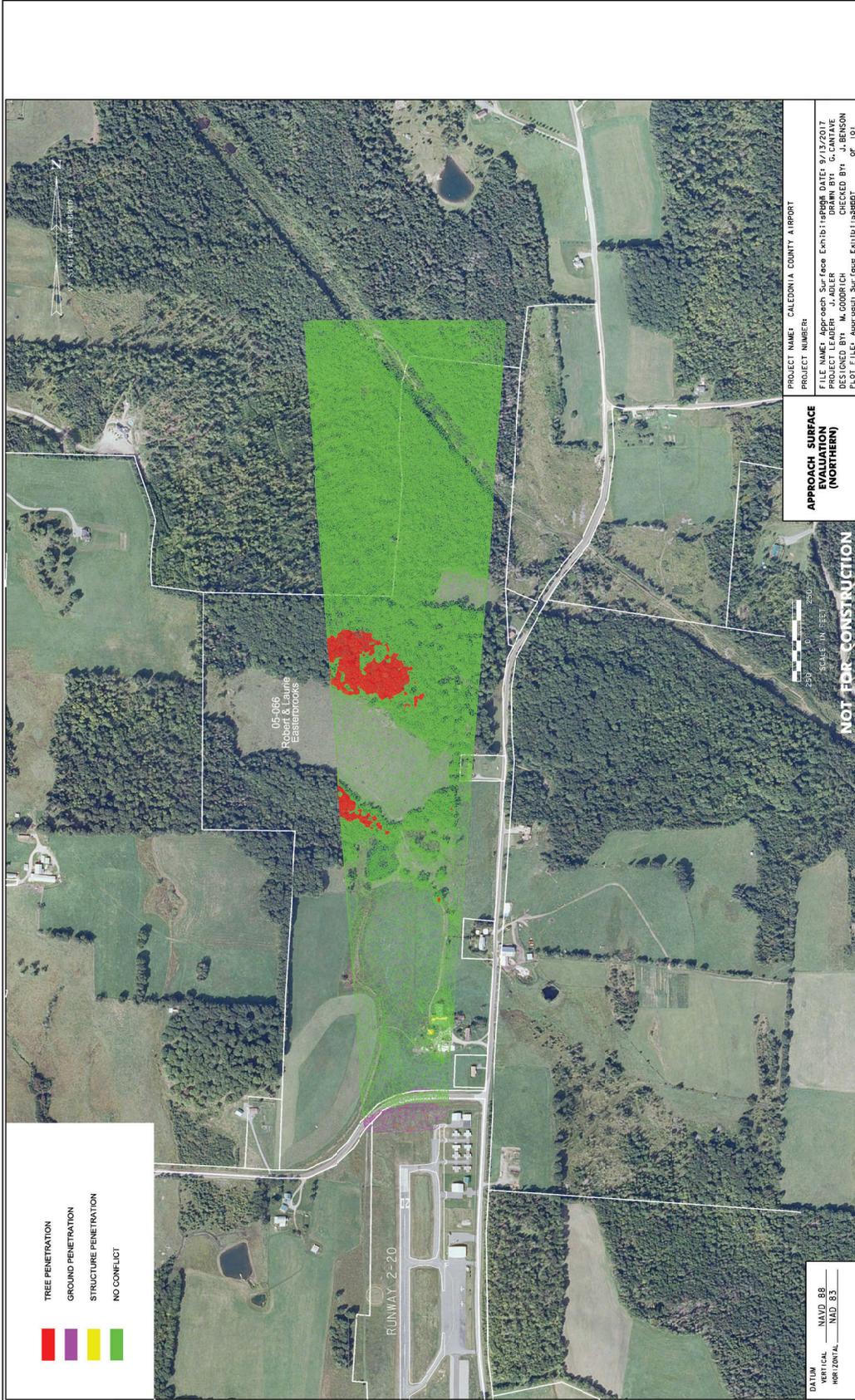
#### **Airport Runway**

- The runway and taxiway are to be reconstructed. The runway will be extended to the south and the central portion of the runway raised to the height/level of the north and south ends to reduce the existing swale (Photo 6).

### **DOCUMENTARY RESEARCH**

The ARA project objectives are to identify areas of archeological sensitivity based on environmental factors, known site information and historical information for the project APE. Background research provides information which allows development of cultural (historical and precontact) contexts. Background research was conducted at the Vermont Division for Historic Preservation (VDHP) online resource center where archeological site files, National Register (NR), State Register (SR) and town information were reviewed.





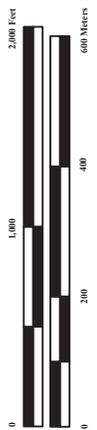
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- GROUND PENETRATION
- STRUCTURE PENETRATION
- NO CONFLICT

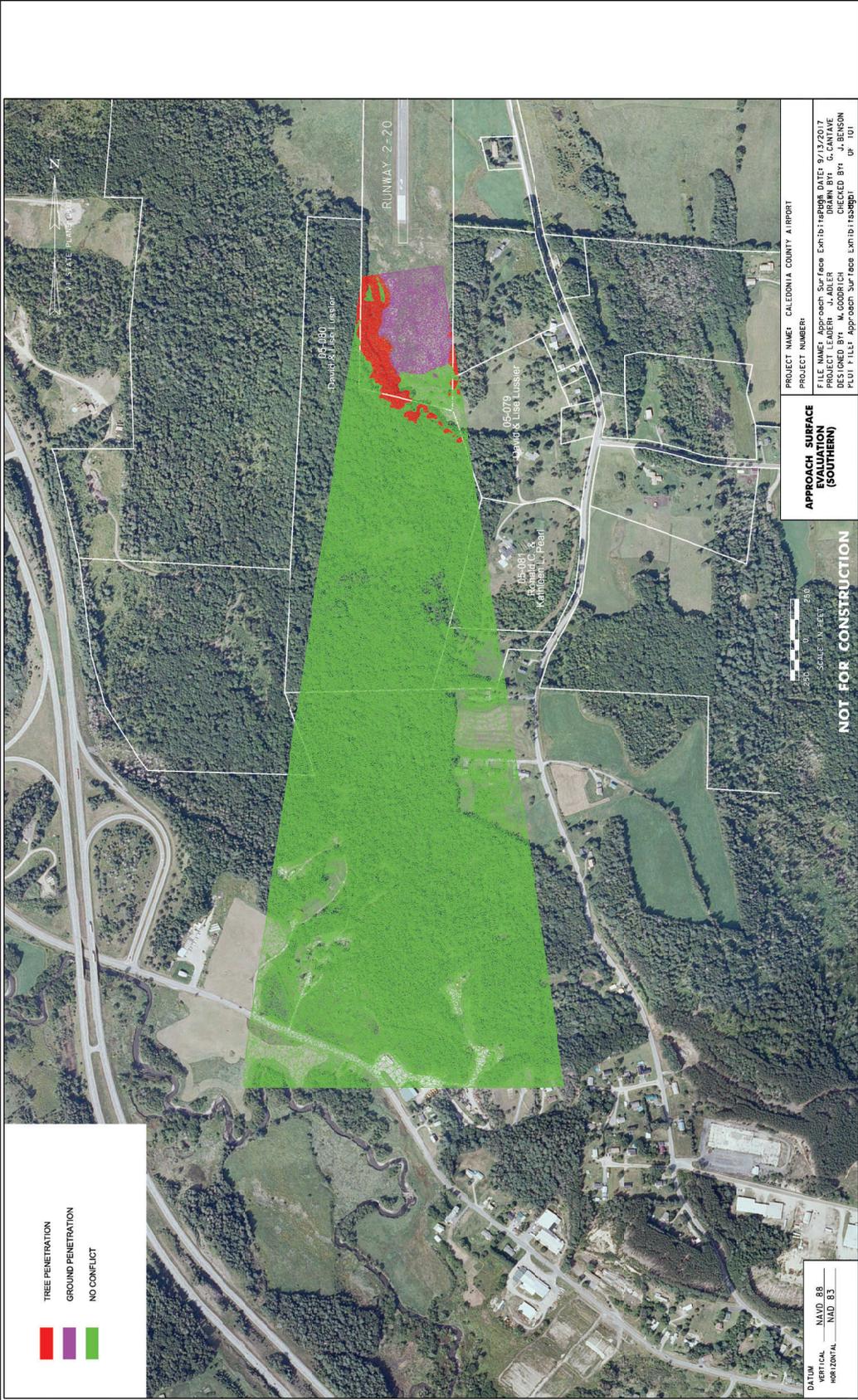
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 PROJECT NUMBER:  
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 PROJECT LEADER: J. ADLER DRAWN BY: G. GANTAVE  
 DESIGNED BY: M. GODOURICH CHECKED BY: J. BENSON  
 PLOT FILE: Approach\_SurFace\_Erbit15.mxd OF: 101

**APPROACH SURFACE  
 (NORTHERN)**

**NOT FOR CONSTRUCTION**

DATUM: NAD 83  
 VERTICAL: NAD 83  
 HORIZONTAL: NAD 83

		 <b>HARTGEN</b> archaeological associates inc
Project Map Caledonia Airport Approach Surface: North End (2017)		
Map 2		



- █ TREE PENETRATION
- █ GROUND PENETRATION
- █ NO CONFLICT

DATUM  
 VERTICAL: NAVD 83  
 HORIZONTAL: NAD 83

SCALE: AS SHOWN  
 250' 0'  
 500' 0'  
 750' 0'

**NOT FOR CONSTRUCTION**

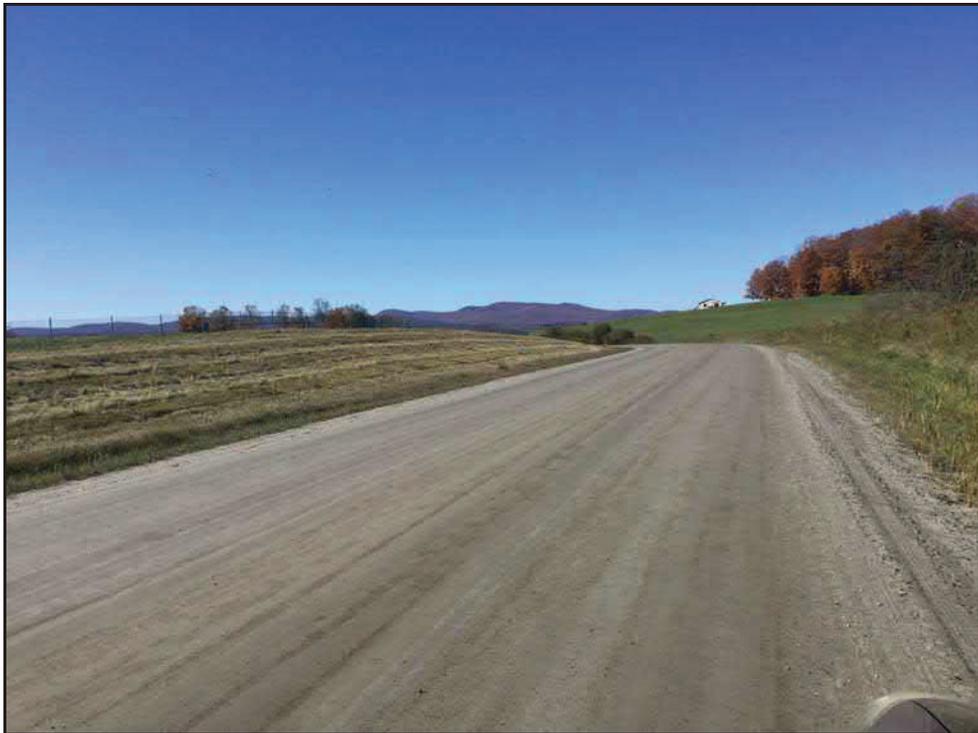
**APPROACH SURFACE  
 EVALUATION  
 (SOUTHERN)**

PROJECT NAME: CALEDONIA COUNTY AIRPORT  
 PROJECT NUMBER:  
 FILE NAME: Approach Surface Exhibit (Sheet) 05-081.dwg  
 PROJECT LEADER: J. BENSON  
 DESIGNED BY: M. COORICH  
 CHECKED BY: J. BENSON  
 PLOT FILE: Approach Sur face Exhibit (Sheet)

		<p><b>HARTGEN</b> archeological associates inc</p>
Project Map Caledonia Airport Approach Surface South End (2017)		
Map 3		



**Photo 1.** Photo shows the area at the north end of the runway where soil removal is proposed. Soils will be removed from areas located both north and south of Airport Road (delineated by airport fence in the background). View is to the north.



**Photo 2.** Photo shows Airport Road and the areas proposed to have soils removed north of the runway. Airport property is located south (left) of the road. Private property is located north (right) of the road. View is to the west.



**Photo 3.** Photo shows a view of the slope leading up to where trees are proposed to be removed on the Easterbrook property located several thousand feet north of the airport property. View is to the west.



**Photo 4.** Photo shows the slope leading up to the knoll located south of the runway, where the removal of soils is proposed. View is to the south.



**Photo 5.** Photo shows the top of the knoll south of the runway, looking south toward the treeline where tree removal is proposed. View is to the south.



**Photo 6.** Photo shows the swale in the runway, which rises in elevation at the south end of the runway. View is to the north.

## Environmental Background

Environmental characteristics of an area are significant for determining the sensitivity for archeological resources. Precontact and historic groups often favored level, well-drained locations near wetlands and waterways. Therefore, topography, proximity to wetlands, and soils are examined to determine if there are landforms in the project area that are more likely to contain archeological resources. Soil conditions can provide a clue to past climatic conditions, as well as changes in local hydrology.

The Caledonia County State Airport consists of a 78-acre parcel located high on the west side of Pudding Hill Road, situated approximately 3.7 kilometers (2.3 miles) northwest of Lyndonville. The airport and one runway rest on the flat terraced spine of Pudding Hill at an elevation of 359 meters (1,178 feet) above mean sea level (amsl) at a prominent vantage point offering scenic views of the surrounding mountains and the Passumpsic, Barton and Black River valleys.

The airport project area is located in the Vermont Piedmont or “*Vermont Hills*” physiographic region, characterized by deep river valleys, flat upland hills, and high isolated mountains bordered to the west by the Green Mountains and to the east by the Connecticut River Valley (Meeks 1986:5-7). The project area is part of the Passumpsic River drainage, with Miller Run located approximately one mile (1.5 kilometers) south of the airport. Miller Run drains to the east into the Passumpsic River, with their confluence located 1.5 miles (2.6 kilometers) southeast of the airport. The base of the river valley is situated approximately 145 meters (476 feet) below the elevation of the airport. Quimby Brook is located north and east of the airport, and flows to the southeast into the Passumpsic River. An unnamed and possibly intermittent stream drains southeast through the center of the airport property, meeting the Passumpsic River at its confluence with Miller Creek. The western stream drainage of Pudding Hill to Miller Run is located 0.6 kilometers (2,000 feet) west of the airport.

The general airport vicinity is located in the Northern Hardwood zone dominated by maple, birch, beech, and hemlock (Kuchler 1964). Currently the ground cover across the project area is grass except where it is paved for the airport. The runway protection zone to the south has been logged and cleared. The mature hardwood forest further to the south is in an area of extreme slope descending to Miller Run (Photo 5).

The airport property is located on the wide area of overturned syncline which runs north – south across the northeastern portion of the state between the Willoughby Arch Anticline to the west and the Brattleboro Syncline to the east. The underlying bedrock is uniformly composed of the Waits River formation consisting of “gray quartzose and micaceous crystalline limestone weathered to distinctive brown earthy crust.” This formation is also “interbedded and intergradational with gray quartz-muscovite phyllite or schist” (Doll et al. 1961).

The surficial geology for the area consists of thin glacial till which is prevalent in the upland areas of this region of the state. Within the project area, the glacial till includes Dummerston and Buckland very fine sandy loam on the fairly level terrace at the middle of the property (USDA Soil Survey of Caledonia County). Where the slopes increase to the south and north the soils are composed of Vershire-Dummerston complex rocky soils formed in loamy glacial till. In these areas, stones and boulders are visible on the surface with the outcropping more prevalent on the slopes. Bedrock outcrops are evident on the knoll at the south end of the runway (Photo 7).

The presence of bedrock so close to the surface is the primary reason that the runway maintains a noticeable swale, rising in elevation slightly to the north and quite visibly to the south (Photo 8). During airport construction in the 1970s, bedrock was encountered at or near the ground surface. Rather than blast through the bedrock, the runway was constructed on top of ledge at the south end of the airport. This ledge was located at a higher elevation than the central portion of the runway (Chris Randolph, personal communication).



**Photo 7.** Photo shows the exposed bedrock outcrops on the knoll at the south end of the runway. View is to the north.



**Photo 8.** Photo shows the swale and the rise in elevation at the south end of the runway. View is to the south.

The soils in the project area are all well-drained and erosional on slopes. The soils at the southern end of the airport property are comprised of Cabot silt loam, 3 to 8 percent slopes. Scantic silt loam, 0-3 percent slopes are located on the northern and central sections of the level plateau portion of the airport property.

It is very likely that the soils at the northern end of the runway are highly varied and disturbed. During airport construction in the 1970s, the original and historic alignment of the road at the north end of the runway (now Airport Road) was altered from a straight east-west alignment to its present alignment which curves around the north end of the runway and safety zone. Airport manager Chris Randolph noted the undulating grass ground surface at the north end of the runway, which is caused by uneven settling of the soils deposited here during airport construction (Photo 9). This undulating ground surface is unsafe for emergency use by aircraft, and is one of the primary reasons for the proposed project improvements in this area (Chris Randolph, personal communication October 2017).

### **Historic Research**

The Caledonia County State Airport is located in the town of Lyndon approximately 1.6 kilometers (1.25 miles) northwest of the village of Lyndon Center. The village of Lyndonville is located just across and east of the Passumpsic River from Lyndon Center. In 1780, the Town of Lyndonville was established by the Passumpsic River, the site chosen by residents of Providence RI, who searched for unchartered territory in which to establish a colony (Child 1887;229). They followed the Connecticut River valley to the Passumpsic River to its falls and tributaries. The original settlers, 54 men who had served in the Rhode Island regiments during the Revolutionary War, included Dr. Jonathon Arnold who named the town after his eldest son, Josiah Lyndon Arnold (Swift 1977). In 1788 Daniel Cahoon Jr with the help of other settlers cleared land and built a log cabin (Child 1887). The following spring more settlers arrived to clear land and the first frame house was erected in 1795 (Shores 1986).

The settlers were greeted with rivers which teemed with trout, and thick forests which contained a multitude of wildlife and game. But, from its first settlement, the major focus of the economy was agriculture, and the land was quickly cleared for cultivation. The cut timber was not only used for the construction of homes and businesses, but the surplus was burned and turned into such commodities as potash and pearlash (Shores 1986). These were shipped to Boston and Portland, along with agricultural products such as butter, cheese, and pork (Shores 1986). Potatoes were also a major agricultural product, grown in the Lyndon area, and then shipped to larger cities. The numerous falls and water power available in the area gave rise to saw and grist mills. Other industrial complexes included brick kilns, starch factories, and distilleries.



**Photo 9.** Photo shows the undulating ground surface in the safety zone at the north end of the runway. View is to the southwest.

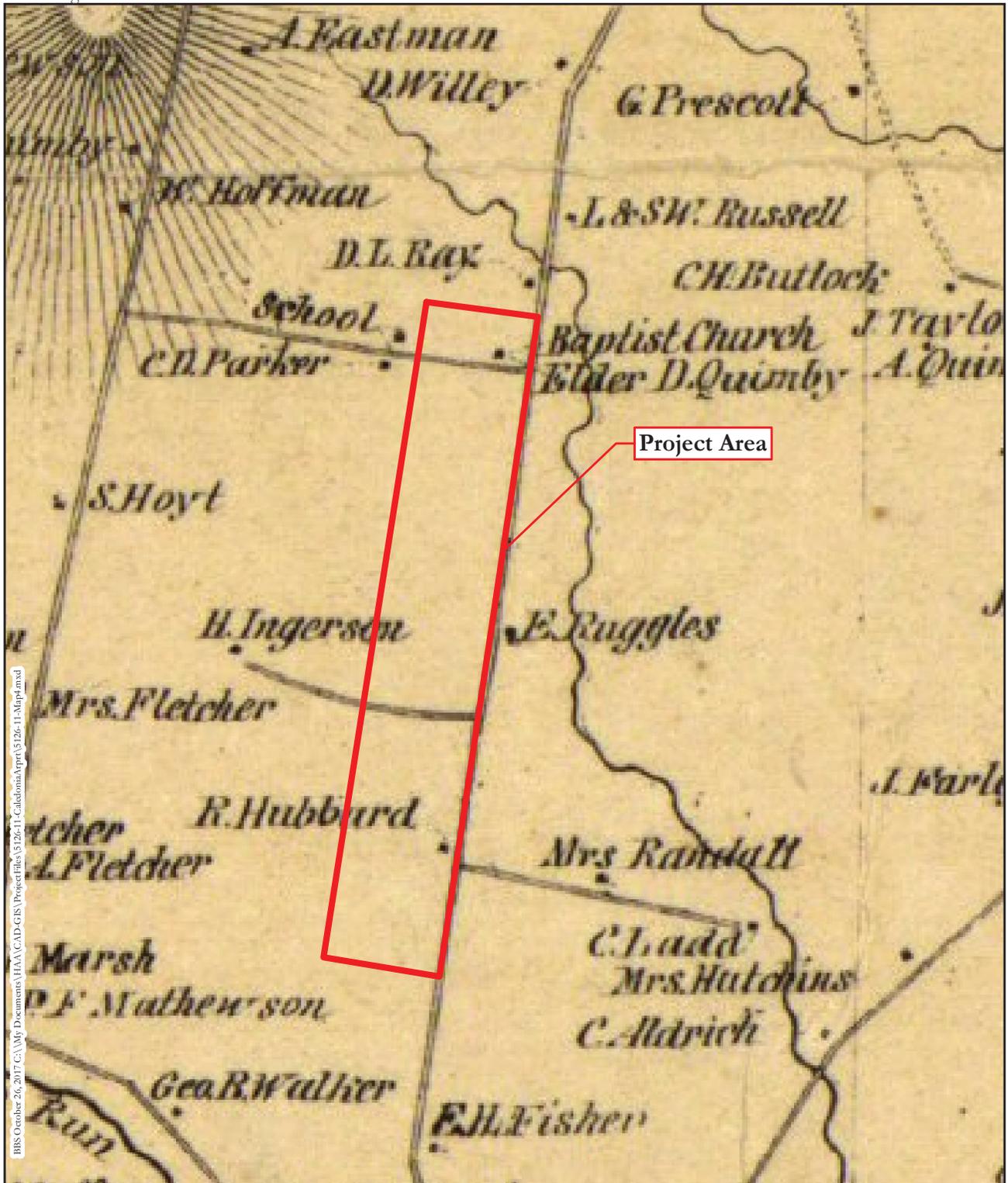
## Historic Sites and Sensitivity

### Historic Maps

A review of historic maps of the project area was conducted to attain an overview of the changing historical and environmental landscape within the project area. This review includes the study of historic structures that may be or may no longer be extant, alterations to road and rail systems, and changes in stream and river courses. The 1859 Walling map (Map 4) and the 1875 Beers map (Map 5) depict the roadways and stream courses in Lyndon, the location of schools, businesses, and homes, and the names of the residents who lived there in those years.

Historic settlement in the area began in the late eighteenth century with the focus on agriculture and lumber. Clearing and cultivation in the immediate project vicinity probably began later in the nineteenth century. The 1858 Walling and 1875 Beers maps demonstrate that settlement was sparse, a trend which continues to this day. Only five structures, including a school house, church and three residences/farms were identified near the project area. The upland location of the property and low historic settlement density distance from the town centers, all suggested limited historic sensitivity for sites in addition to those identified on the historic maps.

According to the 1858 Walling Map, the airport lies in the approximate area which at one time housed a school, a Baptist Church with Elder *D. Quimby* and the residences of *C. W. Parker*, *H. Ingerson*, and *D. L. Ray* (Map 4). Based on the 1875 Beers map of Caledonia County there was no additional settlement over the next seventeen years with all but one of the same structures still present (Map 5). The sole changes to the area during this time was the loss or removal of the Baptist Church, and the change of ownership from *D.L. Ray* to *W. Easterbrook* in the farm near the northeast corner of the airport property changed.



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	<p>Note: Graphic scale approximate.</p>	<p><b>Legend</b></p> <p><span style="color: red;">—</span> Project Area</p> <p>Walling 1858</p>	<p><b>HARTGEN</b> archeological associates inc</p> <p><b>Map 4</b></p>
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	<p>Note: Graphic scale approximate.</p>	<p><b>Legend</b></p> <p><span style="color: red;">—</span> Project Area</p> <p>Beers 1875</p>	<p><b>HARTGEN</b> archeological associates inc</p> <p><b>Map 5</b></p>
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The schoolhouse, which was moved north of the terminal and hangar, is used for the local Civil Air Patrol (NEK Composite Squadron 44004). Based on a review of the historic maps, the schoolhouse was originally located in the northwestern runway protection zone on the north side of the original alignment of what is now known as Airport Road. The historic road, as seen on the historic maps, was oriented in a straight east-west direction (Photo 10). The road was realigned in the 1970s to accommodate the length of the new runway. It appears the new road alignment was graded through the original school property with the structure moved to its present location (Photo 10).



**Photo 10.** Photo shows the modern alignment of Airport Road. The original alignment extended eastward toward the airport hangars in the distance. The second building on the right is the schoolhouse which once was located on the north side of road, but was moved when the alignment was altered during 1970s airport construction. View is to the east.

### **Vermont Archaeological Inventory – Historic Sites**

There are no reported historic archaeological sites within a mile of the airport. Outside of this perimeter, the reported archeological resources within the VDHP files are comprised solely of historic covered bridges.

### **State and National Register**

There are no State or National Register Sites located within or adjacent to the project area.

### **Cemeteries**

There are no cemeteries located within or adjacent to the project APE (Hyde and Hyde 1991).

## **Precontact Sites and Sensitivity**

The precontact site file search at VDHP area revealed that there are no recorded precontact sites located within several miles of the airport project area. While there is a dearth of reported precontact sites in this general area, this is more likely a result of limited archeological testing than the absence of sites. It is likely that precontact people made use of the upland areas which overlook the river valleys and the Lake Passumpsic basin. The high plateau on which the airport is situated would have provided an overview of the river valleys. The high terrace also contains several heads of drainages which would have been attractive for precontact campsites. Undisturbed areas adjacent to the drainages, and the rounded high knoll at the south end of the airport property were considered to be archeologically sensitive.

The VDHP Archeological Resources Assessment (ARA) Form produced a rating of 20, with a score of 32 or more indicating archeological sensitivity (Appendix I). The major variables contributing to this score are the two mountain stream drainages in the project vicinity, one flowing through the middle of the airport, and the prominent ridge crest with views of the surrounding environs at the south end of the property. The rating of the project area was greatly diminished (-32) by the presence of disturbed/fill soils at the north end of the runway which were imported into this area during alteration of road configuration and airport construction (Appendix 1).

In 1999, a Phase IA archeological assessment was conducted for the Caledonia Airport and five other Vermont airports (Hartgen 1999). At Caledonia Airport, there were several areas identified as archeologically sensitive within the airport property and within its easement areas. The rounded knoll at the south end of the airport runway was identified as archeologically sensitive for precontact resources because of its high prominent location which afforded a view of the mountain terrain as well as the river valleys to the south, east and west. This precontact sensitivity was heightened by the fact that during the Paleoindian Period the project area bordered the waters of the glacial Lake Hitchcock. During the glacial retreat, large freshwater lakes, located between Vermont and New Hampshire, and collectively known as Lake Hitchcock, formed throughout New England as ice dams and moraine deposits blocked the drainage of meltwaters. (Meeks 1986: 45-47). The prominent hilltop terrace south of the runway may have offered advantageous views of the lake and surrounding environs which may have attracted paleo-period hunters to the area. The suitability of the area during this time may also have been dependent on the time span of the glacial lake waters retreat. A gradual retreat would have provided more opportunity for exploitation of the lake area.

In 2004, Hartgen completed a Phase IB archeological test survey at the airport for the proposed Airport Improvements (VAOT No. Statewide AIR 04-3140-100) and Three Beacon Towers (VAOT Project Number Statewide AIR 04-3032-101), all or which included construction of a new hangar, leveling and improving the safety zone south of the runway, placing new runway lights along the southwestern border of the runway, and beacon towers on the northwestern approach. At that time, archeological testing was also conducted on the knoll at the south end of the airport in order to clear it for future development. A total of 16 square shovel test pits were excavated on the most prominent and level sections of the knoll. The archaeological testing conducted in 2004 produced no evidence of precontact activity on the knoll at the south end of the airport where tree removal is proposed.

## **SITE RECONNAISSANCE AND RECOMMENDATIONS**

A site visit was conducted by Hartgen archeologist Elise Manning Sterling on October 13, 2017 under sunny and warm conditions. The site reconnaissance of the project area located within the confines of the airport perimeter fence was conducted by golf cart, accompanied by Christopher Raymond, the manager of the Caledonia County Airport manager.

Proposed project impacts at the north end of the runway include ground penetration with several feet of soil cut and redistributed to create a level safety zone. The primary area to be impacted is located between the north end of the runway and Airport Road. A small area on the north side of Airport Road will also have

soils removed. Both these areas on the north and south side of Airport Road are considered to be previously disturbed during airport construction activities, and are not considered archeologically sensitive.

The proposed area of tree clearing on the Easterbrook property located north of the airport is located on long sloping hill. This area is not considered archeologically sensitive. The proposed project plans involve cutting the trees with no ground disturbance.

Located at the southern end of the APE is an elevated bench and rounded knoll which commands the highest elevation in the project vicinity. Proposed project plans in this area include ground penetration on the knoll, and tree removal along the southern slope of the knoll (Map 2). This landform, situated overlooking the river valleys and several small streams and wetlands, was considered to have precontact archeological sensitivity. However, shovel testing conducted in 2004 produced no indication of precontact activity on this knolltop (Hartgen 2004).

No further archeological investigation is proposed for the Caledonia County Airport tree-clearing project as presently proposed. If there are any alterations to the project plans, then further archeological study may be required. It is recommended that this report be submitted to the archaeology division of VTTrans for review and concurrence.

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Caledonia County State Airport Tree Clearing  
Town of Lyndonville, Caledonia County, Vermont  
Archeological Resource Assessment

**APPENDIX 1: VDHP  
ENVIRONMENTAL PREDICTIVE MODEL**

VERMONT DIVISION FOR HISTORIC PRESERVATION

**Environmental Predictive Model for Locating Pre-contact Archaeological Sites**

**Project Name** Caledonia County Airport  
**DHP No.** Tree Clearing Project **Map No.**

**County** Caledonia  
**Staff Init.**

**Town** Lyndonville  
**Date** 10/2017

**Additional Information**

Environmental Variable	Proximity	Value	Assigned Score
<b>A. RIVERS and STREAMS (EXISTING or RELICT):</b>			
1) Distance to River or Permanent Stream (measured from top of bank)	0- 90 m	12	8
	90- 180 m	6	
2) Distance to Intermittent Stream	0- 90 m	8	
	90-180 m	4	
3) Confluence of River/River or River/Stream	0-90 m	12	
	90 –180 m	6	
4) Confluence of Intermittent Streams	0 – 90 m	8	
	90 – 180 m	4	
5) Falls or Rapids	0 – 90 m	8	
	90 – 180 m	4	
6) Head of Draw	0 – 90 m	8	
	90 – 180 m	4	
7) Major Floodplain/Alluvial Terrace		32	
8) Knoll or swamp island		32	
9) Stable Riverine Island		32	
<b>B. LAKES and PONDS (EXISTING or RELICT):</b>			
10) Distance to Pond or Lake	0- 90 m	12	
	90 -180 m	6	
11) Confluence of River or Stream	0-90 m	12	
	90 –180 m	6	
12) Lake Cove/Peninsula/Head of Bay		12	
<b>C. WETLANDS:</b>			
13) Distance to Wetland (wetland > one acre in size)	0- 90 m	12	
	90 -180 m	6	
14) Knoll or swamp island		32	
<b>D. VALLEY EDGE and GLACIAL LAND FORMS:</b>			
15) High elevated landform such as Knoll Top/Ridge Crest/ Promontory		12	12
16) Valley edge features such as Kame/Outwash Terrace**		12	

17) Marine/Lake Delta Complex**		12	
18) Champlain Sea or Glacial Lake Shore Line**		32	32
<b>E. OTHER ENVIRONMENTAL FACTORS:</b>			
19) Caves /Rockshelters		32	
20) <input checked="" type="checkbox"/> Natural Travel Corridor <input type="checkbox"/> Sole or important access to another drainage <input checked="" type="checkbox"/> Drainage divide		12	
21) Existing or Relict Spring	0 – 90 m 90 – 180 m	8 4	
22) Potential or Apparent Prehistoric Quarry for stone procurement	0 – 180 m	32	
23) ) Special Environmental or Natural Area, such as Milton aquifer, mountain top, etc. (these may be historic or prehistoric sacred or traditional site locations and prehistoric site types as well)		32	
<b>F. OTHER HIGH SENSITIVITY FACTORS:</b>			
24) High Likelihood of Burials		32	
25) High Recorded Site Density		32	
26) High likelihood of containing significant site based on recorded or archival data or oral tradition		32	
<b>G. NEGATIVE FACTORS:</b>			
27) Excessive Slope (>15%) or Steep Erosional Slope (>20)		- 32	
28) Previously disturbed land as evaluated by a qualified archeological professional or engineer based on coring, earlier as-built plans, or obvious surface evidence (such as a gravel pit)		- 32	-32
<b>** refer to 1970 Surficial Geological Map of Vermont</b>			
			<b>Total Score: 20</b>
<b>Other Comments :</b>			
<b>0- 31 = Archeologically Non- Sensitive</b> <b>32+ = Archeologically Sensitive</b>			

**APPENDIX B**

**VTRANS SECTION 106 PROJECT REVIEW MEMORANDUM,  
APRIL 28, 2017**

**Vermont Agency of Transportation**  
**Environmental Section/Highway Division/Project Delivery Bureau**  
One National Life Drive  
Montpelier, VT 05633  
(fax) 802-828-2334



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## **SECTION 106 PROJECT REVIEW MEMORANDUM**

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To: Laura Trieschmann, State Historic Preservation Officer

Date:

Subject: NO ADVERSE EFFECT

Project Name: Caledonia County State Airport, Middlebury State Airport and Morrisville-Stowe State Airport—Fencing Project

Project Number: AV-FY16-001

Location: Lyndonville, Middlebury and Morrisville, Vermont

Distribution: Jeff Ramsey, VTrans Environmental Specialist  
Larry Lackey, VTrans Project Manager

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The Vermont Agency of Transportation (VTrans) is applying for funding from the Federal Aviation Administration (FAA) for the above-referenced project. Should the funding application be successful, VTrans proposes to undertake the project described below. The purpose of this letter is to seek the concurrence of the Vermont State Historic Preservation Officer (SHPO) with the findings below.

VTrans conducted a review of this project that included defining the project's Area of Potential Effects (APE), identifying historic and archaeological resources within the project's APE, and evaluating the project's potential effects to historic buildings, structures, historic districts, historic landscapes, and settings, and known or potential archaeological resources. The following information substantiates the VTrans Officers' findings and their recommended determination of NO ADVERSE EFFECT for the above project.

By signing this document, the SHPO indicates concurrence with VTrans' findings for purposes of Section 106. As FAA requires a Section 106 review of the proposed project be included with the funding application, a copy of this letter will attached to VTrans' application.

### Project Description:

The Vermont Agency of Transportation (VTrans) proposes the installation of perimeter fencing, and associated work, at three airports: Caledonia County State Airport located in Lyndonville, Caledonia County, Vermont; Middlebury State Airport, located in Middlebury, Addison County, Vermont; and Morrisville-Stowe State Airport, located in Morrisville, Lamoille County, Vermont (Figure 1). The proposed projects will primarily include the installation of chain link fence at new locations and improvements to existing fence at each of the airports (Figure 2). The goal of the projects is to increase the safety of airport operations by providing secure facilities and reducing the probability of people and wildlife straying onto Air Operations Area (AOA) surfaces. Specific project work proposed at each airport is presented below.

This review is based on information gathered by the University of Vermont Consulting Archaeology Program (UVM CAP) and published in their April 25, 2017 report, “Historic Resources Review of Airport Perimeter Fencing: Caledonia County Airport, Lyndonville, Caledonia County, Vermont, Middlebury State Airport, Middlebury, Addison County, Vermont, Morrisville-Stowe State Airport, Morrisville, Lamoille County, Vermont.” Resources at each airport are described and reviewed in the report, along with any nearby historic resources that have the potential to be indirectly affected by the proposed fencing projects. Brief historic backgrounds are given as well, along with recommendations for significance and determinations of effect. Maps, photographs, and related supporting documentation are available in the attached report; please see the report for Figures referenced in this review memo.

### ***Caledonia County State Airport***

Caledonia County State Airport is located in the town of Lyndonville, Caledonia County, in the northeast corner of Vermont (Figure 3). The airport is situated along the west side of Pudding Hill Road, northwest of the town center (Figures 4 and 5). The proposed project will include (Figures 6 – 8):

- Removing approximately 100 LF of existing chain link fence and gates
- Removing (clearing and grubbing) approximately 3,800 SY of vegetation in upland areas
- Removing 350 SY of trees in wetlands
- Installation of approximately 1,600 LF of green PVC coated chain link fence without barbed wire (8 foot sections) with concrete foundations; approximately 5,250 LF green PVC coated chain link fence without barbed wire (8-foot sections) with drive anchors (resulting in 275' of fence installation in wetlands and 852' of fence installation in wetland buffer areas)
- Widening existing 18' wide access road to 24' to accommodate fuel trucks and a 24' wide gate; total new pavement area added is 70' x 6' or 420 sq. ft.
- Installation of: one 4-foot single swing pedestrian gate; four 16-foot double swing gates; two 24-foot single cantilever gates; one 30-foot single cantilever gate
- Installation of two mechanical gate operators on two of the single cantilever gates
- Trenching (1' width, 24" deep) for installation of approximately 70 LF of 2-inch diameter RGS conduit in pavement; Trenching (1' width, 24" deep) for installation of approximately 1,100 LF of 2-inch diameter PVC conduit in turf
- Installation of 2 electrical pullboxes

- Installation of 3 pipe culverts under the proposed fence (resulting in 1,000 sq. ft. of wetland disturbance)
- Restoration of project areas

Existing chain link fence is in place along the north perimeter of the airport, and along a portion of the east and west sides of the property; all new fencing will tie-in with existing fencing that is not being removed.

### ***Middlebury State Airport***

Middlebury State Airport is located in the town of East Middlebury, in Addison County, in the west central part of Vermont (Figure 61). The airport lies to the west of VT Route 116, along Airport Road, northeast of the town center (Figures 62 and 63). The proposed project will include (Figures 64 – 66):

- Removing approximately 2,000 LF of existing chain link fence and gates
- Removing (clearing and grubbing) approximately 4,500 SY of vegetation in upland areas
- Installation of approximately 5,500 LF of green PVC coated chain link fence without barbed wire (8 foot sections) with concrete foundations; approximately 5,250 LF green PVC coated chain link fence without barbed wire (6-foot and 8-foot sections) with concrete foundations; 70 LF ornamental fence with concrete foundations
- Installation of: one 4-foot single swing pedestrian gate; one 4-foot ornamental single swing gate; one 16-foot single cantilever gate; six 24-foot single cantilever gate
- Installation of two mechanical gate operators on two of the single cantilever gates
- Repairing two existing double swing gates
- Trenching (1' width, 24" deep) for installation of approximately 75 LF of 2-inch diameter RGS conduit in pavement; Trenching (1' width, 24" deep) for installation of approximately 1,000 LF of 2-inch diameter PVC conduit in turf
- Installation of approximately 3 electrical pullboxes
- Restoration of project areas

Existing chain link fence is in place along the north and east perimeters of the airport, and along a portion of the west side of the property; all new fencing will tie-in with existing fencing that is not being removed.

### ***Morrisville-Stowe State Airport***

Morrisville-Stowe State Airport is located in the town of Morrisville, in Lamoille County, in north central Vermont (Figure 86). The airport is situated along the east side of VT Route 100, southwest of the town center (Figures 87 and 88). The proposed project will include (Figures 89 – 91):

- Removing approximately 200 LF of existing chain link fence and gates; removing 4,600 LF of existing pasture/barbed wire fence
- Removing (clearing and grubbing) approximately 250 SY of vegetation in upland areas
- Removing 1,200 SY of trees in wetlands
- Installation of approximately 6,500 LF of green PVC coated chain link fence without barbed wire (6-foot and 8 foot sections) with concrete foundations; approximately 4,500

LF green PVC coated chain link fence without barbed wire (6-foot and 8-foot sections) with drive anchors (resulting in 1,775' of fence installation in wetlands and 2,650' of fence installation in wetland buffer areas)

- Installation of: six 24-foot double swing gates; two 24-foot single cantilever gates; one 16-foot single cantilever gate
- Installation of two mechanical gate operators on two of the single cantilever gates
- Trenching (1' width, 24" deep) for installation of approximately 60 LF of 2-inch diameter RGS conduit in pavement; Trenching (1' width, 24" deep) for installation of approximately 600 LF of 2-inch diameter PVC conduit in turf
- Installation of 3 electrical pullboxes
- Installation of 3 pipe culverts under the proposed fence (resulting in 1,500 sq. ft. of wetland disturbance)
- Restoration of project areas

Existing chain link fence is in place along a portion of the west side of the property; all new fencing will tie-in with existing fencing that is not being removed. Additional project work not detailed in current plans, will include the demolition of two buildings, including the existing terminal, at the airport to make way for the construction of a new terminal/hangar (see Figure 90).

#### Above-Ground Historic Resources

##### ***Caledonia County State Airport***

There are currently 15 buildings located at the Caledonia County State Airport (Figures 9 – 13). Five of the structures are more recent, including: the Civil Air Patrol Building (signage now indicates it as “EAA”), built between 2003 and 2006 (Google Earth) (Figure 14); the northernmost two hangars, built between 1999 and 2003 (Google Earth) (on one airport plan dated 2000 they were labeled “under construction”) (Figure 15); the southernmost hangar, constructed between 2008 and 2009 (Google Earth) (Figure 16); and the large blue hangar near the southern end of the airport built between 2009 and 2011 (Google Earth) (Figure 17). Additional buildings were constructed as well.

Two buildings located within the Caledonia County State Airport, the ca. 1870 Pudding Hill School, and the 1929 Eslin Hangar, had the potential to be significant historic resources. Both structures were relocated to the site: the school from just north of its current location, in 1968; and the hangar, from the Burlington airport, in 1976. Although the school building retains much of its historic character and possesses integrity of design, materials and workmanship, and is important at a community and state level, due to its setting within the airport, surrounded by aviation buildings, the schoolhouse has lost its integrity of location, setting, feeling and association. This review therefore recommends that the Pudding Hill School does not retain the quality of significance to be eligible for inclusion on the National Register of Historic Places.

Relocation of the Eslin hangar from one airport to another has not greatly affected the setting, feeling and association of this structure. However, modifications to the original design of the hangar, including the installation of a modern bi-fold door where there once had been pressed metal sliding doors, the replacement of corrugated steel walls with concrete block, the elimination of window openings, and the addition of the terminal / office to the west side of the

hangar, have significantly affected its integrity of design, materials and workmanship. Although this building is considered important at a state level for its contribution to the record of aviation development in Vermont, this review recommends that the Esline hangar does not retain the quality of significance to be eligible for inclusion on the National Register of Historic Places.

There are several residential/agricultural properties located near the Caledonia County State Airport which, based on historic maps, had the potential to be historic, so were reviewed for possible indirect effects from the fence installation project (Figure 52; see Figures 22 and 23). Brief histories and descriptions are given for each property in the report.

VTrans recommends that three nearby farm complexes, the Ray/Easterbrooks farm complex (ca. 1855), the Proctor farm complex (ca. 1860/1870), and the Ruggles farm complex (ca. 1850), retain the qualities of significance to be eligible for inclusion on the National Register of Historic Places. The Ray/Easterbrooks and Proctor farmsteads include their historic houses, barns, outbuildings and surrounding agricultural land, and although the Ruggles farm has lost its historic farmhouse, it preserves an historic barn/outbuilding complex with surrounding agricultural fields. All three properties therefore retain their historic character and possess integrity of location, design, setting, materials, workmanship, feeling and association. VTrans recommends that they are significant at the local, state and national level under Criterion A, for their association with the broad pattern of agriculture in Vermont, and under Criterion C for their distinctive characteristics of building types, period and method of construction.

### ***Middlebury State Airport***

There are currently 14 buildings located at the Middlebury State Airport (Figures 67 – 71). Based on aerial photographs and Google Earth historic imagery, only a few structures at the airport were built by 1962, with most built after 1974, and several constructed in the 2000s (Figures 72 and 73; see Figure 67). A ca. 1930 corrugated metal T-hangar now on the property was moved from the earlier airport in Middlebury to this facility (VTDHP: n.d.). Its initial location at the current airport was on the east side of the runway, but it was moved to its current location in the late 1960s or early 1970s (see Figures 72 and 73). There was an arched roofed hangar on the site by 1954 (*Burlington Free Press* July 21, 1954). On October 15, 1956, a hangar at Middlebury airport burned with three planes and a significant amount of equipment inside (*Burlington Free Press* October 16, 1956). It is not known if the building that burned was an arched roof hangar, but there are now two arched roof hangars (probably ca. 1950) on the property. The smaller (more southerly) arched roof hangar appears to have been dismantled and rebuilt slightly further west between 1993 and 2006; it may have new siding on it (Google Earth 1993, 2003, 2006). Images of individual buildings at the airport were taken starting at the northernmost hangar, and moving southward (Figures 74 – 85).

A comparison of the mid-19<sup>th</sup> century maps with the 20<sup>th</sup> century aerial photographs and Google Earth imagery, suggested that there were no extant pre-1960 structures nearby the Middlebury State Airport (Walling 1857; Beers 1871). Review of buildings in close proximity to the airport during the site visit on April 11, 2017 confirmed that no historic buildings remain nearby.

The majority (10) of the buildings at the Middlebury State Airport are less than 50 years old. The two, ca. 1950 arched roof hangars (one of which may have been modified when it was moved), the ca. 1930 T-hangar, and possibly the second T-hangar, which dates after 1962 and by 1974, are the only structures that had the potential to be significant historic resources. However,

review of these latter four buildings, recommends that they do not possess the distinctive characteristics of building type, period and method of construction, or quality of significance, to be considered eligible for inclusion on the National Register of Historic Places, so no buildings within the airport are considered significant historic resources. No historic resources were identified nearby the airport.

### ***Morrisville-Stowe State Airport***

All 15 buildings at the Morrisville-Stowe State Airport post-date 1960, when the airport was constructed (Figure 93 – 97). The terminal building was built in 1984, at about the same time that the runway was extended 1,000 ft (*Burlington Free Press* February 6, 1984). Based on Google Earth historic imagery, eight of the hangars were built prior to 1995, four were built after 1995 but before 2003, and two were built after 2003, but before 2006 (Google Earth:1995 – 2015) (see Figure 93). Images of individual buildings at the airport were taken starting at the northernmost hangar, and moving southward (Figures 98 – 105).

According to the published 1935 town history, LaPorte Road (VT Route 100) was opened ca. 1832-1833 and the area was, “soon settled by thrifty prosperous farmers” (Mower 1935:43). By the mid-1800s, settlement along the road was well established (Figures 106 and 107). Based on the 19<sup>th</sup> century maps, several properties identified along VT Route 100 near the airport had the potential to be historic resources, so were reviewed for possible indirect effects from the fence installation project (Figure 108; see Figures 106 and 107). Brief histories and descriptions are given for each property.

Most of the 15 buildings at the Morrisville-Stowe State Airport appear to be less than 50 years old, with at least seven dating to 1984 and later. VTrans recommends that none of the buildings possess the distinctive characteristics of building type, period and method of construction, or quality of significance, to be considered eligible for inclusion on the National Register of Historic Places, so no buildings within the airport are considered significant historic resources.

Review of potentially historic, 19<sup>th</sup> century to early 20<sup>th</sup> century farmsteads located along VT Route 100 nearby the Morrisville-Stowe State Airport, recommends that due primarily to alteration, none of the properties retain the qualities of significance to be eligible for inclusion on the National Register of Historic Places. All of the mid to late 1800s houses have been greatly altered and no longer retain integrity of design, materials, workmanship, feeling and association. Although the former Malvern Farm property preserves a relatively unaltered barn complex that dates to the early 1900s, condition of the buildings affects their integrity.

### **Archaeological Resources:**

#### ***Caledonia County State Airport***

Previous studies from Hartgen Archaeological Associates, Inc. (Hartgen), including the archaeological resource assessment (2000) and archaeological phase 1 study for a proposed AWOS tower in 2001, concluded that much of the area is not archaeologically sensitive due to past disturbances from airport activities as well as existing underground utilities in or near the proposed fencing areas. However, one large area along the southern perimeter of the proposed area is considered to be archaeologically sensitive per Hartgen’s original resource assessment.

### ***Middlebury State Airport***

Hartgen conducted an Archaeological Resource Assessment (ARA) of this property in 1999-2000. Much of this property has been previously disturbed by filling and grading for the airport as well as previous construction and utilities. There are however two areas of archaeological sensitivity located within the project area. These consist of a linear area along the lower eastern side of the airport property boundary as well as a small area in the southwestern corner.

### ***Morrisville-Stowe State Airport***

Hartgen's original ARA in 1999-2000 identified several areas of sensitivity within and along the boundary of this property. Subsequent Phase 1 studies in 2000 and 2004 were conducted for proposed runway extensions along both the north and south ends. Phase 1 studies were also conducted for proposed fencing in various locations along the property boundary and again, no sites were found. The only area of sensitivity remaining on this property is located along the southern boundary and southeastern corner of the airport property.

### **Public Consultation:**

The fencing project was included in the overall Master Plan for each airport, which is revised approximately every ten years and made available for public comment.

### **Analysis:**

#### ***Caledonia County State Airport***

Based on the recommendation that no buildings within the Caledonia County State Airport are considered eligible for inclusion on the National Register of Historic Places, VTrans recommends that the proposed fence installation will have no direct or indirect impact on airport resources. For three nearby farm complexes recommended as National Register eligible, the proposed fence installation project will not affect two of them (Ray/Easterbrooks and Proctor), because there is existing fence already in place along the northern edge of the airport in view of the farmsteads. The third property (Ruggles) will likely be able to view some portion of the new fencing; however, VTrans recommends that the viewshed impacts will be very minimal and a No Adverse Effect on the property is recommended. There are no standing historic resources near the proposed vegetation clearing along the new fence line at the southern end of the project area, so that component of project work will not affect historic resources.

#### ***Middlebury State Airport***

VTrans recommends that installation of perimeter fencing and associated work at the Middlebury State Airport located in East Middlebury, Addison County, will not affect significant historic resources.

#### ***Morrisville-Stowe State Airport***

VTrans recommends that installation of perimeter fencing and associated work, including building demolition at the airport and tree clearing, at the Morrisville-Stowe State Airport located in Morrisville, Lamoille County, will not affect significant historic resources.

Based on the above analysis, VTrans recommends that the installation of perimeter fencing, and associated work, at Caledonia County State Airport, Lyndonville; Middlebury State Airport, Middlebury; and Morrisville-Stowe State Airport, Morrisville, will result in No Adverse Effect to historic and archaeological resources provided the following stipulation is met:

Stipulation:

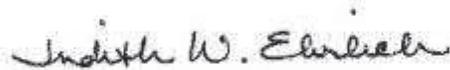
1. In all archeological sensitive areas, the fence posts will be driven directly into the ground. There will be no augured holes and no concrete bases.

**Vermont Agency of Transportation:**



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Jeannine Russell, Archaeology Officer



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Judith W. Ehrlich, Historic Preservation Officer

**Vermont Division for Historic Preservation:**

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Laura Trieschmann, State Historic Preservation Officer

**Attachments:**

- Survey Form(s)
- Photos
- Map
- Report(s)
- Other:

**APPENDIX C**

**USFWS IPAC  
(INFORMATION FOR PLANNING AND CONSULTATION)  
SPECIES LIST**



## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104  
<http://www.fws.gov/newengland>

In Reply Refer To:

May 01, 2017

Consultation Code: 05E1NE00-2017-SLI-1434

Event Code: 05E1NE00-2017-E-02835

Project Name: Caledonia County Airport; Runway, Taxiway and Obstructions

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**New England Ecological Services Field Office**

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

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## Project Summary

Consultation Code: 05E1NE00-2017-SLI-1434

Event Code: 05E1NE00-2017-E-02835

Project Name: Caledonia County Airport; Runway, Taxiway and Obstructions

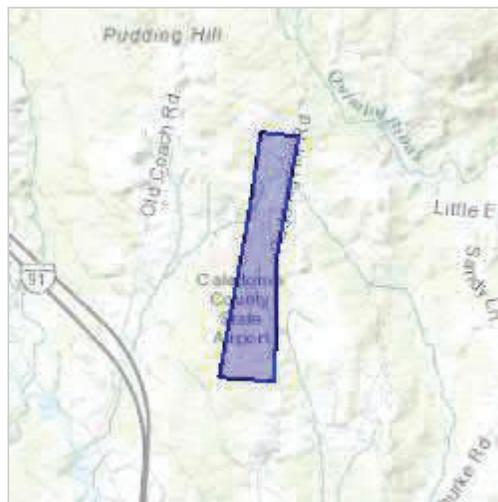
Project Type: TRANSPORTATION

Project Description: Extend runway, improve taxiway, clear obstructions from approach zones

Project Location:

Approximate location of the project can be viewed in Google Maps:

<https://www.google.com/maps/place/44.57127051872082N72.0174030348762W>



Counties: Caledonia, VT

## Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

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## Mammals

NAME	STATUS
Northern Long-eared Bat ( <i>Myotis septentrionalis</i> )	Threatened
No critical habitat has been designated for this species.	
Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	

## Critical habitats

There are no critical habitats within your project area.

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Charlotte Brodie &lt;cbrodie@dubois-king.com&gt;

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**Caledonia County Airport, Lyndon, VT**

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**Wittig, Thomas** <thomas\_wittig@fws.gov>  
To: Charlotte Brodie <cbrodie@dubois-king.com>

Wed, Apr 4, 2018 at 4:51 PM

Hello Charlotte,

Thank you for following up. While bald eagles are no longer listed under the Endangered Species Act, they continue to receive federal protection under the Bald and Golden Eagle Protection Act. For further information on this statute and our guidelines for complying with its protections, please see our National Bald Eagle Management Guidelines, available at: <https://www.fws.gov/northeast/ecologicalservices/pdf/NationalBaldEagleManagementGuidelines.pdf>

If you have any questions or concerns after reading this document, please do not hesitate to reach out. In addition to email, you can contact me by phone at the number listed in the signature block below.

Best,  
Tom

On Wed, Mar 28, 2018 at 8:49 AM, Charlotte Brodie <cbrodie@dubois-king.com> wrote:

Hello Mr. Wittig,

I was directed to the USFWS Migratory Bird Division by Susi Von Oettingen of USFWS in Concord, NH. This is in regards to a VT Agency of Transportation project in Lyndon, VT. Please see the email below.

Is there any coordination we should expect to need to do about the bald eagles?

Thank you,  
Charlotte Brodie

----- Forwarded message -----

From: **Charlotte Brodie** <cbrodie@dubois-king.com>  
Date: Tue, Mar 27, 2018 at 3:30 PM  
Subject: Caledonia County Airport, Lyndon, VT  
To: Susi von Oettingen <susi\_vonOettingen@fws.gov>

Hi Susi,

We are preparing an Environmental Assessment for VTrans on a project at the Caledonia County Airport. It includes an extension of the runway by 120' to the south, related improvements and the removal of obstructions to aircraft upon take-off and landing.

Attached is a VT NRA map which shows the project area. The airport is northwest of the village of Lyndon.

An IPaC species list for the area is attached. While there are no threatened or endangered species or critical habitat mapped in the project area, it is known that a number of bald eagles (listed as Endangered by the State, but de-listed by the USFWS) frequent the Compost Facility across the road from the northern terminus of the runway.

Attached are Wetland Impacts and Tree Clearing Plans for the north and south ends of the airport. You will see that there will be approximately 4.5 acres of tree cutting at the north end of the airport and 3.6 acres at the south end, totaling 8.1 acres.

While the eagles are not federally listed anymore, is there any other coordination that we should accomplish?

Best Regards,

Charlotte Brodie  
Field Naturalist  
DuBois & King, Inc.  
6 Green Tree Drive  
South Burlington, VT 05403

802-728-7202 (w)  
802-777-5272 (c)

—

***Tom Wittig***

Northeast Region Eagle Coordinator  
US Fish and Wildlife Service  
Division of Migratory Birds  
300 Westgate Center Drive  
Hadley, MA 01035  
(413)253-8577 phone  
(413)253-8424 fax

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**APPENDIX D**

**VT FISH AND WILDLIFE DEPARTMENT COMMENTS,  
03.30.18**



Charlotte Brodie &lt;cbrodie@dubois-king.com&gt;

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## Caledonia County Airport Environmental Assessment

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Appleton, Tim &lt;Tim.Appleton@vermont.gov&gt;

Fri, Mar 30, 2018 at 12:14 PM

To: Charlotte Brodie &lt;cbrodie@dubois-king.com&gt;

Cc: "Popp, Bob" &lt;Bob.Popp@vermont.gov&gt;, "Sorenson, Eric" &lt;Eric.Sorenson@vermont.gov&gt;, "Follensbee, Julie" &lt;Julie.Follensbee@vermont.gov&gt;

Hi Charlotte,

I've completed a desktop review of the proposed runway expansion and associated tree clearing for the Caledonia County Airport in Lyndon. There are no concerns with wildlife habitat based on that review. There are no documented occurrences of RTE species, or necessary wildlife habitats. With regard to Northern Long-eared bats, the proposed tree clearing, based on my calculations, represents removal of approximately 0.44% of the forested cover within a one-mile radius of the sites to be cleared. So, no further concerns with respect to Northern Long-eared bats given that the amount of tree removal proposed does not trigger the 1% rule. Feel free to contact me if you have questions on that.

With regard to the eagles occurring at the adjacent compost facility, I spoke to John Buck about that. He is aware of the eagles occurring there. The Dept. has no concerns with the proposed project as it relates to bald eagles and the compost facility, essentially for the reason that no habitat is being affected. It is hoped that if the airport operations come into conflict with the presence of eagles at the compost facility, VTRANS will work with the USDA Wildlife Services to mitigate that conflict, should it occur.

In assessing the locations of the proposed tree clearing, and looking at the imagery, it appears there is more tree cover within the flight path that is not proposed to be removed, particularly at the north end of the runway. Can you explain further?

Assuming the wetlands are Class II, and the VT Wetland Rules are at play, further assessment will be done within that framework looking at wildlife functions and values of those various wetlands.

-Tim



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**Timothy J. Appleton**, *Wildlife Biologist*

[phone] 802-476-0198 [fax] 802-476-0129

[email] [tim.appleton@vermont.gov](mailto:tim.appleton@vermont.gov)

**Vermont Agency of Natural Resources**

**Fish & Wildlife Department**

5 Perry Street, Suite 40

Barre, VT 05641-4266

[website] [www.vtfishandwildlife.com](http://www.vtfishandwildlife.com)

**From:** Charlotte Brodie <[cbrodie@dubois-king.com](mailto:cbrodie@dubois-king.com)>  
**Sent:** Tuesday, March 27, 2018 3:19 PM  
**To:** Popp, Bob <[Bob.Popp@vermont.gov](mailto:Bob.Popp@vermont.gov)>; Sorenson, Eric <[Eric.Sorenson@vermont.gov](mailto:Eric.Sorenson@vermont.gov)>; Appleton, Tim <[Tim.Appleton@vermont.gov](mailto:Tim.Appleton@vermont.gov)>; [john.a.austin@vermont.gov](mailto:john.a.austin@vermont.gov)  
**Subject:** Caledonia County Airport Environmental Assessment

Hello All,

We are preparing an Environmental Assessment for VTrans on a project at the Caledonia County Airport. It includes an extension of the runway by 120' to the south, related improvements and the removal of obstructions to aircraft upon take-off and landing.

The NRA mapping for the area is attached. While there are no rare, threatened or endangered species mapped in the project area, it is known that a number of bald eagles (listed as Endangered by the State, but de-listed by the USFWS) frequent the Compost Facility across from the northern terminus of the runway.

Attached are Wetland Impacts and Tree Clearing Plans for the north and south ends of the airport. You will see that there will be approximately 4.5 acres of tree cutting at the north end of the airport and 3.6 acres at the south end, totaling 8.1 acres.

Also attached is an NRA Habitat Block map of the project area.

We are aware of the need for State and Federal coordination in regards to the northern long-eared bat.

We would appreciate any comments your programs would like to offer in relation to this proposed work.

Best Regards,

Charlotte Brodie  
Field Naturalist  
DuBois & King, Inc.  
6 Green Tree Drive

[South Burlington, VT 05403](#)

802-728-7202 (w)

802-777-5272 (c)

Charlotte Brodie <[cbrodie@dubois-king.com](mailto:cbrodie@dubois-king.com)>

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## Caledonia County Airport, shift of runway to the south

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Appleton, Tim <[Tim.Appleton@vermont.gov](mailto:Tim.Appleton@vermont.gov)>  
To: Charlotte Brodie <[cbrodie@dubois-king.com](mailto:cbrodie@dubois-king.com)>

Fri, Sep 14, 2018 at 10:27 AM

Hi Charlotte,

My apologies for the delay in responding to you. I had to take a leave of absence to address a family matter out-of-state from 8/30 to 9/10.

Given the shift in the runway configuration, the amount of tree clearing proposed will be reduced from 8.1 acres to 3.9 acres which will not impact Northern Long-eared bat habitat, as the amount of tree clearing still does not trigger the 1% rule.

Regarding the eagle situation, it is commended that effort has been made to avoid the cutting of the perch tree being used by the eagles. Having said that, it would seem prudent to consider the risk of airplane collisions with the eagles. In other words, by allowing the eagle perch to remain, are we not increasing the risk of collisions with eagles? I would think that steps should be taken to minimize the attractiveness of the site for eagles given, not only the perch tree, but also the compost facility being in such close proximity to the airport runway. Perhaps you have already contemplated this scenario with USDA Wildlife Services? I will also run this by John Buck, the Department's nongame bird biologist, for his thoughts.

FYI- I will be out of the office until Sept. 24, so will try to follow-up with you on further specifics regarding the eagle situation after that date.

Thanks for continuing to keep us informed on the progress of this project as it develops.

-Tim



---

**Timothy J. Appleton**, *Wildlife Biologist*

[phone] 802-476-0198 [fax] 802-476-0129

[email] [tim.appleton@vermont.gov](mailto:tim.appleton@vermont.gov)

**Vermont Agency of Natural Resources**

**Fish & Wildlife Department**

5 Perry Street, Suite 40

Barre, VT 05641-4266

[website] [www.vtfishandwildlife.com](http://www.vtfishandwildlife.com)

**From:** Charlotte Brodie <[cbrodie@dubois-king.com](mailto:cbrodie@dubois-king.com)>  
**Sent:** Monday, August 27, 2018 3:03 PM  
**To:** Appleton, Tim <[Tim.Appleton@vermont.gov](mailto:Tim.Appleton@vermont.gov)>  
**Subject:** Fwd: Caledonia County Airport, shift of runway to the south

From: **Charlotte Brodie** <[cbrodie@dubois-king.com](mailto:cbrodie@dubois-king.com)>

Date: Mon, Aug 27, 2018 at 3:00 PM  
Subject: Caledonia County Airport, shift of runway to the south  
To: [tim.appleton@state.vt.us](mailto:tim.appleton@state.vt.us)

Hello Tim,

Thank you for your comment letter/email to me, dated March 30, 2018. In that email, you noted that, "The Department has no concerns with the proposed project as it relates to bald eagles and the compost facility, essentially for the reason that no habitat is being affected."

We have some updated information about the eagles which indicates that 8-10 birds use one of the trees scheduled for cutting as a perching tree from which to feed at the compost facility in the wintertime (see attached plan, dated 09.14.17).

For this reason, and also to avoid a stand of mature sugar maples at the upper end of the tree clearing area (being used in an active sugar operation), the current plan is to shift the runway 500' south. This will reduce the tree cutting at the north end from 4.5 acres to 1.8 acres, and avoids the cutting of the perching tree. See the attached Tree Clearing Plans, north and south, dated 08.14.18.

At the south end of the airport, the tree cutting will be reduced from 3.6 acres to 2.1 acres. This occurs because the fan-shaped approach zone will now begin 500' south of the current end of the runway, and the reduced width of the approach zone in the area of tree cutting results in fewer trees to be cut. There are no stands of sugar maple used for sugar operations at the southern end of the airport, and no eagle activity has been observed there.

We are pleased to be able to reduce a potential impact to bald eagle feeding. Could you please provide comments on the proposed shift of the runway to the south?

Also, in your March 30, 2018 email, you asked about the fact that there is more tree cover within the flight path that is not proposed to be removed, particularly at the north end of the runway. That is because only the trees that penetrate within 10' of the approach surfaces will be cut. The approach surfaces increase in elevation away from the runway, following the typical trajectory of planes taking off and landing. Trees to be cut are determined by their top elevations in relation to the approach surfaces. Hope that helps!

Thank you,

Charlotte Brodie  
Field Naturalist  
DuBois & King, Inc.  
[6 Green Tree Drive](#)

[South Burlington, VT 05403](#)

[802-728-7202](tel:802-728-7202) (w)

9/24/2018

DuBois & King, Inc. Mail - Caledonia County Airport, shift of runway to the south

802-777-5272 (c)