

APPENDIX D  
PUBLIC CONSULTATION MATERIAL

## Technical Advisory Committee

**BTV NCP TAC Meeting #1**

**October 17, 2017**

# BURLINGTON INTERNATIONAL AIRPORT

Technical Advisory Committee - Sound Program, NCP Update

DATE: October 17, 2017

LOCATION: Burlington International Airport, Conference Room #3

## SIGN-IN SHEET

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Please note that this sign-in sheet and any information provided on it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.



# BURLINGTON INTERNATIONAL AIRPORT

Technical Advisory Committee - Sound Program, NCP Update

DATE: October 17, 2017

LOCATION: Burlington International Airport, Conference Room #3

## SIGN-IN SHEET

#	NAME	ADDRESS/COMPANY NAME	PHONE NUMBER/EMAIL
1	Richard Lizzari	VT National Guard	388-8424 rlizzari.Lizzari@mil.mil
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10	Nic Longo	DTV	
11	Tim McKenzie	SBBB	Tim@Southburytownhall.com
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## AGENDA

### **BTV Noise Compatibility Program (NCP) Technical Advisory Committee Meeting**

October 17, 2017

5:00 p.m. - 6:30 p.m.

Conference Room 3

Call in # for those who are unable to attend: 712-432-3100 Code: 235681

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- |             |  |
|-------------|--|
| 5:00 – 5:10 | Welcome, overview and purpose of technical advisory committee (TAC)                  |
| 5:10 – 5:20 | Review June 2017 open house  |
| 5:20 – 5:35 | Public forum and comment period  |
| 5:35 – 6:05 | Review Draft NCP Table of Contents and Chapter 1 - overview, purpose, and guidelines |
| 6:05 – 6:10 | Overview of existing NCP – Chapter 3   |
| 6:10 – 6:15 | Overview of aviation easements   |
| 6:15 – 6:30 | Technical advisory committee questions and comments                                  |



# **BTV Noise Compatibility Program Update – Technical Advisory Committee**

October 17, 2017

**jp** The Jones Payne Group, Inc.  
*Architects, Planners, and Information Managers*



**HARRIS MILLER MILLER & HANSON INC.**

# Introductions

- City of Burlington – airport owner
- Consultant team
  - Jones Payne Group (JPG)
  - HMMH
- Technical advisory committee (TAC) members

# TAC Committee Organizations

## Participating

- Army Guard (verify)
- Burlington Airport Commission
- Burlington International Airport
- Chittenden County Regional Planning Commission (CCRPC)
- City of South Burlington
- City of Winooski
- Community College of Vermont
- Essex Junction
- FAA (Air Traffic Manager)
- FAA (New England Regional Office)
- Greater Burlington Industrial Corporation (GBIC)
- Heritage Aviation (FBO)
- South Burlington School District
- St. Michael's College
- Town of Essex
- Town of Williston
- VTANG
- Winooski School District

## Invited

- City of Burlington
- Town of Colchester (verify)
- Town of Hinesburg (verify)
- Town of Richmond
- Town of Shelburne (verify)

# Agenda

- Welcome, overview and purpose of the TAC
- Feedback from the June public open house
- NCP table of contents review
- NCP Ch. 1 - Introduction
  - Purpose
  - Part 150 Overview and History
  - Roles and Responsibilities
  - Land Use Compatibility
  - FAA Noise Compatibility Program Checklist
- Avigation easements
- Anticipated schedule

# Purpose of the Technical Advisory Committee

- The TAC is advisory to the City solely for purposes of the BTV Part 150 Study, including
  - Review of study inputs, assumptions, analyses, documentation, etc.
  - Input, advice, and guidance related to Noise Compatibility Plan (NCP) development
- TAC members are expected to provide two-way communication between the City and their organizations / constituents
- TAC members represent the interests of their organization and/or constituents
- The City shall respect and consider TAC input, but must retain overall responsibility for the Part 150 Study and NCP recommendations
- The TAC and City recognize FAA is responsible for accepting Noise Exposure Map (NEM) and NCP submissions and for approving NCP measures

# Public Forum and Comment Period



# Feedback from the public open house

NCP Open House held at Airport Mezzanine on June 14, 2017 from 6 – 8pm

- Attendance of approximately 100 community members (52 signed in)

Discussions were framed at the three stations to discuss various elements of the Part 150 programs:

- Part 150 History
- NCP goals and options
- NCP potential land use measures

Generally community members were interested in:

- Learning where their homes fall in current contours and what the future contours may look like
- What programs may be available to them in the future and the time frame for those programs

# Feedback from the public open house

The community expressed interest in:

- Continuing land acquisition or sales assistance/purchase assurance, general feedback that the F35 was going to cause too much noise to remain in neighborhood
- Starting sound insulation as soon as possible, including interest in prioritizing the Chamberlin School, expressing that the community wants to remain in the current neighborhood

The community expressed that they would not want to see implemented:

- A long range land acquisition program, extension of the current land acquisition program

Community members provided equal interest towards land acquisition ending and extending to include their properties. Most were in favor of sound insulation, and those that were interested in land acquisition were intrigued by the idea of sales assistance/purchase assurance as a second option.

# NCP Document – Draft outline

- Chapter 1
  - introduces the purpose of the Part 150 NCP Update and provides an overview
- Chapter 2
  - accepted Noise Exposure Maps (NEMs) and land use information
- Chapter 3
  - describes the existing NCP and approved measures
- Chapter 4
  - presents the new recommended measures to the BTV NCP
- Chapter 5
  - presents the analysis of NCP measures
- Chapter 6
  - describes public consultation

# Chapter 1: Introduction – Overview

- Regulatory framework
  - Aviation Safety and Noise Abatement Act (ANSA, 1979) authorized FAA to regulate noise compatibility planning
  - Regulation established as 14 CFR Part 150
  - Participation is voluntary, but is the primary means by which airports can obtain FAA support, including funding, for noise-related projects
- When can it be updated? What triggers updates?
  - NEM
    - A change in the operation of the airport would establish a substantial change non-compatible use
  - NCP
    - Changes in airport layout, unanticipated changes in the level of airport activity, and non-compliance with the NCP
    - Meets the needs of the airport and the community.

## Slide 10

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### BMD1

fpr NEM/NCP triggers - from the 2015 NEM document. Second bullet under NCP "Meets the needs of the airport and the community" is not in the official NCP, but the language is in the 2015 NEM, Chapter 1, Section 1.2 Recommendations

Bradley M. Dunkin, 10/3/2017

# Chapter 1: Introduction

## – Overview

- Historical perspective – why is BTV updating the NCP?
  - Current NCP approved by FAA in 2008
  - Current program includes voluntary acquisition of the most affected properties and relocation of residents
  - City of Burlington and other municipalities wish to pursue mitigation measures beyond land acquisition
  - FAA support of new measures requires approval of an updated NCP
- The goal of this NCP update is to provide additional options, beyond land acquisition, that reduce noncompatible land use within the regulatory framework of Part 150

# Chapter 1: Introduction – 14 CFR Part 150

- Title 14 of the Code of Federal Regulations Part 150 (Part 150) “Airport Noise Compatibility Planning”
  - Sets forth standards for airport operators to use in
    - documenting noise exposure around airports and
    - establishing programs to minimize noise-related land use incompatibilities.
  - Provides airports with technical and procedural guidance
  - One component of determining eligibility for federal noise abatement funds
- The FAA oversees the Part 150 process on behalf of the federal government.

## Slide 12

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**DAC4**

11/9/2015 workshop, slide 3

David A. Crandall, 10/2/2017



# Chapter 1: Introduction – 14 CFR Part 150

- Voluntary FAA-defined process for airport noise studies
- Two major components
  - Noise Exposure Map (NEM) – FAA “accepts”
    - Detailed description of airport layout, operations, noise exposure, land uses, and noise/land use compatibility for the study year and a forecast year
  - Noise Compatibility Program (NCP) – FAA “approves” individual measures
    - Noise abatement measures to reduce noise exposure
    - Land use mitigation measures to address existing non-compatible uses
    - Land use control measures to prevent new non-compatible uses
  - This study is an NCP update only, based on the 2015 NEM
- Public involvement is a critical consideration
  - Consultation is required with users and land use control jurisdictions
  - Input is sought from all interested parties

## Slide 13

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**DAC5**

11/9/2015 workshop, slide 4

David A. Crandall, 10/2/2017

# Chapter 1: Introduction – BTV Part 150 History

- **1990 (March)** – FAA accepted NEM for 1989 and 1993 conditions
- **1990 (July)** – FAA approved NCP in July 1990
- **1997 (June)** – FAA accepted NEM update for 1997 and 2002
- **2006 (November)** – FAA accepted NEM update for 2006 and 2011
- **2008 (June)** – FAA approved NCP revision
- **2015 (December)** – FAA accepted NEM update for 2015 and 2020
  - Currently the “official” NEM on file with FAA
- Tonight’s meeting represents the first Technical Advisory Committee meeting of the current NCP update

## Slide 14

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**DAC1**

Update of 11/9/2015 workshop, slide 8

David A. Crandall, 10/2/2017

# Chapter 1: Introduction

## – Roles and Responsibilities

- City of Burlington, VT
  - Airport owner and operator
  - Responsible for conducting the NCP analysis, submitting for approval, and implementing approved measures
  - Consulting team retained to conduct technical work and prepare documentation related to the NCP process
- Federal Aviation Administration (FAA)
  - Determines whether the NCP process has met Part 150 requirements
- Technical advisory committee (TAC)
  - Provides representation for stakeholder organizations, including local jurisdictions, airlines, local business interests, the FAA, and the BTV Sound Mitigation Committee (SMC)

# Chapter 1 – Sound Terminology

- A-weighted decibel (dBA)
  - Reflects the manner humans hear different pitches of sound
  - All federal agencies have adopted dBA for environmental studies
- dBA can be used for different units of measure, like maximum and average
- Day–Night Average Sound Level (DNL or Ldn)
  - Cumulative sound measure
  - Equal to steady level that contains same energy as the actual time-varying sound
  - Increases sounds from 10 p.m. to 7 a.m. 10-fold
  - Used by all federal agencies that deal with aviation noise

## Slide 16

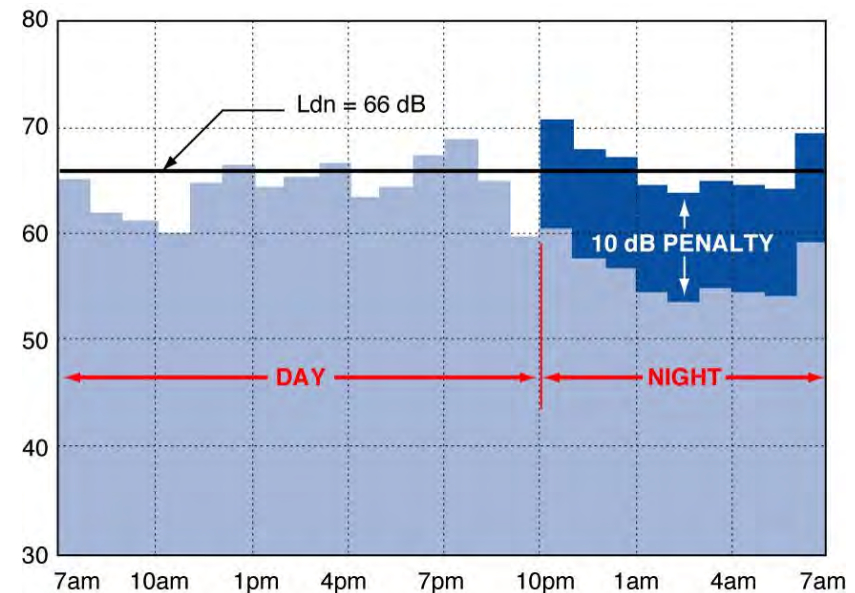
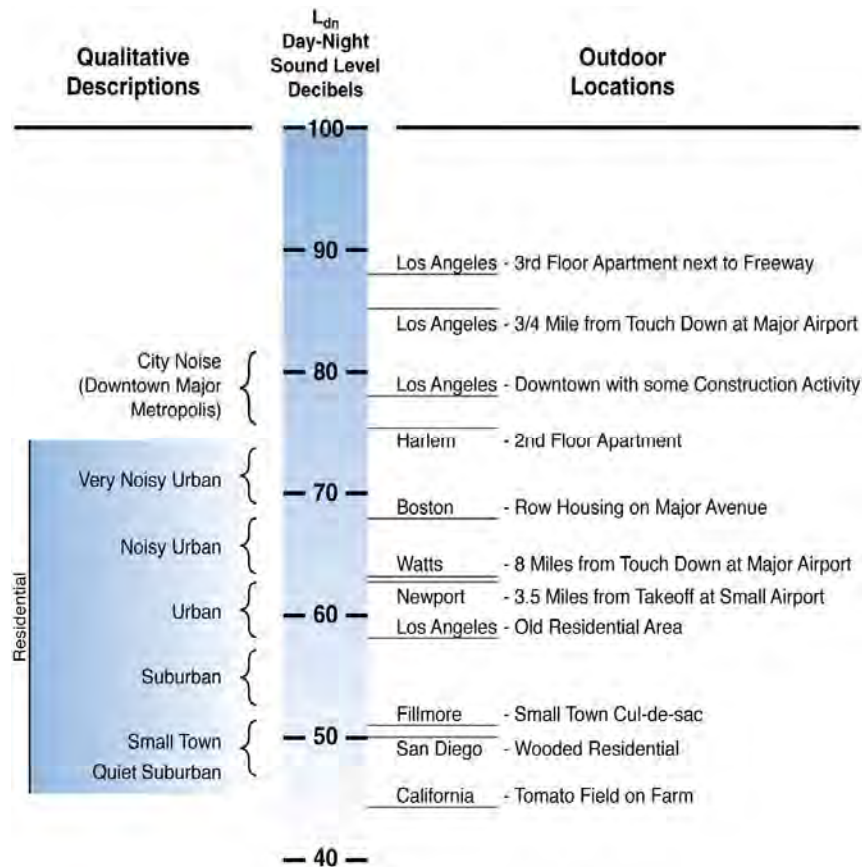
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**DAC2**

11/9/2015 workshop, slide 7

David A. Crandall, 10/2/2017

# Chapter 1 – Sound Terminology





## Slide 17

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**DAC3**

11/9/2015 workshop, slide 7

David A. Crandall, 10/2/2017

# Chapter 1: Introduction

## – Land Use Compatibility

- 14 CFR Part 150 provides guidelines (Appendix A, Table 1) for compatibility based on categories of land use:
  - Residential Use
  - Public Use
  - Commercial Use
  - Manufacturing and Production
  - Recreational
- Note: All land uses are considered compatible by Part 150 if exposed to an annual-average Day-Night Average Sound Level (DNL) of less than 65 dB
- Complete table reproduced in Chapter 1

# Chapter 1: Introduction

## – Land Use Compatibility

Land Use	DNL <65 dB	DNL 65-70 dB	DNL 70-75 dB	DNL > 75 dB
Residential	Compatible	Incompatible (1)	Incompatible (1)	Incompatible
Mobile home park	Compatible	Incompatible	Incompatible	Incompatible
Transient lodgings	Compatible	Incompatible (1)	Incompatible (1)	Incompatible (1)

(1) Measures required to achieve 25 to 30 dB of noise level reduction for aircraft noise from outside to inside. “Transient lodgings” include, but not limited to, hotels and motels

# Chapter 1: Introduction

## – Land Use Compatibility

Land Use	DNL <65 dB	DNL 65-70 dB	DNL 70-75 dB	DNL > 75 dB
Schools	Compatible	Incompatible (1)	Incompatible (1)	Incompatible
Hospitals and nursing homes	Compatible	25	30	Incompatible
Churches, auditoriums and concert hall	Compatible	25	30	Incompatible

(1) Measures required to achieve 25 to 30 dB of noise level reduction for aircraft noise from outside to inside. “Transient lodgings” include, but not limited to, hotels and motels

# Chapter 1: Introduction

## – FAA Part 150 Checklist

- Provides a list of items to review before submitting the NCP to the FAA
  - Submission contents
  - Consultation, including public participation
  - Noise exposure maps
  - Consideration of alternatives not submitted for approval
  - Alternatives recommended for implementation
  - Provision for revision of documents

# Chapter 3: Existing NCP - Overview

- Operational measures
  - Airport infrastructure
  - Flight paths, runway use
  - Voluntary actions
- Monitoring and review
  - Review status of NEM and NCP and update if changes warrant
  - Flight track monitoring: review of flight radar data
- Land use measures
  - Voluntary land acquisition
  - Sound insulation
  - Easements
  - Real estate disclosures

# Avigation Easements

- Avigation Easements are a legal document between the owner and the Airport Sponsor that is conveyed in exchange for something of value.
- Easements acknowledge:
  - The right of aircraft flight over or near a property
  - May also include the light, emissions and other items
  - May also include prohibition of obstructions (trees, towers)
- Can be give in exchange for noise mitigation such as:
  - Sound Insulation
  - Land Acquisition
- Can be in exchange for a monetary sum which is determined by:
  - Previously determined lump sum or
  - Percent of appraised fair market value
  - Must method and or value must be approved by FAA

# Avigation Easements

- Easements are attached to the property and continue with the land after the sale of a home.
- Easements deem as a compatible land use under Part 150
- Provides disclosure to future owners
- Examples of easements utilized in New England are provided in your handouts for review.
- Easement and the recommended language will be discussed at the next TAC meeting.

## EASEMENT

THIS EASEMENT made this \_\_\_\_ day of \_\_\_\_\_, 2016, by and between \_\_\_\_\_ of New Haven/East Haven, Connecticut, and their successors or assigns hereinafter referred to as the "Grantor(s)", and Tweed-New Haven Airport Authority, a public instrumentality and political subdivision of the State of Connecticut created under Connecticut General Statutes Sec. 15-120g et seq., as amended, hereinafter referred to as the "Grantee".

### WITNESSETH:

WHEREAS, Grantee is charged with the management and operation of Tweed New Haven Airport; and

WHEREAS, certain real property is owned by Grantor(s), in fee simple, commonly known as **Address, City**, Connecticut and more particularly described in Exhibit A attached hereto and made a part hereof, and referred to as the "Property";

WHEREAS, the Property meets certain interior noise level criteria and lies within certain noise zones commonly referred to as those areas above Day Night Average Sound Level of 65 decibels, as depicted on the Official Noise Contour Map of the Airport ("2017 Future DNL Contour") dated November, 2012 and available for review and inspection at the Airport's administrative offices, 155 Burr Street, New Haven, CT 06512; and

WHEREAS, Grantee is offering a residential sound insulation program for the Property to reduce aircraft noise experienced by Grantor(s) in the interior of the structure located on the Property; and

WHEREAS, Grantor(s) have elected to receive, and Grantee has agreed to provide, sound insulation on the Property, more particularly described in Schedule 1 attached hereto and made a part hereof; and

NOW THEREFORE, for valuable consideration, receipt of which is hereby acknowledged by Grantor(s), Grantor(s) hereby grant and convey and assign to Grantee, a perpetual easement more particularly described as follows:

1) The real property subject to the grant of easement hereinafter described is an airspace parcel ("Airspace Parcel") above the surface of the Property having the same boundaries as the Property and extending from the surface upwards to the limits of the atmosphere.



# TAC Preliminary Topics and Schedule

## TAC Meeting 2

December 5, 2017

NCP Ch. 2 – accepted NEM

Updated land use inventory

NCP Ch. 3 – Existing NCP approved measures

Easements

Updated land use inventory

## TAC Meeting 3

January 2018

NCP Ch. 4 – Part 1

- Airport operation measures
- Monitoring and review elements
- Land use measures – sound insulation

# TAC Preliminary Topics and Schedule

## TAC Meeting 4

March 2018

NCP Ch. 4 – Part 2

- Land use measures – sound barriers/buffers
- Land use measures – sales assistance / purchase assurance
- Land use measures – real estate disclosure
- Land use measures – land acquisition and relocation
- Land use measures – easement acquisition

## TAC Meeting 5

TBD if needed

TBD if needed

# TAC questions and comments

**Primary NCP Contact:**  
**Sarah Degutis, Project Manager**  
**The Jones Payne Group**  
**[BTVsound@jonespayne.com](mailto:BTVsound@jonespayne.com)**  
**617-790-3747**

**BURLINGTON INTERNATIONAL AIRPORT  
NOISE COMPATIBILITY PROGRAM  
TECHNICAL ADVISORY COMMITTEE  
MEETING SUMMARY (#1)  
October 17, 2017**

**BTV STAFF/CONSULTANTS**

Nic Longo, BTV (Chair)  
Gene Richards, BTV (Vice Chair)  
Amanda Clayton, BTV  
Erin Desautels, Vermont Small Business Acceleration  
Sarah Degutis, The Jones Payne Group  
Diane Carter, The Jones Payne Group  
David Crandall, HMMH  
Brad Duncan, HMMH  
Brad Nicholas, HMMH  
Brandon Robinette, HMMH

**TAC MEMBERS:**

Kevin Dorn, South Burlington City Manager  
Paul Connor, South Burlington City Planner  
Steve Wisloski, South Burlington School Board  
David Young, South Burlington School Board  
Tim McKenzie, South Burlington Business Association  
Col. John Johnston, Vermont Army Guard  
Col. Chris Tomilawicz, Vermont Air Guard  
Richard Lizzari, Vermont National Guard  
Jessie Baker, Winooski City Manager  
Sean McMannon, Winooski School District Superintendent [via telephone]  
George Maille, South Burlington  
Carmine Sargent, South Burlington  
Seth Bandeon, GBIC  
Frank Cioffi, GBIC  
Charlie Baker, CCRPC  
Tim McCole, Heritage  
Patrick Gallivan, St. Michael's College  
Bob McEwing, Essex

**PUBLIC ATTENDEES:**

Katie Mobley, CCV  
Ron Bazman, FAA  
Richard Doucette, FAA [via telephone]  
Miranda Jurswad, The Other Paper

### **1.0 WELCOME and TAC PURPOSE & OVERVIEW**

Nic Longo, Director of Airport Planning and Development, opened the meeting at 5:11 PM and explained the Noise Compatibility Plan (NCP) Technical Advisory Committee Meeting (TAC) is part of the required FAA regulatory process. The Sound Mitigation Committee will recess until the NCP TAC meetings have concluded. If there are Sound Mitigation items that need to be addressed that are not on the agenda, or outside of the NCP discussions, please let us know so that we can add them before or after the TAC agenda. Airport Director, Gene Richards, welcomed the attendees and stated the NCP process is important to the community and the airport so there is a good understanding of what is happening today and going forward per the rules.

Sarah Degutis, The Jones Payne Group, said the intent of the NCP update is for the transition from acquisitions of residential properties to other alternative FAA approved noise mitigation programs such as sound insulation. The NCP process began with a public information meeting/open house in June 2017. The TAC is comprised of affected jurisdictions, school districts, airport operators and individuals and who represent the area surrounding the airport. The purpose of the TAC is advisory to the City of Burlington for their update of the NCP. The FAA's process for assessing noise and land use compatibility is known as Part 150. The NCP is one half of the Part 150 process. The other half is the Noise Exposure Map (NEM). The TAC will review the study input, assumptions, analyses, and documentation and will provide input on a recommended noise mitigation program. The City retains the responsibility for the Part 150 Study and NCP recommendations. The FAA must accept the NEM and approve the NCP recommendations. Only approved recommendations are eligible for FAA grant funding.

### **2.0 PUBLIC FORUM AND COMMENTS**

A gentleman in the audience asked about the programs for noise mitigation for residents and schools. Sarah Degutis said there are a number of noise mitigation options the TAC will be considering. It includes a sound insulation program that include replacing windows, doors, attic insulation being installed in the house or school to reduce interior noise levels. Sales assistance and purchase assurance are two other programs. Sales assistance allows the owners to sell their home on the open market. If there is a difference between the purchase price and market value the program can assist with covering those costs. Some of the other options for consideration include a noise barrier/berm or real estate disclosures. The purpose of the NCP update is to look at all options and assess which ones the airport wants to use and pursue grants for these.

Carmine Sargent, South Burlington, said going forward there should be a formal gathering of opinions in order to have valid statistics.

### **3.0 REVIEW JUNE 2017 OPEN HOUSE**

Sarah Degutis noted the following from the open house on June 14, 2017:

- Approximately 100 people were in attendance.

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- There were three stations where people could discuss the Part 150 history, NCP goals and options, and NCP land use measures.
  - People were interested in where their house is located in the current contour and future contour, programs that are available, land acquisition, sales assistance/purchase, whether the F35 will cause too much noise for people to remain in the neighborhood, and sound insulation for houses and the Chamberlin School.
  - People had varied interest in sound mitigation and land acquisition programs based on their personal circumstances.

#### **4.0 REVIEW DRAFT NCP TABLE OF CONTENTS and CHAPTER 1**

David Crandall, HMMH, stated the NCP document is a draft. Chapter 1 includes the introductory framework and regulatory framework of the program which is based on the Aviation Safety and Noise Abatement Act ANSA 1979. The federally funded program is voluntary and all federal rules for the program must be followed. The FAA drafted the regulations (14 CFR Part 150). Title 14 deals with airports and aerospace. The NEM and NCP are two elements of Part 150. The NEM is usually updated every five to 10 years. The NCP is not updated as frequently.

Mr. Crandall noted the following:

- The airport's current NCP was approved in 2008 and includes a voluntary acquisition/relocation program. The airport and the City of Burlington want to pursue other noise mitigation program options so the NCP is being updated to access other elements such as the sound insulation program.
- Part 150 sets the federal standards and the FAA oversees the program. The airport has been participating since the late 1980s in the Part 150 program. The first NEM was approved in 1989 and the NCP in 1990. The last NCP revision was 2008 and allows for land acquisition to the 65 DNL line.
- The City of Burlington owns the airport and makes Part 150 submittals to the FAA. The city secured consultants to assist with submittals. The FAA determines if the Part 150 requirements are met with the NCP program.
- The TAC represents the stakeholders who could be affected by the NCP update. There will be discussion and consensus by the TAC regarding potential mitigation programs. Part 150 requires that all correspondence outside the meeting be documented as part of the public record. All questions and communications should be forwarded to the consultants and will be distributed to the TAC.
- David Crandall reviewed basic acoustical terminology including the decibel (dB) as the unit of measurement for sound. An "A-weighted (dBA) decibel" is how people hear the pitch of sound. There are a variety of metrics that are used to describe sound including the Day Night Level (DNL). DNL represents the cumulative aircraft sound measured over a period of time, typically a calendar year. There is a 10 dB penalty for aircraft events that occur during nighttime hours (10 PM to 7 AM). David Crandall reviewed a number of graphics illustrating how sound is measured.

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- Part 150 land use compatibility provides guidelines for land use categories of residential, transient lodging (i.e. hotel), mobile home parks, schools, hospitals, churches. The land use standards were adopted by the U.S. Department of Housing and have been included in the Part 150 regulation. Part 150 states all land uses are normally compatible with aircraft noise in areas that are less than 65 dB DNL. Residential, transient and public use buildings are not acceptable in area greater than 65 dB DNL.
  - To receive federal funding the property must be in in an area of incompatibility as defined by Part 150. Additionally, there are other eligibility requirements to qualify for mitigation program. For example, in order to be eligible to receive sound insulation, in addition to be in a higher noise area, a property's existing interior noise levels must be above a certain threshold. This determination is made by conducting a series of pre-acoustic tests on various housing stock in a given area. Additionally, to be eligible for noise mitigation a property must be construction prior to 1998 or located outside a published noise contour when constructed. If these criteria are not met, the FAA will not pay for noise mitigation even if the property falls within the current incompatible area.
  - Part 150 provides a "checklist" which summarizes the key points of information to be provided to ensure the NCP document meets the regulations. The checklist has a provision to revise the document at a later date as the sound environment changes.

Richard Doucette, FAA New England Region, said once an incompatible noise level is reached and people find it objectionable, federal funds can be used for mitigation of the noise with an approved NCP. The FAA's policy for eligible properties is to determine if the 65 DNL contour line crosses the property boundary. If it does then the property is typically eligible for noise mitigation, but there are exceptions. For example, if there is a large or irregular parcel of land and the incompatible structure is not located near the contour line, it might be eligible for mitigation. The FAA also provides for "block rounding" when 80% of the houses in the neighborhood are inside the 65 DNL noise contour line and a few houses are located outside the line. The FAA will approved mitigation for those remaining homes on a case-by-case basis. It may be determined that sound insulation of a house within the 65 DNL with enough insulation and new windows may not be effective. This is where the acoustical testing is conducted and a determination is made whether the home qualifies for the program.

Kevin Dorn, South Burlington, stated the term "incompatible" could be interpreted as having health impacts. He asked if the FAA is implying this as a health impact.

Richard Doucette stated land use compatibility is not related to health impacts.

George Maille, South Burlington, stated the Noise Mitigation Act of 1979 was tied to the Act of 1972 and hearing damage and ability to enjoy your property. The FAA said uniform means of predicting sonic noise at the airport were needed and the 65 dBA was passed in 1972. In California the threshold is less. They have adopted a different metric

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known as CNEL. Mr. Maille said the table in the NCP is vague to determine various sonic sounds and forms of mitigation. The land acquisition program was set up to avoid litigation in court for land taking (eminent domain). The sound levels were set so communities and airports can co-exist.

## **5.0 OVERVIEW OF EXISTING NCP – CHAPTER 3**

David Crandall said Chapter 3 is still being drafted. The chapter provides an overview of the existing NCP, reviews existing measures and current status. Chapter 3 will be sent to the TAC for their review.

## **6.0 OVERVIEW OF AVIGATION EASEMENTS**

Diane Carter, The Jones Payne Group, discussed avigation easements. Avigation easements are a legal document that is given by a property owner to the airport in exchange for something of value. Easements can be purchased with cash or given in exchange for noise mitigation such as sound insulation. The language in the easement can vary and can contain language which allows for the right of flight, light, emissions, and removal of obstructions such as trees or towers. Several avigation easements currently in use in New England have been collected and will be sent to the TAC for review for discussion at the December 2017 meeting.

George Maille asked for information avigation easements that have been used for schools and municipal buildings. Diane Carter stated she would gather that information and forward to the TAC.

Paul Connor, South Burlington, asked about the metrics the airport and host community should consider in the easement. Diane Carter said this is a sensitivity issue between the community and the airport and what the concerns are.

Sarah Degutis wrapped up the presentation by reviewing the proposed schedule of TAC meeting. She indicated the next meeting will be December 5, 2017. There will also be a meeting in January and March 2018. They will be about 6 weeks apart. The process is currently considering 4 TAC meeting, however, there is an option to add a fifth meeting if needed.

## **7.0 TAC QUESTIONS & COMMENTS**

Kevin Dorn, South Burlington, requested that the City of South Burlington have the final say on what goes to the FAA in the NCP on items affecting South Burlington on property outside the airport. Nic Longo advised communications should go through the TAC. Mr. Dorn asked for a response to a letter sent regarding some of these issues to the airport before the next meeting. Gene Richards pointed out the TAC meeting is the opportunity to express ideas and concerns. Nic Longo noted the homeowners themselves will be brought into the conversation. Kevin Dorn emphasized this is a policy issue for South Burlington City Council as it should be for Winooski and Williston.



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Jessie Baker, Winooski, suggested having an additional TAC meeting to go over the options and then having the TAC members go to their respective boards and return with responses. The March timeframe for a meeting may be problematic for towns due to local elections. A six week timeframe may be better. Sarah Degutis said the meeting dates can be confirmed. Nic Longo pointed out the conclusion of the process is a public meeting to receive public comment. Jessie Baker asked about the status of the new NEM. Nic Longo said the airport is moving away from pursuing grant funding and reallocating funding already received to do the update. Gene Richards explained the request for funding was made, but not yet granted.

George Maille, South Burlington, said people will want to know the ramifications associated with getting into sound mitigation or sales assistance or purchase programs. Mr. Maille said he wants to know the impact if he wants to sell his house before he joins a program. Sarah Degutis said the TAC will look at the measures the airport is putting forward in the NCP and implementation for noise mitigation to help in clarifying these impacts.

Frank Cioffi, GBIC, asked if the FAA allows multiple programs at the same time. Sarah Degutis said the NCP looks at budgeting dollars for programs and phasing how a program is laid out. Diane Carter said that multiple options can be offered at the same time to give some flexibility to owners.

Charlie Baker, CCRPC suggested summarizing key points at each meeting so the TAC members can report to their boards. Nic Longo urged contacting the airport at any time for information. Gene Richards stressed the airport wants to make sure all boards are informed and can be well represented at the TAC meetings. The program is for the people around the airport who are affected, not necessarily for the leaders of the community. The program will be around for a long time and is not for a political agenda or personal issue, but for the community at large.

## **8.0 WRAP UP & ADJOURNMENT**

Future Meetings & Agenda Items:

- December 5, 2017 - NCP Chapters 2 & 3
- January 2018 – NCP Chapter 4 Airport Operation Measures & Land Use Measures
- March 2018 NCP Chapter 4 Land Use Measures
- Additional meetings TBD

Send communications to [BTVsound@jonespayne.com](mailto:BTVsound@jonespayne.com)

With no further business and without objection the meeting was adjourned at 6:32 PM.

## **BTv NCP TAC Meeting #2**

**December 5, 2017**

# BURLINGTON INTERNATIONAL AIRPORT

Technical Advisory Committee - Sound Program, NCP Update

DATE: December 5, 2017

LOCATION: Burlington International Airport, Conference Room #3

## SIGN-IN SHEET

#	NAME	ADDRESS/COMPANY NAME	PHONE NUMBER/ EMAIL
1	Gary Sheperd	1 PARK ST So. Burl. VT	gshperd155@comcast.net 802-862-3618
2	Philip FLANIGAN	109 AIRPORT PKWY So. Burl	802-865-9696 FLANIGANVT@COMCAST.NET
3	Kathy Grzywna	20 millham CT. So. Burl.	658 9208
4	Jon Watt	31 Airport PKwy So. Burl.	802-862-1205
5	TIM MCCOLE	HERITAGE AVIATION	914 356 2101
6	Bill Keach	campid Commerce	on file
7	Paul Conner	575 Dorset St	pconner@sbart.com.
8	Richard Lizzari	VT National Guard	802-838-2424 rlizzari@vtng.mil com.mil
9	Julie Janine	45 Country CLUB DR So. Burl	802-310-5529
10	Corinne Sargent	Resident	802-655-1164
11	Jessie Baker	City of Winooski	802-655-6410
12	Sean McManis	Winooski School District	383-6120
13	Chris Tumilone	VT ANG	358-5584

Please note that this sign-in sheet and any information provided on it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.

# BURLINGTON INTERNATIONAL AIRPORT

Technical Advisory Committee - Sound Program, NCP Update

DATE: December 5, 2017

LOCATION: Burlington International Airport, Conference Room #3

## SIGN-IN SHEET

#	NAME	ADDRESS/COMPANY NAME	PHONE NUMBER/ EMAIL
40	GEORGE MAULE	SB TAC MEMBER.	318-8100 LASTEXT@COMOVT.VERM
41	Steve MARRIOTT	13 Mills AVE	802 8622990
42	Steve Linda Zeno	27 Forest St	802-864-7792
43	E. J'ner	19 Dunal St	802-658-4214
44	Bruce Bevins	36 Dunal St	802-863-9686
45	Ron BAZMAN	FAA - BTV ALC	802-657-4403 ronald.d.bazman@faa.gov
46	Amanda Clayton	BTV Engineer	aclayton@btr.aero
47	Miranda Jonsen Id	Other Paper	
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# BURLINGTON INTERNATIONAL AIRPORT

Technical Advisory Committee - Sound Program, NCP Update

DATE: December 5, 2017

LOCATION: Burlington International Airport, Conference Room #3

## SIGN-IN SHEET

#	NAME	ADDRESS/COMPANY NAME	PHONE NUMBER/ EMAIL
14	Charlie Baker	CCRPC	cbaker@airport.org
15	RJ Blum	68 Airport Rd	rijblum@gmail.com
16	Loretta Marriott	13 Mills Ave SB	Loretta.Marriott@uvm.edu
17	Barbara Sirvis	21 Arbor Rd.	barb.sirvis@gmail.com
18	Robert House	98 Logwood ST	863-5315
19	Kelly Colling		316-2661 / KColling@bvt.azero
20	Helen Richle	SB City Council	hrichte@sburt.com
21	Paula Gellives	Saint Michael's College	pfallu@smcvt.edu
22			
23			
24			
25			
26			

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**BURLINGTON INTERNATIONAL AIRPORT****Technical Advisory Committee - Sound Program, NCP Update****DATE: December 5, 2017****LOCATION: Burlington International Airport, Conference Room #3****SIGN-IN SHEET**

#	NAME	ADDRESS/COMPANY NAME	PHONE NUMBER/ EMAIL
27	Fran Cioffi	60 Main Street Burlington, Vt GBIC	franco@vermont.org
28	SETH BOURDEN	GBIC	seth@vermont.org
29	Steve Wisloski	50 Burlington School Dr	swisloski@sb.schools.net
30			
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Please note that this sign-in sheet and any information provided on it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.



## AGENDA

### **BTV Noise Compatibility Program (NCP) Technical Advisory Committee Meeting**

December 5, 2017

5:00 p.m. - 6:30 p.m.

Conference Room 3

Call in # for those who are unable to attend: 712-775-8972 Code: 235681

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- |             |   |
|-------------|---|
| 5:00 – 5:10 | Welcome and overview of agenda                      |
| 5:10 – 5:20 | Public forum and comment period                     |
| 5:20 – 5:30 | Chapter 2 - Land Use Update for NCP                 |
| 5:30 – 6:00 | Chapter 3 – Existing NCP                            |
| 6:10 – 6:15 | Avigation Easements                                 |
| 6:15 – 6:30 | Technical advisory committee questions and comments |



## **BTV Noise Compatibility Program Update – Technical Advisory Committee**

December 5, 2017

**jp** The Jones Payne Group, Inc.  
*Architects, Planners, and Information Managers*



**HARRIS MILLER MILLER & HANSON INC.**



# Purpose of TAC

- The TAC is advisory to the City solely for purposes of the BTV Part 150 Study, including:
  - Review of study inputs, assumptions, analyses, documentation, etc.
  - Input, advice, and guidance related to Noise Compatibility Plan (NCP) development
- The City shall respect and consider TAC input, but must retain overall responsibility for the Part 150 Study and NCP recommendations
- The TAC and City recognize FAA is responsible for accepting Noise Exposure Map (NEM) and NCP submissions and for approving NCP measures
- TAC members represent the interests of their organization and/or constituents
- TAC members are expected to provide two-way communication between the City and their organizations / constituents

# Agenda

Public forum and comment period

Chapter 2 – Land use update for NCP

Chapter 3 – Existing NCP

Avigation easements

TAC questions and comments period

# Public Forum and Comment Period

# NCP Document – Draft outline

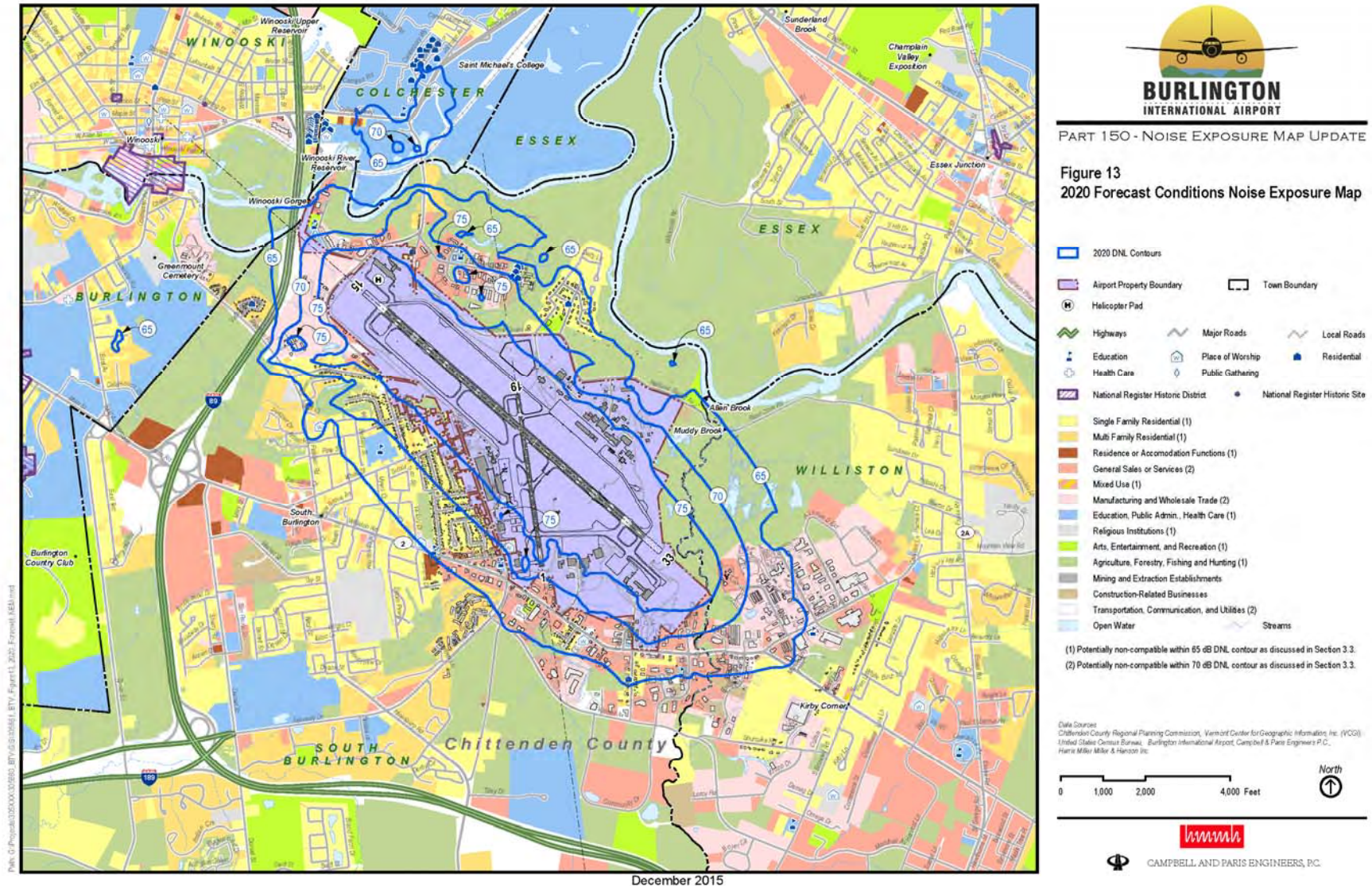
- Chapter 1
  - introduces the purpose of the Part 150 NCP Update and provides an overview (discussed at October meeting)
- Chapter 2
  - accepted Noise Exposure Maps (NEMs) and land use information
- Chapter 3
  - describes the existing NCP and approved measures
- Chapter 4
  - presents the new recommended measures to the BTV NCP
- Chapter 5
  - presents the analysis of NCP measures
- Chapter 6
  - describes public consultation

## Chapter 2 – Accepted Noise Exposure Maps

Chapter 2 will include:

- Reference to the FAA-accepted Noise Exposure Maps (NEM)
- Dates of NEM
- NEM Public Consultation Summary
- Noise/Land Use Compatibility Guidelines
- Land Uses with NEM (including an update for 2018)

# 2020 Forecast Conditions NEM



## Chapter 2 – Land Use Update

- Land use data (from NEM update)
  - Provided by Chittenden County Regional Planning Commission
    - Updated based on aerial photography, airport staff data and various internet searches
  - Maps display land use, color coded by the categories noted in the FAA regulation
  - Dwelling inventories were prepared to the parcel/dwelling level
  - Population per dwelling estimated by U.S. Census data

## Chapter 2 - Land Use Update

- Land use data updates (for NCP update)
  - Updates provided to reflect:
    - Acquired properties from Voluntary Land Acquisition Program
    - Zoning changes at jurisdiction level
    - Updates to non-residential noise sensitive locations



# 2020 NEM Land Use Analysis Summary

(updated from 2015 NEM submission)

## **Residential dwellings and population within the 2020 65 dB DNL noise contours**

571\* single family houses

341\* multi-family (individual apartments/condominium units)

2,119\* estimated population

In addition: St. Michael's College: 2 dormitories; approx. 136 student residents

## **List of non-residential noise sensitive locations**

6 education facilities

Only public is Chamberlain Elementary School

8 places of worship (3 churches, 5 cemeteries)

1 public gathering place

\*numbers have been be updated from 2015 NEM and will be finalized for the NCP submittal based on current land acquisition program participation

# 2020 NEM Land Use Analysis Summary

(updated from 2015 NEM submission)

## **City of South Burlington**

Estimated dwelling units within 65 dB or greater DNL: 888

608 dwelling units are south of the airport and west of Kennedy Dr.

38 dwelling units are south of the airport and east of Kennedy Dr.

242 dwelling units are north of the airport

## **Town of Williston**

None, although there are two parcels zoned as residential

## **City of Burlington**

Estimated dwelling units within 65 dB or greater DNL: 9

7 are single-family units along Bilodeau Ct.

2 are multi-family units in a complex along East Ave.

## **City of Winooski**

Estimated dwelling units within 65 dB or greater DNL: 11

All of these are single-family units on the southern end of Roland Ct.

## **Town of Colchester**

Estimated dwelling units within 65 dB or greater DNL: 8 plus 3 dormitories

This includes a four unit building along College Ave and 4 individual houses on Gorge Rd.

# Chapter 3 – Existing Noise Compatibility Program

- The existing 2008 NCP includes 15 FAA-approved measures with a mix of operational, implementation, and land use elements
- The 2008 NCP, and associated Record of Approval (ROA), revised a single measure
  - Eligibility for the Land Acquisition and Relocation Program expanded from the 70 dB DNL contour the 65 dB DNL contour for permanent residences
- The following summary is organized in the same order as the measures were discussed in the FAA's ROA for the 2008 NCP

# Chapter 3 – Existing Noise Compatibility Program

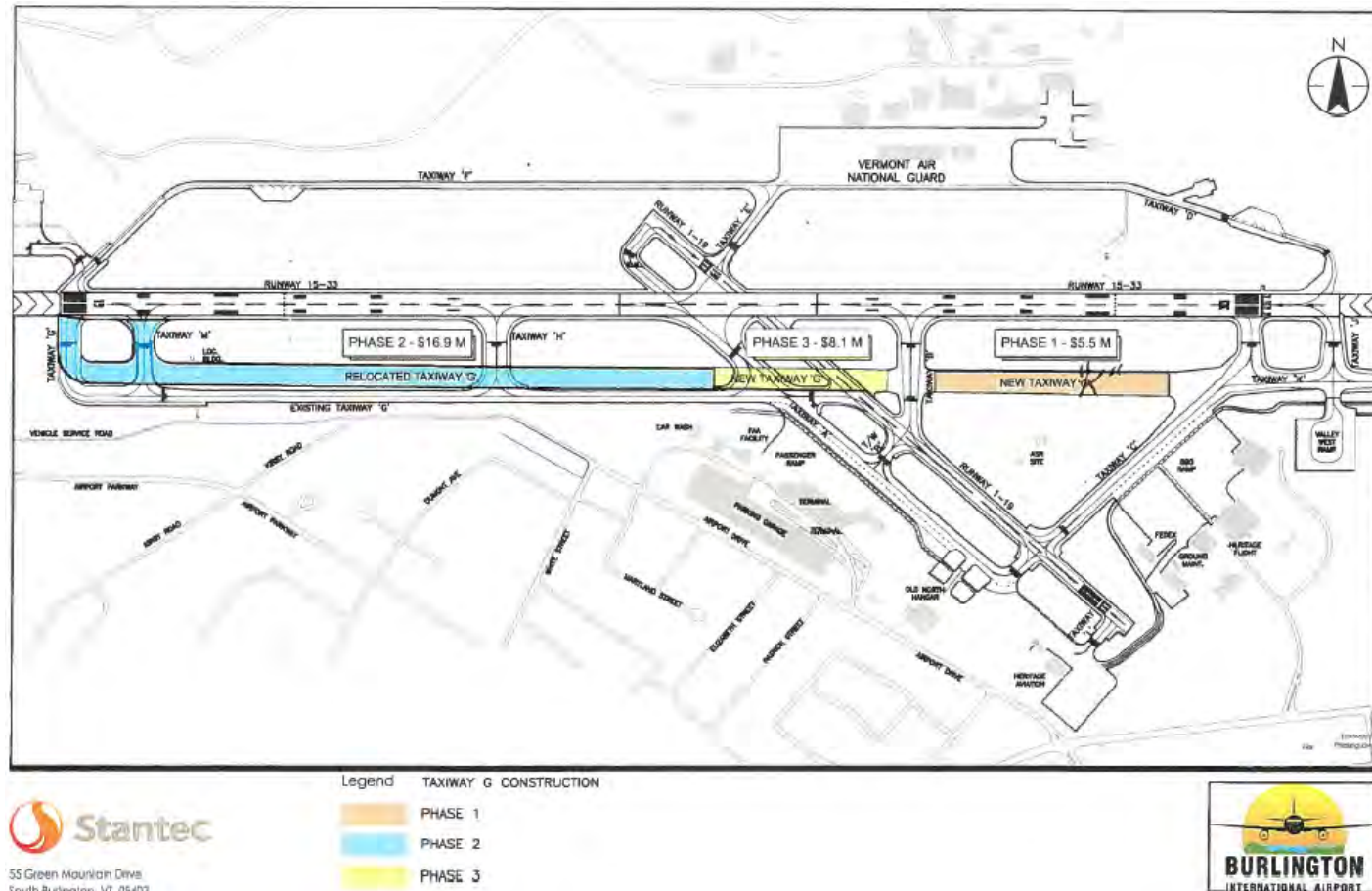
## Airport Operations Measures

### Extension of Taxiway G

- Taxiway G would be extended from the existing intersection with Taxiways A & C, remaining parallel with Runway 15/33 in order to reduce noise levels for residents along Airport Drive
- **Status:** In progress. The FAA approved the extension at the planning level; it is shown on the updated 2012 Airport Layout Plan
  - 1) Phase 1 of the construction, started Nov. 2015 and was completed in July 2016
  - 2) Phase 2 started October 2016 and is schedule to be completed by the end of calendar year 2018
  - 3) Phase 3 is schedule to be completed by 2020, and would complete the connection

# Chapter 3 – Existing Noise Compatibility Program

## Airport Operations Measures Extension of Taxiway G



# Chapter 3 – Existing Noise Compatibility Program

## Airport Operations Measures

### Terminal Power Installation and APU/GPU Restrictions

- Installation reduces the need for aircraft to use internal auxiliary power units (APU) or ground power units (GPU). Following the installation, a rule prohibiting the use of APUs or GPUs between 10:00 p.m. and 7:00 a.m., would be put in place.
- **Status:** Not fully implemented. The airport terminal has “aircraft ground power” (referred to as “terminal power hooks” in the ROA and the 1989 NCP document) capability at nine gate locations that have passenger boarding bridges. There are 11 gates in total.

# Chapter 3 – Existing Noise Compatibility Program

## Airport Operations Measures

### Nighttime Bi-direction Runway Use

- To minimize late-night operations over the City of Winooski, the air traffic control tower would use Runway 15 for departure and Runway 33 for arrivals, traffic conditions permitting.
- **Status:** The BTV ATCT is closed from 10:00 PM until 5:00 AM, which makes implementation of this measure infeasible during these hours. The ATCT has not implemented the procedure during the remaining DNL “nighttime” hours (i.e., from 5:00 AM to 7:00 AM).

# Chapter 3 – Existing Noise Compatibility Program

## Airport Operations Measures

### Noise Abatement Flight Paths for Runway 15 and 33 Departures, and 15 Arrivals

- New procedures would have civil aircraft fly over less populated areas. Runway 33 departures would turn to a heading of 310 degrees. Runway 15 departures would turn to a heading of 180 degrees.
- **Status:** Not fully implemented. Current procedures involve assignments that result in...
  - 1) Most west-bound Runway 15 departures making initial turns to a heading of 190,
  - 2) Most west-bound Runway 33 departures maintaining runway heading until past the City of Winooski, and
  - 3) Most east-bound Runway 33 departures initiating right hand turns over Winooski.



# Chapter 3 – Existing Noise Compatibility Program

## Airport Operations Measures

### Voluntary Limits of Military C-5A Training

- An informal agreement with the military limits C-5A operations to only necessary takeoffs and landings.
- **Status:** Not fully implemented. An agreement is not currently in place. However...
  - 1) BTV Operations strongly discourage C-5 training at the airport, because the runways are only 150 feet wide and wake turbulence from C-5 operations tear up the runway-edge lighting.
  - 2) Historically, the military has always coordinated the arrival of a C-5 with BTV Operations because of the constraints on the airfield.
  - 3) All transient military aircraft are limited to two practice approaches.

# Chapter 3 – Existing Noise Compatibility Program

## Airport Operations Measures:

### Voluntary Minimization of F-16 Multiple Aircraft Flights

- Military personnel will schedule as many single-aircraft, as opposed to multiple-aircraft, flights as possible.
- **Status:** Not fully implemented. Most F-16 flights require between 2 and 4 aircraft, depending on mission and tactical scenario.
  - F-16s in multiple aircraft flights typically operate with some distance between individual aircraft, so that the aircraft do not produce their maximum noise levels at the same locations at the same time; while aircraft are operating close in time, they are not simultaneous in most cases.

# Chapter 3 – Existing Noise Compatibility Program

## Airport Operations Measures:

### Voluntary Army Guard Helicopter Training Controls

- The National Guard helicopter training operations will be conducted away from the airport when conditions permit. In terms of long range planning, the Guard should consider consolidating operations at Camp Johnson.
- **Status:** Not implemented. The National Guard has continued training operations at BTV.

# Chapter 3 – Existing Noise Compatibility Program

## Monitoring and Review Elements:

### Ongoing Monitoring and Review of NEM and NCP Status

- The measure provides for revision of the NEM/NCP, citing three examples:
  - 1) Changes in airport layout,
  - 2) Unanticipated changes in the level of airport activity, and
  - 3) Non-compliance with the NCP
- The measure also included the recommendation of the TAC as a Noise Abatement Committee and purchase of a permanent noise monitoring system.
- **Status:** Not fully implemented. The City updated the NEM in 1997, 2006 and 2015, and the NCP in 2008. The City is also planning to prepare an NEM update in the next one to two years.

# Chapter 3 – Existing Noise Compatibility Program

## Monitoring and Review Elements:

### Flight Track Monitoring

- Utilization of an outside firm to perform flight track analysis of radar data on a temporal sampling basis
- **Status:** Not fully implemented. Flight tracks for 2015 NEM were developed from calendar year 2012 radar data samples provided by the FAA. City is moving forward with perspective companies that analyze flight track data in the next 6 months.

# Chapter 3 – Existing Noise Compatibility Program

## Land Use Measures:

### Land Acquisition and Relocation

- A Voluntary program for residences within the 65 dB DNL contour. Eligible property owners will be paid fair market value for their property at the highest and best rate, and provided relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the “Uniform Act”) and implementation of Department of Transportation (DOT) regulations.
- The City, and applicable jurisdiction, will conduct studies to define program boundaries and to identify options for compatible reuse.
- The City, and applicable jurisdiction, will develop a land use plan for the area surrounding the airport that is impacted by noise. This effort will follow the guidance contained in the FAA document “Management of Acquired Noise Land: Inventory Reuse Disposal” dated January 30, 2008, or later superseding documents.

# Chapter 3 – Existing Noise Compatibility Program

## Land Use Measures:

### Land Acquisition and Relocation

- **Status:** Implemented. The City has purchased some, and is in the process of purchasing additional, permanent residences in the 65 dB DNL contour.
  - Since the start of federal Fiscal Year 2007 (started October 1, 2006) through September 2015, the FAA has issued 12 grants to the City of Burlington totaling approximately \$32.6 million.
  - The FAA does have additional eligibility requirements aside from the property being within the 65 dB DNL NEM contour.
  - FAA's eligibility requirements are best described in FAA's Airport Improvement Program (AIP) Handbook.
  - Both the City of Burlington and other local municipalities have expressed an interest in ending the voluntary acquisition program and transitioning to other mitigation options. The City's recommendation regarding future of the Land Acquisition and Relocation measure will be discussed in a later chapter of the document.

# Chapter 3 – Existing Noise Compatibility Program

## Land Use Measures:

### Sound Insulation

- Qualified compatible residential and noise sensitive land uses within the 65 and 70 dB DNL contours, and qualified compatible non-residential land uses in the 75 dB DNL contour, would be included in a sound insulation program.
- **Status:** Not implemented. To date, the City and FAA have chosen to apply available funding to land acquisition. The City's recommendation regarding future sound insulation around BTV will be discussed later in the document.



# Chapter 3 – Existing Noise Compatibility Program

## Land Use Measures:

### Easement Acquisition Related to Soundproofing

- The City would attempt to negotiate avigation easements within the 65 dB DNL contour, in return for sound attenuation assistance.
- **Status:** Not implemented. To date, the City has chosen to apply available funding to land acquisition. The City's recommendation regarding future sound insulation around BTV will be discussed later the document.

# Chapter 3 – Existing Noise Compatibility Program

## Land Use Measures:

### Airport Zoning Overlay District

- Land use measure that would restrict uses which are highly sensitive to noise and could also feature construction standards for sound insulation.
- **Status:** Not implemented. Although a formal Airport Zoning Overlay District has not been adopted, the City of South Burlington has actively worked to consider airport noise when addressing land-use decisions around the airport. The City's recommendation regarding an Airport Zoning Overlay District around BTV will be discussed later the document.

# Chapter 3 – Existing Noise Compatibility Program

## Land Use Measures:

### Easement Acquisition for New Development

- Easements would be obtained for new development within the 65, 70 and 75 dB DNL contours.
- **Status:** Not implemented. The City's recommendation regarding easements around BTV will be discussed later the document.

# Chapter 3 – Existing Noise Compatibility Program

## Land Use Measures:

### Real Estate Disclosure

- A real estate disclosure policy would be developed for land uses within the 65 DNL contour, and implemented through revisions to zoning ordinances.
- **Status:** Not implemented. The airport has not actively encouraged the use of Real Estate Disclosures for properties within the 65 dB DNL contour.
  - However, outside of the Part 150 process, a disclosure of airport noise, particularly related to anticipated changes of Vermont Air National Guard Aircraft, has been included in many real estate transactions.
  - The City's recommendation regarding future real estate disclosures around BTV will be discussed later in the document.

# Avigation Easements

- Avigation Easements are a legal document between the owner and the Airport Sponsor that is conveyed in exchange for something of value.
- Easements acknowledge:
  - The right of aircraft flight over or near a property
  - May also include the light, emissions and other items
  - May also include prohibition of obstructions (trees, towers)
- Can be given in exchange for noise mitigation such as:
  - Sound Insulation
  - Land Acquisition
- Can be in exchange for a monetary sum which is determined by:
  - Previously determined lump sum or
  - Percent of appraised fair market value
  - Method and or value must be approved by FAA

# Avigation Easements

- Easements are attached to the property and continue with the land after the sale of a home
- Easements deem the property as a compatible land use under Part 150
- Provides disclosure to future owners

## EASEMENT

THIS EASEMENT made this \_\_\_\_ day of \_\_\_\_\_, 2016, by and between \_\_\_\_\_ of New Haven/East Haven, Connecticut, and their successors or assigns hereinafter referred to as the "Grantor(s)", and Tweed-New Haven Airport Authority, a public instrumentality and political subdivision of the State of Connecticut created under Connecticut General Statutes Sec. 15-120g et seq., as amended, hereinafter referred to as the "Grantee".

WITNESSETH:

WHEREAS, Grantee is charged with the management and operation of Tweed New Haven Airport; and

WHEREAS, certain real property is owned by Grantor(s), in fee simple, commonly known as **Address, City**, Connecticut and more particularly described in Exhibit A attached hereto and made a part hereof, and referred to as the "Property";

WHEREAS, the Property meets certain interior noise level criteria and lies within certain noise zones commonly referred to as those areas above Day Night Average Sound Level of 65 decibels, as depicted on the Official Noise Contour Map of the Airport ("2017 Future DNL Contour") dated November, 2012 and available for review and inspection at the Airport's administrative offices, 155 Burr Street, New Haven, CT 06512; and

WHEREAS, Grantee is offering a residential sound insulation program for the Property to reduce aircraft noise experienced by Grantor(s) in the interior of the structure located on the Property; and

WHEREAS, Grantor(s) have elected to receive, and Grantee has agreed to provide, sound insulation on the Property, more particularly described in Schedule 1 attached hereto and made a part hereof; and

NOW THEREFORE, for valuable consideration, receipt of which is hereby acknowledged by Grantor(s), Grantor(s) hereby grant and convey and assign to Grantee, a perpetual easement more particularly described as follows:

1) The real property subject to the grant of easement hereinafter described is an airspace parcel ("Airspace Parcel") above the surface of the Property having the same boundaries as the Property and extending from the surface upwards to the limits of the atmosphere.

# TAC Preliminary Topics and Schedule

## TAC Meeting 3

January 23, 2018

NCP Ch. 4 – Part 1

- Airport operation measures
- Monitoring and review elements
- Land use measures – sound insulation

Discussion and feedback from TAC 4

## TAC Meeting 4

March 13, 2018

NCP Ch. 4 – Part 2

- Land use measures – sound barriers/buffers
- Land use measures – sales assistance / purchase assurance
- Land use measures – real estate disclosure
- Land use measures – land acquisition and relocation
- Land use measures – easement acquisition

Discussion and feedback from TAC 3

# TAC Preliminary Topics and Schedule

TAC Meeting 5

May 2018

Discussion and feedback from TAC 4

Public Hearing and Comment Period

estimated August – September 2018



# TAC questions and comments

**Primary NCP Contact:**  
**Sarah Degutis, Project Manager**  
**The Jones Payne Group**  
**[BTVsound@jonespayne.com](mailto:BTVsound@jonespayne.com)**  
**617-790-3747**

# Burlington International Airport 14 CFR Part 150 Update 2018 Noise Compatibility Program

HMMH Report No. 308770

??Date

Prepared for:

**City of Burlington, Vermont**  
1200 Airport Drive, #1  
Burlington, VT 05403



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### 3 Existing Noise Compatibility Program

This NCP builds on the previous noise compatibility studies at BTV. The existing NCP includes 15 FAA-approved measures with a mix of operational, implementation, and land use elements. The FAA's 2008 Record of Approval (ROA), for the 2008 NCP submission, listed NCP elements in the order presented below. The 2008 NCP, and associated ROA, revised a single measure. Appendix A presents a copy of the 2008 ROA.

The following discussion of the NCP has been organized in the same manner as the FAA's 2008 ROA. The 2015 and 2020 NEM are based on empirical data reflecting the current implementation status of these noise abatement measures. The United State Air Force's Record of Decision for the F-35A Operational Basing Environmental Impact Statement (USAF EIS), agreed to adhere to the 2008 NCP.<sup>10</sup>

#### 3.1 Airport Operations Measures

##### 3.1.1 Extension of Taxiway G

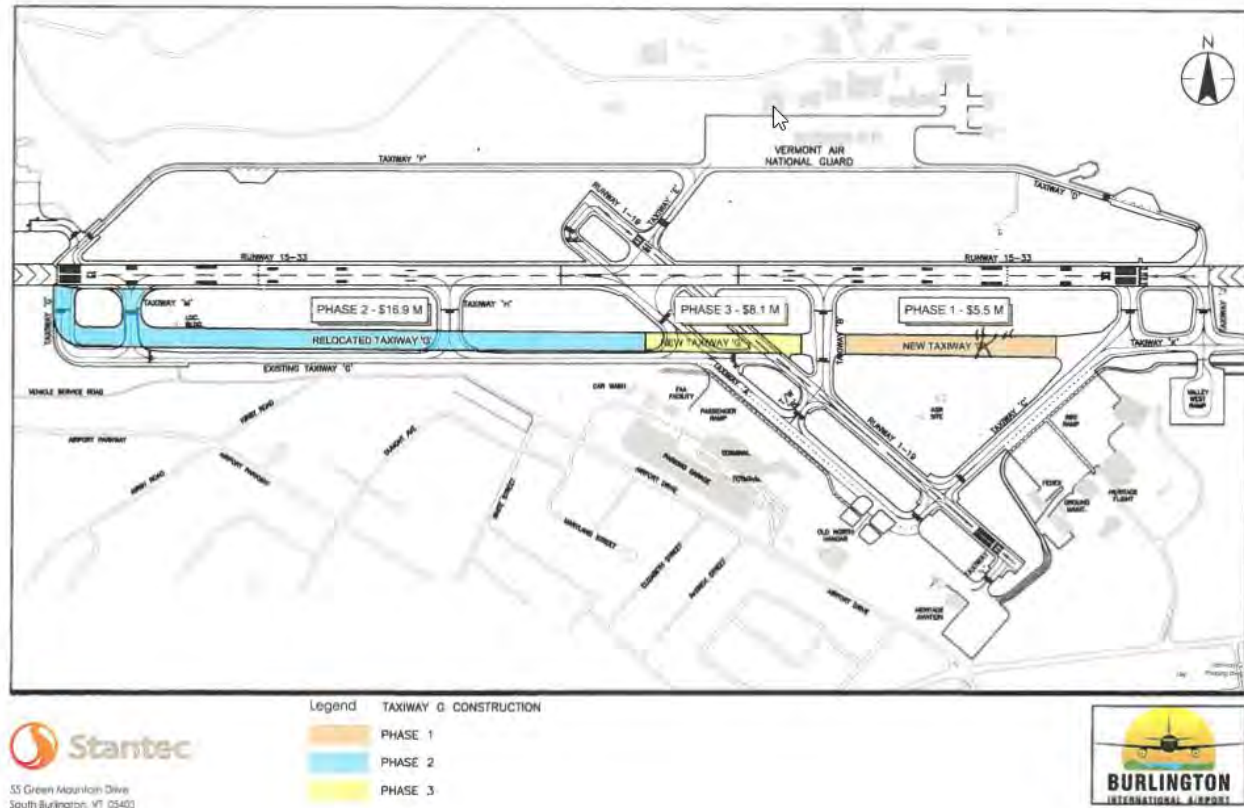
Taxiway G would be extended from the existing intersection with Taxiway A to Taxiway C, remaining parallel with Runway 15/33 in order to reduce noise levels for residents along Airport Drive (2008 ROA Measure 1).

*Status: In progress. The FAA approved the extended Taxiway G at the planning level; it is shown on the updated 2012 Airport Layout Plan. Current Taxiway G is on the northwest side of the airfield and current Taxiway K is on the southeast side. The complete Taxiway G extension will create a single taxiway parallel to Runway 15-33 and linking to the current Taxiway K. The multi-phase project is scheduled for completion sometime around 2020. Phase 1 of the construction, started early November 2015 and was completed in July 2016.. Phase 2 started October 2016 and is schedule to be completed by the end of calendar year 2018. Phase 3 is schedule to be completed by 2020, and would complete the connection between Taxiway A and Taxiway C as described in this NCP measure. The 2015 NEM reflects the taxiway layout before the start of the project and the 2020 NEM reflects the forecasted taxiway layout including the extended Taxiway G.*

**[Editorial note: the above discussion maybe updated]**

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<sup>10</sup> Document was released September 2013. The Air Force issued a Record of Decision (ROD) December 2, 2013. A copy is available from the Defense Technical Information Center website at <http://www.dtic.mil/docs/citations/ADA595409>



Place holder Figure – Taxiway G and K phasing

Source, Stantec, prepared under contract to the City of Burlington

### 3.1.2 Terminal Power Installation and APU/GPU Restrictions

Installation of terminal power hookups for aircraft would reduce the need for aircraft to use internal auxiliary power units (APU) or ground power units (GPU). Following the installation, a rule prohibiting the use of APUs or GPUs between 10:00 p.m. and 7:00 a.m., would be put in place (2008 ROA Measure 2).

*Status: Not fully implemented. The airport terminal has “aircraft ground power” (referred to as “terminal power hooks” in the ROA and the 1989 NCP document) capability at nine gate locations that have passenger boarding bridges. There are 11 gates in total.*

### 3.1.3 Nighttime Bi-direction Runway Use

To minimize late-night operations over the City of Winooski, the air traffic control tower would use Runway 15 for departure and Runway 33 for arrivals, traffic conditions permitting (2008 ROA Measure 3).

*Status: Not implemented. The BTV ATCT is closed from midnight until 5:30 AM, which makes implementation of this measure infeasible during these hours. The ATCT has not implemented the procedure during the remaining “nighttime” hours, as defined by DNL; i.e., from 10 PM to midnight and 5:30 to 7:00 AM.*

**[Editorial note: the above discussion maybe updated.]**

### 3.1.4 Noise Abatement Flight Paths for Runway 15 and 33 Departures, and 15 Arrivals

New procedures<sup>11</sup> would have civil aircraft fly over less populated areas. Runway 33 departures would turn to a heading of 310 degrees. Runway 15 departures would turn to a heading of 180 degrees (2008 ROA Measure 4).

*Status: Not fully implemented. Current procedures involve assignments that result in: (1) most west-bound Runway 15 departures making initial turns to a heading of 190, (2) most west-bound Runway 33 departures maintaining runway heading until past the City of Winooski, and (3) most east-bound Runway 33 departures initiating right hand turns over the City of Winooski.*

*[Editorial note: the above discussion maybe updated.]*

### 3.1.5 Voluntary Limits of Military C-5A Training

An informal agreement with the military limits C-5A operations to only necessary takeoffs and landings (2008 ROA Measure 5).

*Status: Not fully implemented. An agreement is not currently in place. However, BTV Operations strongly discourage C-5 training at the airport, because the runways are only 150 feet wide and wake turbulence from C-5 operations tear up the runway-edge lighting. Historically, the military has always coordinated the arrival of a C-5 with BTV Operations because of the constraints on the airfield. Furthermore, all transient military aircraft are limited to two practice approaches at BTV.*

*[Editorial note: the above discussion maybe updated.]*

### 3.1.6 Voluntary Minimization of F-16 Multiple Aircraft Flights

Military personnel will schedule as many single-aircraft, as opposed to multiple-aircraft, flights as possible (2008 ROA Measure 6).

*Status: Not fully implemented. Most F-16 flights require between 2 and 4 aircraft, depending on mission and tactical scenario. Based on observations, F-16s in multiple aircraft flights typically operate with some distance between individual aircraft, so that the aircraft do not produce their maximum noise levels at the same locations at the same time; while aircraft are operating close in time, they are not simultaneous in most cases.*

*[Editorial note: the above discussion maybe updated.]*

### 3.1.7 Voluntary Army Guard Helicopter Training Controls

The National Guard helicopter training operations will be conducted away from the airport when conditions permit. In terms of long range planning, the Guard should consider consolidating operations at Camp Johnson (2008 ROA Measure 7).

*Status: Not implemented. The National Guard has continued training operations at BTV.*

*[Editorial note: the above discussion maybe updated.]*

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<sup>11</sup> "New procedures" was the language used in the 1989 NCP.



## 3.2 Monitoring and Review Elements

### 3.2.1 Ongoing Monitoring and Review of Noise Exposure Map (NEM) and Noise Compatibility Program (NCP) Status

This measure provides for revision of the NEM and NCP, citing three examples: changes in airport layout, unanticipated changes in the level of airport activity, and non-compliance with the NCP. This measure also included the recommendation of the Technical Advisory Committee as a Noise Abatement Committee and purchase of a permanent noise monitoring system (2008 ROA Measure 8).

*Status: Not fully implemented. The City of Burlington, Vermont updated the BTV NEM in 1997, 2006 and 2015. The City updated the NCP in 2008. This documentation represents the second NCP update. The City of Burlington, Vermont is planning to prepare an NEM update in the next one to two years.*

### 3.2.2 Flight Track Monitoring

Utilization of an outside firm to perform flight track analysis of radar data on a temporal sampling basis (2008 ROA Measure 9).

*Status: Not fully implemented. Flight tracks for 2015 NEM were developed from calendar year 2012 radar data samples provided by the FAA.*

## 3.3 Land Use Measures

Most of the following land use measures require noise contours, and would use the 2015 and 2020 NEM once they are found in compliance with 14 CFR Part 150 by FAA. As discussed in Section 1.2, the City recommends using the extents of the 2015 and 2020 NEM contours for land use planning.

### 3.3.1 Land Acquisition and Relocation

Noncompatible land use includes residences within the 65 dB DNL contour. This program is voluntary. Eligible property owners will be paid fair market value for their property at the highest and best rate, and provided relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the "Uniform Act") and implementation of Department of Transportation (DOT) regulations. The City, in coordination with applicable jurisdiction, will conduct studies to define program boundaries and to identify options for compatible reuse of the acquired properties.

The City, and the jurisdiction within which the program is implemented, will develop a land use plan for the area surrounding the airport that is impacted by noise. This effort will follow the guidance contained in the FAA document "Management of Acquired Noise Land: Inventory Reuse Disposal" dated January 30, 2008, or later superseding documents. (2008 ROA Measure 10).

*Status: Implemented. The City has purchased some, and is in the process of purchasing additional, permanent residences in the 65 dB DNL contour. Since the start of federal Fiscal Year 2007 (started October 1, 2006) through September 2015, the FAA has issued 12 grants to the City of Burlington totaling approximately \$32.6 million.<sup>12</sup> Note: As with most grant programs, the FAA does have additional eligibility requirements aside from the property being within the 65 dB DNL NEM contour. FAA's eligibility requirements are best described in FAA's Airport Improvement Program (AIP) Handbook.<sup>13</sup> As noted previously in this document, both the City of*

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<sup>12</sup> FAA grant data is available at [http://www.faa.gov/airports/aip/grantapportion\\_data/](http://www.faa.gov/airports/aip/grantapportion_data/)

<sup>13</sup> FAA's current guidance, policy and procedures are documented in FAA Order 5100.38D "Airport Improvement Program (AIP) Handbook", effective September 30, 2014. [http://www.faa.gov/airports/aip/aip\\_handbook/](http://www.faa.gov/airports/aip/aip_handbook/)

*Burlington and other local municipalities have expressed an interest in ending the voluntary acquisition program and transitioning to other mitigation options. The City's recommendation regarding future of the Land Acquisition and Relocation measure is discussed later in this document.*

*[Editorial note: the above discussion maybe updated.]*

### 3.3.2 Sound Insulation

Qualified compatible residential and noise sensitive land uses within the 65 and 70 dB DNL contours, and qualified compatible non-residential land uses in the 75 dB DNL contour, would be included in a sound insulation program (2008 ROA Measure 11).

*Status: Not implemented. To date, the City has chosen to apply available funding to land acquisition. The City's recommendation regarding future sound insulation around BTV is discussed later in this document.*

### 3.3.3 Easement Acquisition Related to Soundproofing

The City would attempt to negotiate avigation easements within the 65 dB DNL contour, in return for sound attenuation assistance (2008 ROA Measure 12).

*Status: Not implemented. To date, the City has chosen to apply available funding to land acquisition. The City's recommendation regarding easements for properties around BTV is discussed later in this document.*

### 3.3.4 Airport Zoning Overlay District

Land use measure that would restrict uses which are highly sensitive to noise and could also feature construction standards for sound insulation (2008 ROA Measure 13).

*Status: Not implemented. Although a formal Airport Zoning Overlay District has not been adopted, the City of South Burlington has actively worked to consider airport noise when addressing land-use decisions around the airport. The City's recommendation regarding an Airport Zoning Overlay District around BTV is discussed later in this document.*

### 3.3.5 Easement Acquisition for New Development

Easements would be obtained for new development within the 65, 70 and 75 dB DNL contours (2008 ROA Measure 14).

*Status: Not implemented. The City's recommendation regarding easements around BTV is discussed later in this document.*

### 3.3.6 Real Estate Disclosure

A real estate disclosure policy would be developed for land uses within the 65 DNL contour, and implemented through revisions to zoning ordinances (2008 ROA Measure 15).

*Status: Not implemented. The airport has not actively encouraged the use of Real Estate Disclosures for properties within the 65 dB DNL contour. However, outside of the Part 150 process, a disclosure of airport noise, particularly related to anticipated changes of Vermont Air National Guard Aircraft, has been included in many real estate transactions. The City's recommendation regarding future real estate disclosures around BTV is discussed later in this document.*

## **AVIGATION EASEMENTS**

### **Overview**

FAA's AIP Handbook (Order 5100.38D), Appendix R sets forth the guidelines for obtaining avigation easement. The FAA encourages airport sponsors to obtain a noise easement in return for mitigation. The regulations states:

*“An easement may be conveyed by the property owner in exchange for the sound insulation improvements provided. However, an AIP grant may not include a requirement that a property owner convey an easement or other interest in the property to the sponsor in exchange for sound insulation. The FAA encourages sponsors to work out such voluntary property agreements locally.”*

Communities should be aware that while the easement is not required, if an approved noise compatibility plan includes language stating there will be an easement in exchange for sound insulation or other mitigation measure then all eligible property owners would be required to convey the easement as a condition of participation.

### **Easement Definition**

An avigation easement is a conveyance of a specified property interest for a particular area that restricts the use by the owner of the surface yet assures the owner of the easement the right and privilege of a specific use contained within the easement document. Avigation easements, which are conveyed by a property owner to the airport owner, are often used in noise mitigation programs in exchange for sound insulation, sales assistance, and purchase assurance.

The easement may consist of right-of-flight of aircraft; right to cause noise, dust, etc.; and the right to remove all objects protruding into the airspace together (typically trees) with the right to prohibit future obstructions in the airspace. The easement may also contain any number of additional restrictions as the airport owner deems necessary.

### **Reasons to Require an Easement**

An easement provides notice to future owners that property is located in an aircraft noise impacted area and those impacts have been mitigated. The easement rights run with the land and will apply to all future owners of the property. Additionally, the easement helps to establish the property is now compatible with the recommended land use.

### **Examples of Easement Language**

Three aviation easements are being provided as examples of language that has been used on noise mitigation programs in the FAA New England region; Bradley International Airport in Windsor Locks, CT; T.F. Green Airport in Warwick, RI; and Tweed- New Haven Airport in New Haven CT. The language in these can help in developing easement language for Burlington International Airport and understand the variations at different airports.

### **Easement for Public Buildings**

Our research indicates that when an easement is given in exchange for mitigation to a public building (school, church, etc.) the easement language is the same easement as used for residential buildings. In some cases, no easement is given since the entity with jurisdictional authority of the public building also has authority over the airport.

**AVIGATION EASEMENT**  
**BRADLEY INTERNATIONAL AIRPORT**

THIS EASEMENT granted this \_\_\_\_\_ day of \_\_\_\_\_, 2011, by **Name, Street Address, City or Town, CT Zip Code** and their successors or assigns hereinafter referred to as the "Grantors", to the State of Connecticut, Department of Transportation, Bureau of Aviation and Ports, and their successors or assigns, hereinafter referred to as the "Grantee".

**WITNESSETH:**

WHEREAS, "Grantee" is charged with the operation, administration, improvement, regulation and protection of state-owned airports; and

WHEREAS, Bradley International Airport is a state owned airport located in the Town of Windsor Locks, Connecticut, hereinafter referred to as the "Airport"; and

WHEREAS, certain real estate is owned by "Grantors", in fee simple, more particularly described in **Book \_\_\_\_ Page \_\_\_\_** of the records of the Town of \_\_\_\_\_, CT and by this reference made a part hereof, and referred to hereinafter as the "Property"; also known as **Street Address, City or Town, CT Zip Code** and

WHEREAS, "Grantee" is undertaking a residential sound insulation program to grant certain relief regarding aviation noise to property owners residing near the "Airport" and whose property lies within certain noise zones more commonly referred to as those areas above DNL 65 dB as shown upon the 2008 Noise Exposure Map from the FAA approved 14 CFR Part 150 Study, in return for which the "Grantors" must convey to "Grantee" an avigation and noise easement; and

WHEREAS, "Grantee" has agreed to provide "Grantors" sound insulation, and "Grantors" have elected to participate in this program.

NOW THEREFORE, for valuable consideration, receipt of which is hereby acknowledged by the parties, Grantors hereby grant and convey unto Grantee, for the use and benefit of the grantee and the public, a perpetual easement on, over, across, and upon the Property for the unobstructed use and passage of all types of aircraft (as hereinafter defined), in and through the airspace above Grantors' property, more particularly described as follows:

- 1) Said easement to run on, over, across, and upon the above described real property encompasses the air space above the surface of Grantors' Property having the same boundaries as the above described property and extending from the surface upwards to the limits of the atmosphere of the earth. Grantor further agrees that no structures, improvements or vegetation exceeding 320 feet elevation shall be permitted to be located, constructed or remain on the Property. Grantor further grants to the Grantee the right to enter upon the Property to trim any trees or other vegetation which exceed the above elevation at no cost or expense to Grantor. Any such entry by the Grantee shall be at reasonable hours and with reasonable notice to Grantor and the Grantee shall remove any limbs, wood or other debris generated by its entry so as not to interfere with Grantor's continuing use of the Property.
- 2) To have and to hold said easement in perpetuity unto the said Grantee, and its successors and assigns, until said Airport shall be abandoned and shall cease to be used for airport purposes.

3) Said easement shall run with the land and be appurtenant to and for the benefit of all of the real property comprising and known as Bradley International Airport and such other additional property or interest therein as shall be subsequently acquired or designated from time to time by Grantee or its successors and assigns as constituting a part of the Airport, and the easement shall be in gross for the benefit of Grantee and all other persons and entities who directly or indirectly use the easement as a result of any type of use of the property and facilities constituting the Airport, including aviation ground and flight operations.

4) Said easement shall encompass all things which may be alleged to be incident to or resulting from the use and enjoyment of said easement, including, but not limited to the right to cause in all airspace above or in the vicinity of the surface of Grantors' Property such noise, vibrations, fumes, deposits of dust or other particulate matter, fuel particles (which are incidental to the normal operation of said aircraft), fear, interference with sleep and communication and any and all other effects that may be alleged to be incident to or caused by the operation of aircraft over or in the vicinity of Grantors' Property or in landing at or taking off from, or operating at or on said Bradley International Airport; and Grantors do hereby fully waive, remise, and release for themselves and their heirs, administrators and executors, successors and assigns, any right or cause of action which they may now have or which they may have in the future against Grantee, its successor and assigns, due to such noise, vibrations, fumes, dust, fuel particles and all other effects that may be caused or may have been caused by the normal operation of aircraft landing at, or taking off from, or operating at or on said Airport, now and in the future, while recognizing that the quantity of such operations may increase in the future.

5) All of the uses provided for in this easement shall be without any liability of Grantee or of any other person or entity entitled to the benefits of this easement for emotional injury to persons, animals or any other living thing, the diminution in value of any personal or real property, and discomfort or interference with the audio portion of television and/or radio by, from, or arising from, noise generated from the normal operation of aircraft. This grant expressly does not exclude claims by the Grantor or those claiming under it for physical or personal injury caused by any air traffic utilizing the easement, which does actual physical damage to the property or persons located therein.

6) The Grantors for their heirs, successors, and assigns, do hereby covenant that they are lawfully seized of an indefeasible estate in the herein described property; and they have the right to grant and convey the estate, interest and easement herein conveyed; and that they will specially warrant and defend unto the Grantee and its assigns, forever, the quiet and peaceable use and enjoyment of the herein granted easement.

7) As used herein, the term "aircraft" shall mean any and all types of aircraft, whether now in existence or hereafter manufactured and developed, to include, but not limited to, jet aircraft, propeller driven aircraft, civil aircraft, military aircraft, commercial aircraft, helicopters and all types of aircraft or vehicles now in existence or hereafter developed for the purpose of transporting persons or property through the air, by whoever owned or operated.

IN WITNESS WHEREOF, this Agreement is duly executed on the day and year first above written, by the parties hereto, intending themselves to be legally bound hereby.

HOMEOWNER(S)

By:

By:

STATE OF CONNECTICUT

COUNTY OF HARTFORD

On this \_\_\_\_\_ day of \_\_\_\_\_, 2011, before me personally appeared

\_\_\_\_\_  
to me known and known by me to be the parties executing the foregoing instrument, and they acknowledged said instrument, by them executed, to be their free act and deed.

\_\_\_\_\_  
Notary Public    My Commission Expires:

STATE OF CONNECTICUT  
Department of Transportation  
Bureau of Aviation and Ports

Approved as to form:

Deputy Commissioner Albert Martin

Date

\_\_\_\_\_  
Notary Public    My Commission Expires:

### AVIGATION EASEMENT CONSENT

WHEREAS, **Mortgagee, Address, City or Town, State Zip Code** is the Mortgagee of a certain deed mortgage **dated 3/30/10** from **Homeowner Name** Mortgagor (s), which mortgage encumbers the real property at **Address, City or Town, State Zip Code** and which mortgage is recorded at Town Clerk's Office, Town of Suffield, CT, Volume XXX, Page XXX. Recorder's Office (Town Clerk) of **Suffield, CT**;

WHEREAS, the Connecticut Department of Transportation / Bradley International Airport (Authority), has proposed to acquire from the said mortgagor(s) an Avigation Easement over the said encumbered real property in exchange for the said mortgagor(s) participation in Bradley International Airport's Residential Sound Insulation Program; and

WHEREAS, the said Authority requests the consent of mortgagees to the granting by their mortgagors of such Avigation Easements;  
Now, therefore for valuable considerations paid, **Mortgagee** by and

through \_\_\_\_\_ its \_\_\_\_\_ hereby consents to the  
(Name) (Title)

granting of an Avigation Easement by **Homeowner Name** to the Connecticut Department of Transportation and Bradley International Airport, which said Avigation Easement shall encumber the above-referenced real property, which is more particularly described in the Exhibit "A" attached hereto. Further, the mortgagee consents to the filling of this consent instrument with the said Avigation Easement as evidence of such consent to grant.

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

Signed in the presence of:

\_\_\_\_\_  
Witness (Company)

\_\_\_\_\_  
Witness by \_\_\_\_\_  
(Name)

its \_\_\_\_\_  
(Title)

State of \_\_\_\_\_:ss  
County of \_\_\_\_\_:

The foregoing was acknowledged me by \_\_\_\_\_,  
(Name)

\_\_\_\_\_ on behalf of \_\_\_\_\_  
(Title) (Company)

as the date last set forth above.

\_\_\_\_\_  
Notary Public

My Commission Expires \_\_\_\_\_



## **DEED OF EASEMENT**

**THIS DEED OF EASEMENT** made this \_\_\_\_\_ day of \_\_\_\_\_, 2015, by and between \_\_\_\_\_ of Warwick, Rhode Island, and their successors or assigns hereinafter referred to as the "**Grantors**", and Rhode Island Airport Corporation and its successors or assigns any current or future owners or operators of Theodore Francis Green State Airport, including, without limitation, the State of Rhode Island, hereinafter collectively referred to as the "**Grantee**".

### **WITNESSETH:**

**WHEREAS**, Grantee is charged with the operation, administration, improvement, regulation and protection of state-owned airports; and

**WHEREAS**, Theodore Francis Green State Airport is a state owned airport located in the City of Warwick, Rhode Island, hereinafter referred to as the "Airport"; and

**WHEREAS**, certain real estate is owned by Grantors, in fee simple, more particularly described as \_\_\_\_\_, Plat \_\_\_\_, Lot\_\_\_\_, in Book \_\_\_\_\_ Page \_\_\_\_, and referred to as the "Property";

**WHEREAS**, Grantee is offering a residential sound insulation program that will make changes to Grantor's property to reduce aircraft noise experienced by Grantor in the interior of the structure located on the Property to make the Property compatible with the noise environment created by the Airport;

**WHEREAS**, Grantor's Property meets certain interior noise level criteria and lies within certain noise zones commonly referred to as those areas above Day Night Average Sound Level of 65 decibels. The areas are depicted on the Federal Aviation Administration accepted noise contour map prepared by VHB/Harris, Miller, Miller & Hanson, the Official Noise Contour Map of the Airport dated ("2010 Official Noise Contour Map") and publicly available for review and inspection at RIAC's administrative offices, 2000 Post Road, Warwick, RI 02886; and,

**WHEREAS**, Grantor has elected to receive, and Grantee has agreed to provide, sound insulation, more particularly described in Exhibit "A", (attached hereto and made a part hereof); and,

**NOW THEREFORE**, for valuable consideration, receipt of which is hereby acknowledged by the parties signatures below, Grantors hereby grant and convey and assign to Grantee, for the use and benefit of the Grantee and the public, a perpetual easement on, over, across, and upon the Property, "the Easement" more particularly described as follows:

- 1) The Easement herein granted on, over, across, and upon the above described real property encompasses the air space above the surface of Grantor's Property having the same boundaries as the Property and extending from the surface upwards to the limits of the atmosphere of the earth.
- 2) The Easement is granted in perpetuity unto the said Grantee, and its successors and assigns, until said Airport shall be abandoned and shall cease to be used for airport purposes.
- 3) The Easement shall run with the land and be appurtenant to and for the benefit of all of the real property comprising and known as the Airport and such other additional property or interest therein, as may be subsequently acquired or designated from time to time by Grantee, or its successors and assigns, as constituting a part of the Airport. The Easement shall be in gross for

the benefit of Grantee and all other persons and entities who directly or indirectly use the easement as a result of any type of use of the Airport, including aviation ground and flight operations.

- 4) The Easement grants the privilege of passage of all lawful flight operations and all noise, and vibration, discomfort, inconvenience, interference with use and enjoyment, and any consequent reduction in market value, all due to noise caused directly or indirectly by the lawful operation of aircraft, recognizing that such use and passage is unlimited as to frequency, type of aircraft, and proximity, and that the quantity of such operations at the Airport may increase in the future.
- 5) The uses provided for in this Easement shall be without any liability of Grantee, or of any other person or entity entitled to the benefits of this Easement, for all lawful flight operations and all noise, or other intrusions associated with the passage of lawful flight operations associated with Airport noise, which may be alleged to be incident to or to result from flights of aircraft over or in the vicinity of the Property, including the landing at or taking-off from the Airport. Grantor furthermore waives all claims for damages caused or alleged to be caused by or incidental to such use including emotional injury to persons, animals or any other living thing associated with Airport noise, the diminution in value of any personal or real property, and discomfort or interference with the audio portion of television and/or radio by, from, or arising from, the normal operation of aircraft. This Easement does not exclude claims by the Grantor, or those claiming under the Grantor, for physical or personal injury caused by any air traffic utilizing the easement which does actual physical damage to the Property or persons located therein by coming into direct physical contact with the Property or persons located therein. This Easement also does not exclude the Grantor from seeking to participate in any future Federal Aviation Administration noise mitigation programs offered by Grantee for which Grantor may be eligible due to changes to the 2010 Official Noise Contour Map.
- 6) The Grantors for their heirs, successors, and assigns, do hereby covenant that they are lawfully seized of an indefeasible estate in the Property; and they have the right to grant and convey the Easement; and that Grantors will warrant and defend unto the Grantee and its assigns, forever, the quiet and peaceable use and enjoyment of the Easement.

**IN WITNESS WHEREOF**, the Grantors have set their hands and seals this\_\_day of\_\_\_\_\_, 2015.

\_\_\_\_\_

STATE OF RHODE ISLAND  
COUNTY OF KENT

In Warwick, Rhode Island on the \_\_\_\_\_ day of\_\_\_\_\_, 2015, before me personally appeared \_\_\_\_\_

\_\_\_\_\_ to me known and known by me to be the party executing the foregoing instrument and they acknowledged said instrument, by them executed, to be their free act and deed.

\_\_\_\_\_  
Notary Public

Printed Name: \_\_\_\_\_

My commission expires: \_\_\_\_\_

After recording, return to:  
Updike, Kelly & Spellacy, P.C.  
265 Church Street - 10th Floor  
New Haven, CT 06510

Attention: Hugh I. Manke, Esq.

## EASEMENT

THIS EASEMENT made this \_\_\_\_ day of \_\_\_\_\_, 2016, by and between \_\_\_\_\_ of New Haven/East Haven, Connecticut, and their successors or assigns hereinafter referred to as the "Grantor(s)", and Tweed-New Haven Airport Authority, a public instrumentality and political subdivision of the State of Connecticut created under Connecticut General Statutes Sec. 15-120g et seq., as amended, hereinafter referred to as the "Grantee".

WITNESSETH:

WHEREAS, Grantee is charged with the management and operation of Tweed New Haven Airport; and

WHEREAS, certain real property is owned by Grantor(s), in fee simple, commonly known as **Address, City**, Connecticut and more particularly described in Exhibit A attached hereto and made a part hereof, and referred to as the "Property";

WHEREAS, the Property meets certain interior noise level criteria and lies within certain noise zones commonly referred to as those areas above Day Night Average Sound Level of 65 decibels, as depicted on the Official Noise Contour Map of the Airport ("2017 Future DNL Contour") dated November, 2012 and available for review and inspection at the Airport's administrative offices, 155 Burr Street, New Haven, CT 06512; and

WHEREAS, Grantee is offering a residential sound insulation program for the Property to reduce aircraft noise experienced by Grantor(s) in the interior of the structure located on the Property; and

WHEREAS, Grantor(s) have elected to receive, and Grantee has agreed to provide, sound insulation on the Property, more particularly described in Schedule 1 attached hereto and made a part hereof; and

NOW THEREFORE, for valuable consideration, receipt of which is hereby acknowledged by Grantor(s), Grantor(s) hereby grant and convey and assign to Grantee, a perpetual easement more particularly described as follows:

- 1) The real property subject to the grant of easement hereinafter described is an airspace parcel ("Airspace Parcel") above the surface of the Property having the same boundaries as the Property and extending from the surface upwards to the limits of the atmosphere.

2) Grantor(s) hereby grant to Grantee a perpetual easement ("Easement") in and across the Airspace Parcel for passage of lawful flight operations, including take-offs and landings, and for all sound, vibration, discomfort, inconvenience, intrusion, interference with use and enjoyment, and any consequent reduction in market value, all due to noise caused directly or indirectly by the lawful operation of aircraft at or near the Airport, regardless of frequency, time of day, type of aircraft, or proximity to the Property.

3) The Easement is granted in perpetuity unto said Grantee and its successors and assigns, until said Airport shall be abandoned and shall permanently cease to be used for airport, heliport or helipad purposes. For purposes of the preceding sentence, no temporary suspension or cessation of aviation operations because of adverse weather conditions, natural or man-made disaster, war, war-like or terroristic acts or conditions, interruption in the availability of navigational, radar, air traffic control, electrical or communications utilities, construction or maintenance and repair operations or similar circumstance shall be construed as an abandonment of use for airport, heliport or helipad purposes.

4) The Easement shall run with the land and be appurtenant to and for the benefit of all of the real property comprising and known as the Airport. The Easement shall also be in gross for the benefit of Grantee, its successors and assigns, and all other persons and entities that directly or indirectly use the Easement as a result of any type of use of or activity at the Airport, but do not own an interest in land with respect to the Airport.

5) This Easement does not exclude the making of claims by the Grantor(s), or those claiming under the Grantor(s), for physical or personal injury caused by any air traffic utilizing the Easement which does actual physical damage to the Property or persons located therein by coming into direct physical contact with the Property or persons located therein. This Easement also does not exclude the Grantor(s) from seeking to participate in any future Federal Aviation Administration noise mitigation programs offered by Grantee for which Grantor(s) may be eligible due to changes to the 2017 Future DNL Contour.

6) The Grantor(s), for their heirs, successors, and assigns, do hereby covenant that they are lawfully seized of an indefeasible estate in the Property; and they have the right to grant and convey the Easement; and that Grantor(s) will warrant and defend unto the Grantee and its assigns, forever, the quiet and peaceable use and enjoyment of the Easement.

7) In the event any section, paragraph, sentence or clause of this Easement shall be found to be illegal or unenforceable under the laws of Connecticut, such defect shall not be construed as invalidating any other section, paragraph, sentence or clause of this Easement.

IN WITNESS WHEREOF, the Grantor(s) have executed this instrument this \_\_\_\_ day of \_\_\_\_\_, 2016.

In the presence of:

\_\_\_\_\_

Name:

\_\_\_\_\_

Name:

\_\_\_\_\_

Name:

\_\_\_\_\_

Name:

STATE OF CONNECTICUT )

) ss. at \_\_\_\_\_, 2016

COUNTY OF NEW HAVEN )

Then and there, before me, the undersigned officer, personally appeared  
\_\_\_\_\_ and \_\_\_\_\_, to me known (or adequately proven) to be the  
party or parties executing the foregoing instrument and acknowledged the same to be  
his/her/their free act and deed.

By: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Notary Public

My commission expires: \_\_\_\_\_

Commissioner of the Superior Court

EXHIBIT A  
[Legal Description]

SCHEDULE 1  
[Schedule of sound insulation work]

**BURLINGTON INTERNATIONAL AIRPORT  
NOISE COMPATIBILITY PROGRAM  
TECHNICAL ADVISORY COMMITTEE  
MEETING SUMMARY (#2)  
December 5, 2017**

**BTV STAFF/CONSULTANTS:**

Nic Longo, BTV (Chair)  
Gene Richards, BTV (Vice Chair)  
Amanda Clayton, BTV  
Sarah Degutis, Jones Payne Group  
Diane Carter, Jones Payne Group  
Brad Nicholas, HMMH  
Kelly Colling, BTV

**TAC MEMBERS**

Pat Nowak, Airport Commission & South Burlington City Council  
Kevin Dorn, South Burlington City Manager  
Paul Connor, South Burlington City Planner  
Steve Wisloski, South Burlington School Board  
David Young, South Burlington School Board  
Tim McKenzie, South Burlington Business Association  
Col. John Johnston, Vermont Army Guard  
Col. Chris Tomilawicz, Vermont Air Guard  
Richard Lizzari, Vermont National Guard  
Jessie Baker, Winooski City Manager  
Sean McMann, Winooski School District Superintendent  
George Maille, South Burlington Resident TAC Representative  
Carmine Sargent, South Burlington Resident TAC Representative  
Charlie Baker, CCRPC  
Frank Cioffi, GBIC  
Seth Bowden, GBIC  
Ron Bazman, FAA  
Richard Doucette, FAA [via telephone]  
Tim McCole, Heritage  
Patrick Gallivan, St. Michael's College  
Bob McEwing, Essex

**PUBLIC ATTENDEES:**

Helen Riehle, South Burlington City Council  
Gary Shepard, South Burlington  
Philip Hanigan, South Burlington  
Kathy Grzywna, South Burlington  
Jon Watt, South Burlington  
Julie Robinson, South Burlington



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Bill Keogh, Airport Commission  
Steve Marriott, South Burlington  
Loretta Marriott, South Burlington  
Stevibindu Zeno, South Burlington  
E. Diner, South Burlington  
Bruce Bevins, South Burlington  
R.J. Bleau, South Burlington  
Barbara Sirvis, South Burlington  
Miranda Jurswad, The Other Paper

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## **1.0 WELCOME and OVERVIEW**

Nic Longo, Deputy Director of Aviation, opened the meeting at 5:04 PM. Introductions were done. Mr. Longo explained the property acquisition program (part of the Noise Compatibility Program) is wrapping up. All offers to property owners will be complete by the end of the year. Airport staff is working with Richard Doucette, FAA, to fund the update of the Noise Exposure Map (NEM) as quickly as possible. The NEM will work concurrently with the Noise Compatibility Program (NCP).

Sarah Degutis, Jones Payne Group, reviewed the purpose of the Technical Advisory Committee (TAC) which is advisory to the airport. TAC members will give input and comment on the NCP and NEM, and bring information back to their respective organizations. There will be a public hearing process after the series of TAC meetings are complete and there is a draft of the NCP.

## **2.0 PUBLIC FORUM AND COMMENTS**

The following was discussed:

- Updated NEM including the F-35 – Nic Longo said the 2016 NEM was reviewed by the FAA they are still looking at funding availability. The updated map will include F-35 data if it is funded
- Concern about accepting noise abatement measures now when the noise level could return when the F-35 planes arrive – Diane Carter explained with the sound insulation program simulated noise is used and internal readings are taken. At the point in time when the sound insulation program was started the sound level was based on the F-16. If the program starts after the F-35 then that sound level will be used. Brad Nicholas added the FAA provides a spectrum that is representative of the noise and if the future NEM is approved by the FAA then it can be used.
- Concern that homes cannot be saved if the noise increase – Diane Carter explained the intent is to do a map update. The process is long and funding has not yet come through from the FAA. There will be an update on the NEM funding status at the January TAC meeting.
- Noise performance profiles introduced with the new NEM and arrival/departure paths – Brad Nicholas said the consultants will work with the Air Force. The maps are updated to reflect the year of submission, base year, and five years out.

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- Nic Longo added the airport does not have the funding yet from the FAA for the NEM, but there will be a kickoff meeting open to the public.
- Schedule for removal of the houses purchased – Nic Longo said the removal is hoped to be complete by spring of 2018.
  - South Burlington doing a sound study at the Chamberlin Elementary School – David Young, South Burlington School Superintendent, explained there is concern for the incidental noise levels from the F-35 planes on the children at Chamberlin School so the study will do an assessment based on the F-16 traffic to contrast with the F-35 data. Nic Longo said the airport will work with South Burlington and the school district to help in following the rules and regulations in the process.
  - Doing a profile of low power, non-afterburner take off plus afterburner at reduced, normal, and maximum attack to assess vibrations through the area – The suggestion will be taken under advisement.

### **3.0 CHAPTER 2 – LAND USE UPDATE FOR NCP**

Sarah Degutis reviewed:

- Chapter 2 discusses the history of the NEM (background information).
- Land uses show properties acquired by the airport, changes in zoning, and changes in the use group.
- These metrics are included in the 2015 NEM and will be updated to reflect any changes in land use since the 2015 NEM was published.
- Homes within the 65 dB contour have been reduced by approximately 60 houses, due to land acquisition since the 2015 NEM was published.
- To date the land acquisition has occurred in South Burlington.

### **4.0 CHAPTER 3 – EXISTING NCP**

Brad Nicholas reviewed:

- Chapter 3 looks at the existing NCP measures. A review of the existing measures and their status was discussed.
- Airport operations measures were reviewed.
- Taxiway Golf was proposed to be extended so aircraft taxi farther north and farther from Airport Drive to reduce noise levels. This project has been phased with the final phase occurring this year.
- Terminal power and ground power units (portable) provide ancillary power to aircraft. The goal is to have electrical power in place to eliminate the need for ancillary power sources. To date nine of 11 gates have ground power.
- Monitoring measures were reviewed
- Land use measures were discussed, these include acquisition/relocation (existing program) and cover the 65 dB contour.
- Land Acquisition has been the primary measure implemented to date.
- Sound insulation has not implemented, and will not be until the current acquisition program is complete.

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- Easements are not yet implemented because the insulation program has not been implemented.
  - The local land use jurisdictions have not implemented overlay zoning to restrict land uses within the noise areas
  - Funding from the FAA was used for the acquisition program rather than easement acquisition for new development.
  - A regional real estate organization has implemented real estate disclosures on land within the noise contours for impacts from Air National Guard aircraft as shown in the Environmental Impact Statement.

### *COMMENTS & QUESTIONS*

George Maille asked if generators heat the aircraft and how the noise will be assessed. Kelly Colling said there is potential that heaters are used on the south end of the airfield to prevent aircraft from freezing through the night. Brad Nicholas noted heat generators are part of aircraft operation. Typically most noise maps do not include taxiway noise, but this noise is included in the BTV NEM. Nighttime bi-direction runway use cannot be implemented because the air tower is closed from Midnight to 5:30 AM, but night operations are reflected in the NEM. The airport cannot restrict operations because it is part of the federally funded transportation system. Nic Longo said the airport can work with the FAA and Air Traffic on implementation of the nighttime system and increased tower hours.

Ron Bazman, FAA Air Traffic Control, explained the tower closes at Midnight to reopen at 5:30 AM. When the town is open and if weather permits, including wind, operations can be modified to bring traffic in or depart toward less densely populated areas. The control facility when the tower is closed is in Nashua, NH and the controllers there pick the most advantageous runway to use based on the weather. From the FAA standpoint, the tower will provide service. The airport cannot deny use of the runway to an aircraft.

Jessie Baker asked if the NCP will reflect what is being done to mitigate noise in the nighttime hours. Sarah Degutis said this is not being done currently, but could be a policy in the future. Brad Nicholas stated that all existing operations are accounted for in the NEM modeling. He added the voluntary limits on the C-5A training is not an agreement in place. The airport discourages C-5 training due to the limitation of the runway and potential damage to lighting. C-5A units are typically from out of state. It was noted a flight information handbook is provided to pilots by the local Air National Guard. Only three practice approaches are allowed. Commanders are contacted for lack of compliance to the rules. F-16 flights depend on the mission and tactical scenario. The F-16s fly two shifts for safety purposes. Practice flights are of two or four planes. Helicopter training operations continue. The airport's monitoring and review of the NEM and NCP has occurred. The process is being revisited now.

Paul Connor asked where in the NCP there is an assessment of the various measures and why there is only partial implementation. Brad Nicholas said Chapter 4 will look at what should be carried forward or modified.

George Maille asked who informs the airport of changes in the aircraft configuration for purposes of updating contours in an NEM. Brad Nicholas said the NEM is certified by the Airport and accepted by the FAA. There is no formal process. It is up to the airport to bring to the FAA's attention that an update is needed. Nic Longo added that is the current situation. The airport sees changes coming and wanted to update the documents. Brad Nicholas said analysis of the data on flight track monitoring will start within in the next six months. Nic Longo said the information will be public. Hopefully the flight track data will be online. Ron Bazman said flights in/out of the airport can be viewed real time now.

A woman asked for clarification of why she did not receive an acquisition offer for her house which is within the sound contour line. Sarah Degutis explained houses within the contour were identified and offers made to the most impacted houses and based on the available funding.

A woman asked what can be done if her house is shown on the Noise Contour Map but it is not located within 65 DNL contour, and the noise is too loud for her. Brad Nichols said there are no mitigation programs today for that situation.

There was discussion of the role of the TAC to provide input on what program is wanted by the community. The FAA must decide if the program is acceptable and qualifies for funding. The FAA steps must be followed which include looking at the existing program and the measures that are in place, fully or partially, or not implemented.

A gentleman said he would like to see completion of the measures rather than "not implemented".

## **5.0 AVIGATION EASEMENTS**

Diane Carter, Jones Payne Group, stated the Airport can recommend as part of its Noise Compatibility Program that property owners grant an avigation easement (easement) in exchange for sound insulation, however, it is not a requirement of the FAA. The easement runs with the land and will transfer if the property is sold. The current NCP requires an easement for sound insulation. If the updated program requires an easement the property owners must grant an easement to receive sound insulation. Homeowners will not have option to choose whether to grant an easement.

Avigation easements in general grant the right of aircraft to fly over the property but may include other requirements regarding items like light, emissions and dust. The technical memorandum provided to the committee discussed the requirement of easements for residential properties. There were examples of current avigation easements used by other airports in the New England Region included in the technical memorandum. Ms. Carter asked the committee review and consider what type of language they would like to see in an easement for BTV.

Ms. Carter discussed there are advantages and disadvantages to requiring an aviation easement. The advantages include providing notice to future property owners of the noise environment regarding aircraft operations. Additionally, should the NCP recommend other types of mitigation program like sales assistance or purchase assistance, the FAA requires an easement for those program. If there is not easement for sound insulation, it could create a checkerboard of easements in a neighborhood. If all programs require an easement, then the entire area will be equal. The disadvantages are owners are giving up their "rights" in exchange for the mitigation. Some people feel this may be harmful to the sale of their property.

With regard to public buildings, like schools, the Airport can recommend an easement in exchange for sound insulation. Typically the public buildings are owned by the same jurisdiction that controls the Airport and may choose not to impose an easement on its own buildings.

#### *COMMENTS & QUESTIONS*

Paul Connor asked what happens if there are dramatic changes after the aviation easement is signed. Diane Carter said a provision can be added that the property owner is not precluded from participating in a future program or mitigation. Triggers can be built into the easement language to address changes. The easement can be written just for noise. It is recommended to have one easement to cover all of the programs rather than having separate easements for separate programs (i.e. sound insulation vs. sale assistance). There will be further discussion of aviation easements through this process but TAC members should be thinking about what they want to see in an easement.

Paul Connor questioned having easements if they are not required for the sound insulation program. Diane Carter said an easement is not required for sound insulation, but there are some programs that require easements. The TAC needs to discuss if there is an issue with having some houses in the neighborhood with easements and some without an easements. The easement will notify the new owner that there has been insulation and the house is in an area of impact. Nic Longo said the airport wants to do due diligence by showing the easements and if easements are needed to be part of the program.

Paul Connor asked for confirmation that the purchase assistance program is where the airport buys the house, insulates, and sells the house with an aviation easement attached. Diane Carter confirmed this. If the homeowner does not want to sell the house and the airport does not buy the house then an easement is not needed.

A woman asked if different communities can decide if they want aviation easements. Diane Carter said federal guidance says if the program requires an easement then easements are required. Ms. Carter will further research if communities can have different requirements for easements.

There was continued discussion of aviation easements. Paul Connor asked about the upside of having an easement. George Maille commented requiring an easement is like

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eminent domain. Gene Richards urged everyone to have their attorney review the easement. Nic Longo said the discussion on easements was started now because there will be easements and what is in the easement language needs to be determined. Paul Connor said the easement must address changes that will occur in the future.

## **6.0 TAC QUESTIONS & COMMENTS**

Questions and comments on the NCP chapters and documents should be forwarded to the consultants and the airport administration.

Diane Carter said it is unique for an airport to welcome input on an easement. This will demonstrate to the FAA that this is an important topic. Community involvement adds weight for the FAA.

Request was made for examples of other programs and a description of the sales purchase and purchase assistance programs. Diane Carter said the programs are on the website. Gene Richards said descriptors and definitions at a high level can be provided at the next meeting. Sarah Degutis will send links to the items on the website to the TAC.

Kevin Dorn announced a survey was done by South Burlington to gather feedback on the city of South Burlington as a whole. There were 131 respondents to the survey.

## **7.0 WRAP UP & ADJOURNMENT**

Future Meetings & Agenda Items:

- January 23, 2018 – NCP Chapter 4 Airport Operation Measures & Land Use Measures
- March 13, 2018 NCP Chapter 4 Land Use Measures continued
- May 2018 TBD
- August/September 2018 – Public Hearings

With no further business and without objection the meeting was adjourned at 7:10 PM.

**BTV NCP TAC Meeting #3**

**January 23, 2018**

# BURLINGTON INTERNATIONAL AIRPORT

Technical Advisory Committee - Sound Program, NCP Update

DATE: January 23, 2018

LOCATION: Burlington International Airport, Conference Room #3

## SIGN-IN SHEET

#	NAME	ADDRESS/COMPANY NAME	PHONE NUMBER/ EMAIL
14	SETH BOWDEN	BTSLC	seth@vermont.org
15	Gregor Mailli	38 LOGWOOD ST So. Burl	LASTEXITE@COMCAST.NET -NPS
16	CHARLIE BAKER	CCRPC	cbaker@ccrport.org
17	Steve Wislocki	So Burl. School Dist	swislocki@schools.net
18			
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Please note that this sign-in sheet and any information provided on it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.



# BURLINGTON INTERNATIONAL AIRPORT

Technical Advisory Committee - Sound Program, NCP Update

DATE: January 23, 2018

LOCATION: Burlington International Airport, Conference Room #3

## SIGN-IN SHEET

#	NAME	ADDRESS/COMPANY NAME	PHONE NUMBER/ EMAIL
1	Callen Trear	VTANG	202 660 5213
2	Jessie Baker	Winooski	jbaker@winooski.vt.org
3	Steve MARRIOT	13 mills SBurl.	gmarriot
4	John Johnston	VTARNG	John.m.Johnston.mil@mail.mil
5	Carmin Sargent	31 Elizabeth St.	802-658-1144
6	JEREMY KING	VERMONT GAS SYSTEMS S. Burlington Energy Committee	jkings@vermontgas.com JWKINGVT@gmail
7	Jon Norz	Efficiency VT	jnorz@veic.org
8	Frank Cioffi	GBIC	Frank@vermont.org
9			
10			
11			
12			
13			

Please note that this sign-in sheet and any information provided on it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.



# AGENDA

## **BTV Noise Compatibility Program (NCP) Technical Advisory Committee Meeting**

January 23, 2017

5:00 p.m. - 6:30 p.m.

Conference Room 3

Call in # for those who are unable to attend: 712-775-8972 Code: 235681

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5:00 – 5:10      Welcome and overview of agenda

5:10 – 5:20      Public forum and comment period

### **Chapter 4 – Recommended NCP Revisions (Part 1)**

5:20 – 5:35              Airport Operations Measures Status

5:35 – 5:45              Monitoring and Review Elements

5:45 – 6:15              Land Use Measures – Residential Sound Insulation

6:15 – 6:30      Technical advisory committee questions and comments



## **BTV Noise Compatibility Program Update – Technical Advisory Committee**

January 23, 2018



**HARRIS MILLER MILLER & HANSON INC.**

# Purpose of TAC

- The TAC is advisory to the City solely for purposes of the BTV Part 150 Study, including:
  - Review of study inputs, assumptions, analyses, documentation, etc.
  - Input, advice, and guidance related to Noise Compatibility Plan (NCP) development
- The City shall respect and consider TAC input, but must retain overall responsibility for the Part 150 Study and NCP recommendations
- The TAC and City recognize FAA is responsible for accepting Noise Exposure Map (NEM) and NCP submissions and for approving NCP measures
- TAC members represent the interests of their organization and/or constituents
- TAC members are expected to provide two-way communication between the City and their organizations / constituents

# Agenda

Public forum and comment period

Chapter 4 - Recommended NCP Revisions **(PART 1)**

- Airport Operation Measures
- Monitoring and Review Elements
- Land Use Measures - Sound Insulation

TAC questions and comments period

# Public Forum and Comment Period

# **NCP Ch. 4 – Recommended NCP Revisions**

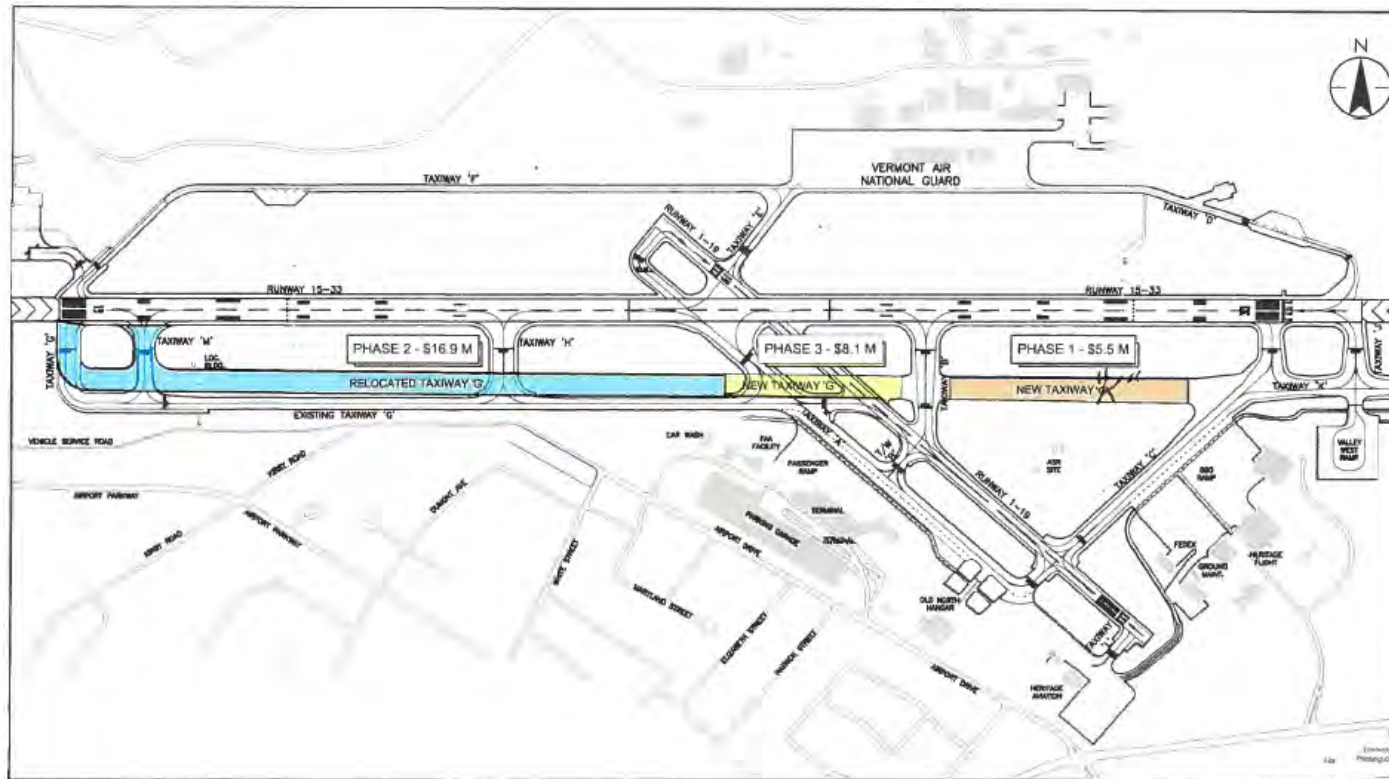
## **Airport Operations Measures**

**No new measures are planned to be added to this NCP update**

# NCP Ch. 4 – Recommended NCP Revisions

## Updates on existing NCP operations measures

- Extension of Taxiway G
  - This measure will be completed by 2020.
  - The primary noise reducing component of this measure, Taxiway K, is completed and currently in use.





# NCP Ch. 4 – Recommended NCP Revisions

## Updates on existing NCP operations measures

- Terminal Power Installation and APU/GPU Restrictions
  - All 9 jet bridges currently have power hookups.
  - The airport is currently reviewing implementation feasibility for restrictions on APU/GPU usage for aircraft utilizing the jet bridges.
  - Typical operator preference is to use ground power hookups where they are available.

# NCP Ch. 4 – Recommended NCP Revisions

## Updates on existing NCP operations measures

- Some additional ground noise limiting measures are currently in use
  - Minimized usage of the southernmost jet bridges. These are reserved as auxiliary positions since they are the only two jet bridges which aren't shielded by the terminal structure.
  - For aircraft utilizing the southernmost jet bridges, engine startups are prohibited until the aircraft is pushed back to Taxiway Alpha.

# NCP Ch. 4 – Recommended NCP Revisions

## Updates on existing NCP operations measures

- Nighttime Bi-direction Runway Use
  - To accomplish noise mitigation efforts tower needs to be fully operational, current infeasibility due to tower staffing hours.
  - Will be reviewed if towers hours are expanded at a future time.

# **NCP Ch. 4 – Recommended NCP Revisions**

## **Monitoring and Review Elements**

**No new measures are planned to be added to this NCP update**

# NCP Ch. 4 – Recommended NCP Revisions

## Updates on existing NCP monitoring and review measures

- Ongoing Monitoring and Review of NEM and NCP Status
  - Provides circumstances for revision of the NEM/NCP
    - NCP update is underway &
    - NEM update is forthcoming
  - Recommend continuation of the TAC as a Noise Committee
    - In place and planned to continue going forward
  - Purchase of a permanent noise monitoring system
    - Currently, there are no plans to have a noise monitoring system installed.

# NCP Ch. 4 – Recommended NCP Revisions

## Updates on existing NCP monitoring and review measures

- Flight Track Monitoring System
  - A BTV system is forthcoming. The airport is currently reviewing options.
  - Will allow neighbors to access flight tracking data
  - Neighbors will have the ability to report online any concerns and the airport will be able to follow up with recorded flight data.
  - Provides BTV the ability to analyze flight data and work with FAA if appropriate on airport operations

# Land Use Measures – Sound Insulation

## Land Use Measures

- The primary purpose of this NCP update is to examine and revise the land use measures.
- The first measure to be examined will be sound insulation. The remaining measures will be reviewed in future TAC meetings.
- Review of residential sound insulation programs will include:
  - Determining Eligibility
  - Development of Policy and Procedures
  - Implementation of Program

# Sound Insulation – Determining Eligibility



# Sound Insulation – Determining Eligibility

## Federal Requirements

- A sound insulation program may be implemented if it is contained in an approved 14 CFR part 150 Noise Compatibility Program (NCP).
- The identified eligible properties must be within the 65 dB DNL noise level or higher for which the land use is not considered to be compatible.
- Properties located below this threshold will not be eligible for mitigation funding unless a lower local standard is adopted by the jurisdiction or the FAA has approved “block rounding” in the NCP.
- Airport sponsor must comply with the eligibility criteria and program requirements set forth in AIP Handbook FAA Order 5100.38D Appendix R.

# Sound Insulation – Determining Eligibility

## Acoustical Test Plan (ATP)

- Development of an ATP is the first step in developing a sound insulation program.
- ATP includes:
  - Protocols for the initial testing
  - FAA review of initial testing results
  - Special circumstances
  - Final testing phase protocol

# Sound Insulation – Determining Eligibility

## Acoustical Test Plan (ATP)

- Key steps in an ATP include:
  - Neighborhood surveys
  - Pre-construction acoustical testing
  - Determination of compatible vs. non-compatible structures
  - Full sound insulation package design for eligible structures
  - Pilot Phase- install sound insulation package at sample set of eligible structures
  - Post-construction acoustical testing

# Sound Insulation – Determining Eligibility

## Eligibility Testing / Pre-testing Process

- Eligibility Criteria
  - Property title search must be completed, verifying ownership
  - Additional conditions include:
    - Structures typically must have been ***constructed prior to October 1, 1998***
    - Structures typically must be located within the current ***FAA-approved DNL 65 dB noise contour***
    - Structures must be experiencing a logarithmic (energy) ***average interior DNL of 45 dB or greater in habitable rooms***
    - \* AIP Handbook allows some specific exceptions to the first two guidelines above that, if needed, would be coordinated with FAA including block rounding

# Sound Insulation – Determining Eligibility

## Performing an artificial noise source test

- PA type loudspeaker with a signal generator are placed outside of the home and an artificial noise is transmitted to the exterior of the home.
- Measurements are taken on the inside and outside of the home with the speaker on and off in all habitable rooms. (bedroom, living, dining, family kitchen, study). Non-habitable rooms include bathrooms, foyers, laundry and garage.
- These measurements are used to calculate the Noise Level Reduction (NLR) for the home.
- Homes testing at 45 dB DNL or higher will be eligible for sound insulation.
- Homes testing lower than 45 dB DNL will not be eligible for sound insulation.



# **Sound Insulation – Development of Policies and Procedures**

# Sound Insulation – Development of Policies and Procedures

Following approval of the ATP, the airport sponsor will develop a policy and procedures manual to describe the programs:

- Purpose
- Goals and typical modifications
- Project planning and management
- Construction contract bid and award cycle
- Construction process
- Eligible spaces
- Architectural, mechanical, electrical and other types of treatments
- Building code requirements

# Sound Insulation – Development of Policies and Procedures

## Prioritization of Homes

Prioritization will begin with the homes in the highest noise levels and working out towards the program boundary.

Program may also use the following criteria to help with prioritization:

- Length of residency
- Ownership vs. rental property
- Contiguous blocks vs. by noise level



# Sound Insulation – Development of Policies and Procedures

## Pace of Program

The pace of the overall program is dependent upon:

- FAA grant cycles and availability of funding
  - First grant for design and bidding
  - Second grant for construction
  - Typical design, bid, construction cycle is approximately 12-18 months depending on the size of the construction contract
- Airport sponsor will work with FAA's Airport District Office (ADO) to develop a capital programs work plan.

# Sound Insulation – Development of Policies and Procedures

## Types of Treatments

Allowable sound insulation measures include:

- Replacement of windows
- Replacement of doors
- Addition and/or replacement of caulking and weather stripping
- Installation of central air-conditioning or ventilation systems where none exist



# Sound Insulation – Development of Policies and Procedures

## Types of treatments (cont.)

Additional measures may be included as part of a treatment package with approval from the FAA's local ADO:

- Addition of attic and/or wall insulation
- Addition of extra layers of wall and/or ceiling board
- Removal or treatment of through-wall A/C units
- Removal mail slots, pet doors, milk chutes



# Sound Insulation – Development of Policies and Procedures

## By Noise Contour Level

- Sound insulation programs generally target a post-construction NLR values as follows:

Contour Range (DNL)	Post-Construction NLR Value	Sound Insulation Treatments to Obtain Post-Construction NLR Value
65-70 dB	30 dB	Basic treatments as outlined
70-75 dB	35 dB	Basic treatments plus: <ul style="list-style-type: none"><li>• Windows and doors may require upgrades to commercial or custom made products.</li><li>• Additional treatments to exterior walls and ceilings may be required.</li></ul>
75+ dB	40 dB	Not recommended for residential: <ul style="list-style-type: none"><li>• Commercial products required</li><li>• Double wall construction or addition of multiple layers of gypsum board may be needed</li><li>• Preferred mitigation method is acquisition</li></ul>

# Sound Insulation – Development of Policies and Procedures

## Building Code Compliance

- Understanding the local/state building codes is the key component to the implementation.
- Appendix R states which treatments are grant eligible. The airport sponsor, working with local building officials will determine what will be required to obtain a building permit.
- Code required improvements may not be reimbursable.
- Some items that may be required by code but are not necessary for the reduction of interior noise levels include:
  - Smoke detectors
  - Carbon monoxide monitors
  - Electrical upgrades
  - Egress

# Sound Insulation – Implementation of Program

# Sound Insulation – Implementation of Program

## Implementation of Program

Each phase (typically 50 units per phase) will follow these steps:

Pre-Design

Invitation Letters

Application and Initial Survey

Homeowner Outreach Meeting

Pre- Acoustical Testing

Design

Assessment Visit

Design of Treatments

Homeowner Review and Participation Agreement

Development of Construction Documents



# Sound Insulation – Implementation of Program

## Implementation of Program

### Bid and Award

- Public Bid is Issued to Contractors who are:
  - Insured
  - Background Checked
  - Bonded/Licensed
- City of Burlington awards to lowest responsible bidder
- Notice to Proceed is issued



# Sound Insulation – Implementation of Program

## Implementation of Program

### Construction

- Contractor Verifies Products and Measurements
- Contractor Orders Products
- Construction Begins – Notify Homeowners 6-8 weeks before work starts
- Each home takes approximately 30 days

### Post-Construction and Post-Acoustical Testing



# TAC Preliminary Topics and Schedule

## TAC Meeting 4

March 13, 2018

NCP Ch. 4 – Part 2

- Land use measures – sound barriers/buffers
- Land use measures – sales assistance / purchase assurance
- Land use measures – real estate disclosure
- Land use measures – land acquisition and relocation
- Land use measures – easement acquisition

Discussion and feedback from TAC 3

## TAC Meeting 5

May 2018

Discussion and feedback from TAC 4

## Public Hearing and Comment Period

estimated August – September 2018

# TAC questions and comments

**Primary NCP Contact:**  
**Sarah Degutis, Project Manager**  
**The Jones Payne Group**  
**[BTVsound@jonespayne.com](mailto:BTVsound@jonespayne.com)**  
**617-790-3747**

**BURLINGTON INTERNATIONAL AIRPORT  
PART 150 NOISE COMPATIBILITY PROGRAM UPDATE  
TECHNICAL PAPER – RESIDENTIAL SOUND INSULATION PROGRAMS  
JANUARY 9, 2017**

## **Residential Sound Insulation Programs**

The purpose of a Residential Sound Insulation Program (RSI Program) is to reduce interior noise levels in a home. This is accomplished by applying acoustical treatments designed to reduce aircraft noise. The treatments include, but are not limited to, upgrading windows, doors and ventilation systems. While sound insulation cannot reduce the noise in the surrounding area, it does provide a place for individuals to be able to enjoy their home and children to be able to study.

The process for designing and implementing a sound insulation program is defined by the Federal Aviation Administration (FAA) in accordance with Appendix R “Noise Compatibility Planning/Projects” of the Federal Aviation Administration Order 5100.38D Airport Improvement Program Handbook<sup>1</sup> (AIP Handbook)

The RSI Program offers a selection of treatments that are tailored specifically to each dwelling. Acoustical treatments include standard door and window styles and finishes, as well as alternative modifications, when required. Owner’s selections, which will be incorporated into the proposed modifications, include choice of style, color and finish from available manufacturer’s offerings. Post-construction average interior noise levels should not exceed a measurable 45-decibel (dB) Day-Night Average Sound Level (DNL) in the habitable portions of the dwelling. A 5-dB improvement relative to pre-construction levels is also a stated objective of the RSI Program.

## **1.0 Determining Eligibility**

### **1.1 Federal Requirements**

An airport sponsor may implement a RSI Program if it is contained in an approved 14 CFR part 150 Noise Compatibility Program (NCP).

The identified eligible properties must be within the 65 dB DNL noise level or higher for which the land use is not considered to be compatible (49 USC § 47502, as implemented by Table 1 of Appendix A in 14 CFR part 150). Properties located below this threshold will not be eligible for mitigation funding unless a lower local standard is adopted by the jurisdiction or the FAA has approved “block rounding” in the NCP.

Prior to the implementation of the RSI Program, the airport sponsor must comply with the eligibility criteria and program requirements set forth in Appendix R.

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<sup>1</sup> FAA Order 5100.38D “Airport Improvement Program Handbook”, Appendix R “Noise Compatibility Planning/Projects”, effective date September 30, 2014.

## 1.2 Developing an Acoustical Test Plan

The first step in developing an RSI Program is for the program sponsor to develop an Acoustical Testing Plan (ATP) for FAA review. The ATP is to include protocols for the initial testing, FAA review of initial testing results, special circumstances and the final testing phase. Testing methods for determining interior noise levels are outlined in the FAA's adopted guidance<sup>2</sup> per Advisory Circular 150/5000-9A, *Announcement of Availability – Report No. DOT/FAA/PP/92-5, Guidelines for the Sound Insulation of Residents Exposed to Aircraft Noise*, issued in 1992. The key steps in an ATP for a residential sound insulation program are:

- **Neighborhood Surveys:** Housing surveys are first conducted to characterize neighborhood homes by type (e.g. age, size, construction type, etc.), and a representative sample of the various types identified is then selected to be included in the initial testing phase<sup>3</sup>.
- **Pre-construction Acoustical Testing:** Measurements of existing acoustical performance of the structure are conducted using either an artificial noise source or actual in-situ aircraft noise events, for determining the existing interior DNL.
- **Determine Compatible and Non-Compatible Structures:** Analyze test data to determine if the average of the aircraft interior noise levels in all habitable rooms is greater than, equal to or less than 45 dB DNL.
- **Determine Required Sound Insulation Improvement:** Determine the improvement in outdoor-to-indoor noise level reduction (NLR) needed to provide an interior noise level that meets FAA requirements.
- **Design Full Sound Insulation Package for Eligible Structures:** Design primary acoustical treatments that will meet FAA noise reduction goals for non-compatible structures. Separate sound insulation packages are required for residences constructed with siding and residences constructed with brick<sup>4</sup>. In addition to lowering average interior noise levels from aircraft to below 45 dB DNL, acoustical treatment packages must also be designed to achieve an improvement in the NLR of at least 5 dB<sup>5</sup>.
- **Design Alternate Treatment Package for Eligible Structures:** Design secondary treatment packages for compatible structures that are eligible for purposes of “neighborhood equity” or that require

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<sup>2</sup> “Guidelines for the Sound Insulation of Residences Exposed to Aircraft Operations”, which is attached to FAA Advisory Circular AC150/5000-9a

<sup>3</sup> FAA Order 5100.38D Appendix R, Table R-4 “Pre- and Post-Testing Criteria for Noise Insulation Projects”, c. “First Step – Initial Testing” Paragraph (3): “Once the sponsor has characterized the diversity of the residences in the noise contour, it will select a representative sample of each type of similarly-constructed residences for testing, which based on industry review is typically 10% to 30%. Testing in this case means that the sponsor develops and installs a sound insulation package that the sponsor believes will reduce the interior noise level in the residence for each type of construction.”

<sup>4</sup> FAA Order 5100.38D Appendix R, Table R-4 “Pre- and Post-Testing Criteria for Noise Insulation Projects”, c. “First Step – Initial Testing” Paragraph (4): “In a neighborhood where the residences are made of either brick or wood siding, the sponsor will develop two different packages – one for the brick residences and one for the siding residences.”

<sup>5</sup> FAA Order 5100.38D Appendix R, Table R-6 “Noise Compatibility Planning/Project Requirements”, g. “Noise Mitigation Measures for Residences” Paragraph (4): “The sound insulation package must provide a reduction in indoor noise level of at least 5 dB and bring the average interior noise level below 45 dB.”

the installation of continuous positive ventilation in order to receive the benefits of the structure's existing sound insulation by having windows and doors always closed.

- **Install Sound Insulation Packages:** Once approved by the FAA, the designed primary sound insulation packages are installed at the sample set of eligible structures.
- **Post-Construction Acoustical Testing:** Following the installation of sound insulation packages, structures that had primary acoustical treatments installed are re-tested to determine if noise reduction goals are met as required by the FAA.

### 1.3 Eligibility Testing/Pre-testing Process

#### 1.3.1 Eligibility Criteria

When an owner applies to participate in an RSI Program, a property title search may be completed to verify ownership and to make sure there are no tax liens, easements or other encumbrances associated with the property which would cause it to be ineligible. Additional conditions of the RSI Program follow current FAA guidelines, as currently described in Appendix R, Table R-6 of the AIP Handbook:

- Structures typically must have been constructed prior to October 1, 1998
- Structures typically must be located within the current FAA-approved DNL 65 dB noise contour
- Structures must be experiencing a logarithmic (energy) average interior DNL of 45 dB or greater in habitable rooms with all prime and storm windows and doors closed

The AIP Handbook allows some specific exceptions to the first two guidelines above that, if needed, would be coordinated with FAA including block rounding.<sup>6</sup>

#### 1.3.2 Pre-construction Testing Process

Outdoor-to-indoor NLR measurements are conducted using either an artificial noise source (i.e. loudspeaker) or actual aircraft noise events. Artificial noise source testing has a number of practical advantages over aircraft overflight noise testing, which have resulted in it becoming the most commonly employed test method. The artificial source method, compared to the actual aircraft method, limits interruption to the property owners and inhabitants/users of the tested interior spaces. An artificial noise source allows measurements to be made at the properties during a brief measurement period, independent from the reliance on aircraft overflights and without the need for multiple sound level meters to simultaneously measure aircraft noise in all habitable rooms. The aircraft overflight method generally requires that no persons be present inside the home for the several hour of the test duration.

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<sup>6</sup> Appendix R of the AIP Handbook allows some exceptions as discussed in Section R-9 "Block Rounding," R-10 "Neighborhood Equity." In addition, Table R-6, g(7) and i(6) states "The structure must have been built prior to October 1, 1998 unless the sponsor has demonstrated to the ADO that no published noise contours existed at that time. New non-compatible land uses created by subsequent airport development may also be eligible for funding consideration. The October 1, 1998 date is based on the FAA Final Policy on Part 150 Approval of Noise Mitigation Measures: Effect on the Use of Federal Grants for Noise Mitigation Projects, 63 Federal Register 16409 (April 3, 1998)."

During an artificial noise source test, an acoustical consultant uses a specialized field monitoring kit that includes a signal generator and public announcement (PA) type loudspeaker to produce a noise source of equal energy in each octave band or one-third octave band (known in the acoustics field as “pink noise”) at an approximate overall sound level of 90 to 100 dB as measured at the exterior building façade under test.

The loudspeaker is vertically positioned either on a tripod or placed on the ground unless there is compelling evidence that the roof/ceiling element of the room under test has the potential to contribute to the interior sound level from aircraft operations. Examples of compelling reasons include: existence of weak elements within the roof/ceiling structure, such as sky lights; relatively light weight materials to make up the roof structure; limited airspace between the roof and ceiling, e.g., vaulted ceilings and flat roofs; and limited or no use of insulation in the space between the roof and ceiling. In these instances, the speaker will be lifted above the roofline of the home to obtain both exterior façade and roof exposure through the use of an industrial grade hoisting device, such as a bucket truck, scissors lift or mobile crane.

With the loudspeaker placed to provide sufficiently uniform sound across the façade, room, or element, octave band or one-third octave band sound level measurements are made both on the exterior and in the interior of the structure using both time and spatial averaging of sound levels. Additional measurements are conducted without the loudspeaker in operation to provide background or ambient sound levels.

## **2.0 Development of Policy and Procedures**

Upon FAA approval of the ATP, the airport sponsor will develop a policy and procedures manual (PPM) which will describe the RSI Program’s purpose, goals and typical modifications, project planning and management, construction contract bid and award cycle, the construction process, eligible spaces, architectural, mechanical, electrical and other types of treatments, and building code requirements.

### **2.1 Prioritization of Homes**

The PPM will define how to prioritize homes beginning with the homes in the highest noise levels and working outward to the RSI Program boundary. Many programs also use the following criteria:

- Length of residency
- Ownership vs. rental property
- Contiguous blocks vs. by noise level

### **2.2 Pace of Program**

The pace of the RSI Program is defined by the airport sponsor’s ability to match grant funding from the FAA as well as the FAA’s ability to provide grant funding. The airport sponsor will work with the FAA’s Airports District Office (ADO) to develop a capital programs work plan.

Sound insulation programs are often developed based upon FAA grant cycles. Typically, a grant is issued for the design and bidding of a group of homes. A second grant is issued for the construction of the homes based upon the lowest responsible bid received by the airport sponsor. A typical design, bid and construction cycle is approximately 12-18 months depending upon the size of the construction contract.

### 2.3 Building Code Compliance

Understanding the local and state building code is a key component to the implementation. Appendix R is very specific on the types of treatments that are eligible for grant reimbursement.<sup>7</sup> Understanding what, if any items, may need to be undertaken to meet code compliance is necessary to inform the program participants who may be responsible for these costs. Examples of the types of items that may be required by code but are not necessary to the reduction of interior noise levels are:

- Smoke detectors
- Carbon Monoxide monitors
- Electrical upgrades
- Egress

Working with the local building officials, the airport sponsor can determine what will be required in order to obtain a building permit. Any potential issues can be discussed with the owner during the design phase of the process.

### 2.4 Types of Treatments

Per Appendix R of the AIP Handbook, allowable sound insulation measures include the replacement of windows and doors, the addition or replacement of caulking and weather stripping, and the installation of central air-conditioning or ventilation systems in structures without an existing system<sup>8</sup>. Central air-conditioning or ventilation systems are a necessary component in sound insulated structures, as they allow for windows to remain closed year-round.

Additional measures may be included as part of the treatment package with approval from the local FAA ADO. Additional treatment measures that may be employed following ADO approval include:

- Addition of attic and/or wall insulation
- Addition of extra layers of wall and/or ceiling board
- Removal or treatment of through-wall A/C units
- Removal of mail slots, pet doors, milk chutes
- Treatment of chimneys, fireplaces, exhaust vents

### 2.5 By Noise Contour Level

The sound insulation measures included in a treatment package are selected in order to achieve a target NLR value based on the DNL to which a structure is exposed. The exterior DNL value assigned to a residence is the upper end of the corresponding DNL interval, as outlined in Section 3.4.1 of the 1992 Guidelines (FAA 1992). For example, residences in the DNL 65 to 70 dB interval are assigned an exterior DNL of 70 dB.

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<sup>7</sup> FAA Order 5100.38D, Appendix R, Table R-6 “Noise Compatibility Planning/Project Requirements”, g. “Factors to Consider For Justification and Eligibility” Paragraph (6): “The following measures are allowable: window and door replacement, caulking, weather-stripping, and installing central air ventilation so that the windows can be kept closed only if the structure does not already have a central air ventilation system. The use of other measures is not allowable unless the ADO has approved the use of the measures in advance.”

<sup>8</sup> FAA Order 5100.38D Appendix R, Table R-6 “Noise Compatibility Planning/Project Requirements”, g. “Factors to Consider For Justification and Eligibility” Paragraph (6): “The following measures are allowable: window and door replacement, caulking, weather-stripping, and installing central air ventilation so that the windows can be kept closed only if the structure does not already have a central air ventilation system. The use of other measures is not allowable unless the ADO has approved the use of the measures in advance.”



Sound insulation programs generally target a post-construction NLR value of approximately 30 dB for residences exposed to DNL between 65 and 70 dB, and a 35 dB NLR for residences exposed to DNL between 70 and 75 dB. Achieving a post-construction NLR of 35 dB and higher generally requires that treatment packages include at least some of the additional measures mentioned in Section 3.1. Sound insulating residences exposed DNL greater than 75 dB (i.e. target NLR values of 40 dB and higher) may be infeasible in some neighborhoods. When it is feasible, the materials and measures required to achieve very high NLR values may be impractical to implement and/or aesthetically undesirable to homeowners.

#### **65 to 70 dB DNL treatment package:**

A treatment package for a residence exposed to a DNL between 65 and 70 dB (i.e. target NLR of 30 dB) would typically include:

- Triple pane assembly windows and sliding glass doors (i.e. double-glazed prime with single glazed storm)
- Solid-core wood prime exterior doors with a single-pane storm door
- Additional ceiling insulation where existing insulation is insufficient
- Treatment or removal other sound infiltration weak points such as through-wall A/C units, mail slots, exhaust vents, etc.

#### **70 to 75 dB DNL treatment package:**

A treatment package for a residence exposed to a DNL between 70 and 75 dB (i.e. target NLR of 35 dB) would include measures similar to the 30 dB NLR package, but would require materials with increased sound insulation performance. The level of performance required to achieve an NLR of 35 dB is near the upper limit for many residential products, and commercial or custom made product may have to be used. The treatment of exterior walls and ceilings with an additional interior gypsum board layer may also be required to achieve the target NLR.

#### **75 dB DNL and greater treatment package:**

In most cases, treatment packages for residences exposed to DNL greater than 75 dB (i.e. target NLR values of 40 dB and higher) require the use of high performance commercial products and the addition of either multiple layers of gypsum board to wall and ceiling surfaces or double wall construction. Available commercial products which meet the performance requirements may be aesthetically less desirable to some homeowners than the residential products used in treatment packages targeting lower NLR values. Double wall construction increases wall thickness by several inches, thus somewhat reducing the total area of rooms with treated walls.

Sound insulation treatments are not recommended for homes in this noise level. The preferred noise mitigation method is the acquisition of the property and the relocation of the residents.

## **2.6 Secondary Treatments**

For those homes which do not have continuous positive ventilation and when acoustically tested have an interior noise level less than 45 dB DNL, the FAA allows for installation of secondary treatments in

order to provide neighborhood equity and to allow the residents to have proper air circulation while they have the doors and windows closed.

If these types of homes are identified during the ATP process, the airport sponsor will work with the FAA to obtain approval for a positive ventilation package as described in Appendix R.<sup>9</sup>

### 3.0 Implementation of Program

The airport sponsor will develop a grant application for the design of a group of homes. Upon receipt of the grant funding, the airport's consultant team will begin the sound insulation process.

#### 3.1 Overall Timeframe

The sound insulation process for a typical package of 50 homes takes approximately 12 -18 months from initial homeowner outreach to completion of the construction contract. This timeframe can vary depending upon the number of homes included in the construction package and the timing of the grant cycle.

#### 3.2 Design

The design process is comprised of a number steps including homeowner outreach, assessment visits, design of an acoustical treatment package for each home and development of construction documents.

- **Application:** Eligible property owners, will be sent a Program Application Package explaining the sound insulation process and an application for participation.
- **Assessment Visit:** The assessment visit is conducted by the program team at the property. During the visit, the program team will explain the RSI Program in detail, document the home's existing conditions, draw floor plans and measure all windows and doors. The mechanical/electrical engineer will conduct a detailed evaluation of the home, including existing heating and air conditioning systems, electrical service, and potential safety or code issues.
- **Design Phase:** The program team will meet with the owners either at their home or at the RSI Program office to review the recommended construction plans and scope of work for the property. This will include floor plans of the home, recommended treatment package, and homeowner pre-work, if any.
- **Homeowner Participation Agreement:** Once the owners have agreed to the recommended scope of work, they will execute the homeowner participation agreement. The homeowner participation agreement is a contract between the airport sponsor and the property owner describing the work to be undertaken and the responsibilities of each party. This may also include the execution of an avigation easement, if required.
- **Development of Construction Documents:** All participating properties are placed into a construction package. The program team will develop a set of bid documents that conform to FAA,

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<sup>9</sup> FAA Order 5100.38D Appendix R, Table R-6 "Noise Compatibility Planning/Project Requirements", h. "Noise mitigation Measures for Residences (Positive Ventilation Package Only)" Paragraph (3): "A Continuous Positive Ventilation System is the allowable package for these residences. The sponsor must also provide detailed information about the ventilation package including costs of the package compared to the cost of a standard noise insulation package. The sponsor may recommend an air conditioning system in lieu of ventilation-only."

state and local bidding requirements. These documents will be sent to the FAA for concurrence and permission to bid the construction contract.

### 3.3 Bid

The final design and construction package is released to interested contractors for public bidding by the airport sponsor. The bids are evaluated and the work will be awarded to the most responsive, responsible qualified contractor.

A grant application for the construction of these homes is submitted to the FAA along with the successful contractor's bid.

### 3.4 Construction

Upon receipt of a grant for the construction of the homes, the program team will begin the construction process.

- **Pre-Construction Activities:** The selected contractor and the RSI Program team members will schedule an appointment with each property owner to review the specific scope of work for your home. The contractor will measure each window and door opening. The contractor will develop a construction schedule and provide product submittals and shop drawings. Upon approval of these submittals by the program team, the contractor will order the customized products. The contractor will pull construction permits for each of the homes.
- **Pre-Construction Walk-Through:** The contractor and program team will visit the home 48 hours before the start of construction. During this visit, the contractor will review with owner the scope of work for the home, take pre-construction photographs, and ensure the property has been prepared for construction.
- **Construction Process:** The program team will notify the owner of their construction start date. The construction process takes approximately 30 days. The contractor will need access to the property during normal business weekday hours. There will not be any work on weekends, holidays or in the evening. The contractor will be required to reach substantial completion of the scope of work for the property within 10 days. After substantial completion, the contractor will be given additional time to finalize the scope of work and conduct the necessary permit inspections.
- **Final Construction Inspection:** The program team and the property owner will conduct a final inspection of the residence. Upon final inspection and approval, the homeowner will receive a warranty package for all work performed.

### 3.5 Post Testing

The noise reduction goals for residential sound insulation programs are outlined in Appendix R of the AIP Handbook:

- Provide an exterior-to-interior NLR improvement of at least 5 dB
- Reduce the average interior DNL sound level to 45 dB or below

The 5-dB improvement goal exists to provide a noticeable reduction of aircraft noise levels to residents.

Post-construction acoustical testing is conducted on a sampling of structures that had acoustical treatments installed. The use of random sampling to select homes for the testing may be augmented with selection of specific individual homes based on their acoustically significant interior and exterior features.

The acoustical consultant analyzes the testing results to determine if the installed treatments meet the RSI Program's acoustical goals. Any instances where these goals are not met are investigated and adjustments to the acoustical treatments may be recommended to ensure that the RSI Program goals are ultimately met. Overall, the post-construction acoustical testing is intended to provide quality control and assurance.

Furnishings such as sofas, beds, carpeting, and curtains have some effect on the amount of sound absorption within a home, and can therefore impact interior noise level measurements. As such, homeowners should not modify furnishings between the occurrence of pre-construction and post-construction noise testing.

The AIP Handbook (Appendix R, Table R-4, c.5) also requires that: "The sponsor will then measure the interior noise levels and prepare a summary report detailing the effectiveness of the design package, make recommendations for any changes to the package, lists the before and after interior noise level data, and submits the package to the ADO". Therefore, a post-construction acoustical testing summary report documenting the achieved noise level reductions and post-construction interior aircraft noise levels, noting any unique circumstances, is prepared and submitted to the ADO.

### **3.6 Closeout**

Upon completion of the work and verification of the acoustical goals being met by the RSI Program, the airport sponsor will close out the construction contract and the grant.

[END OF MEMORANDUM]

**BURLINGTON INTERNATIONAL AIRPORT  
NOISE COMPATIBILITY PROGRAM  
TECHNICAL ADVISORY COMMITTEE  
MEETING SUMMARY (#3)  
January 23, 2018**

**BTV STAFF/CONSULTANTS:**

Nic Longo, BTV (Chair)  
Gene Richards, BTV (Vice Chair)  
Larry Lackey, BTV  
Shelby Losier, BTV  
Sarah Degutis, Jones Payne Group  
Diane Carter, Jones Payne Group  
Brad Nicholas, HMMH

**TAC MEMBERS**

Seth Banden, GBIC  
George Maille, So. Burlington Resident TAC Representative  
Charlie Baker, CCRPC  
Steve Wisloski, So. Burlington School District  
Trevor Callens, VTANG  
Jessie Baker, Winooski City Manager  
Col. John Johnston, Air Guard  
Carmine Sargent, So. Burlington Resident TAC Representative  
Frank Cioffi, GBIC  
Ron Bazman, FAA  
David Young, So. Burlington School District  
Bob McEwing, Essex  
Paul Connor, South Burlington City Planner

**PUBLIC ATTENDEES:**

Steve Marriott, South Burlington  
Jeremy King, So. Burlington Energy Committee  
Jen Norz, Efficiency VT

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**1.0 WELCOME and OVERVIEW**

Nic Longo, Aviation Deputy Director, opened the meeting at 5:05 PM. Introductions were done. Mr. Longo announced new air service at Burlington Airport with a Delta direct flight to JFK beginning in March and American direct to Chicago O'Hare beginning in June.

*Overview*

Nic Longo said the FAA is being pushed to fund the Noise Exposure Map (NEM) as soon as possible. F-35 data will be included. The airport is seeking funding from an already

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funded grant or will submit a grant application by May for funding in September at the end of the federal fiscal year. The timeline for the project is 12 to 18 months.

George Maille, South Burlington, asked if the new NEM could be done by February 2019 or prior to the beginning of the arrival of the F-35s in September 2019. Gene Richards assured the airport is doing all that can be done. The concerns have been heard and are trying to be addressed to get the best results.

## **2.0 PUBLIC FORUM AND COMMENTS**

The following was discussed:

- Discussion of aviation easement resolutions to date – Sarah Degutis said where aviation easements are required or optional in each program will be mentioned through discussions of the programs but decisions to be made after all land use measures are reviewed.

## **3.0 CHAPTER 4 – RECOMMENDED NCP REVISIONS (Part 1)**

Brad Nicholas reviewed:

- Airport Operation Measures and Review and Monitoring Measures will not be added to or edited as part of the NCP, but there are some updates on status to be made from the 2008 NCP.
- Extension of Taxiway G measure is complete. Aircraft taxi on Taxiway K now. The taxiway is located farther from residences.
- Terminal power installations are on the jet bridges and in use. There is auxiliary power such as a small generator to power the electrical units on aircraft.
- Bi-directional runway use is in the NCP. Presently bi-directional runway use is not available through the night because the tower at Burlington is not open. If the tower opens at night then the sound committee can work on implementation of this measure. Nic Longo said the airport is working to have the tower operating 24/7 and then the noise mitigation efforts can be implemented.
- Ongoing monitoring/review of the NEM and NCP status is implemented with the quarterly meetings of the sound mitigation committee.
- Flight track monitoring is being pursued by the airport. The flight track data will be online. The database can be used for analyses. The numbers are for reporting and tracking purposes and can assist with complaint follow up/management.

## **COMMENTS**

- Paul Connor asked about the holding bays at the north end of the taxiway. Nic Longo said staff will work with the South Burlington DRB if the holding bays will be used, and if used will be included in the NEM.
- Paul Connor mentioned potential use of funds from the VW settlement on any airport noise measures.
- George Maille mentioned the use of the jet bridge on the southern concourse. Nic Longo said use of the southern jet bridge will be minimized. Brad Nichols added the airport is minimizing use of jet bridges to minimize noise. Also, the bridges are pushed farther onto the taxiway before start up to decrease noise.

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- George Maille asked if the FAA will fund equipment for noise measures. Brad Nicholas said the FAA will fund the initial installation of equipment, but not ongoing maintenance and support.
  - Paul Connor noted at other airports the noise committee reviews the flight data, comments, and evaluates the cause of anomalies. Nic Longo said the flight tracking system will allow for collection of data and reporting to the sound mitigation committee or the Airport Commission. The data is available online. The data allow staff to follow up on any complaints. The intent is to capture all flight data, commercial and military.
  - George Maille mentioned recording plane noise from planes on the ground and asked if there is some control on the FBO regarding the direction the plane engines are pointed. Nic Longo said there could be policies and procedures that define where there can be engine run-ups, for example.

Diane Carter reviewed the sound insulation program focusing on three areas: who is eligible for sound insulation, policies and procedures, and implementation of the program.

### **Eligibility**

Houses must be built before 1998, be within the 65 dB or higher noise contour, have an internal noise level of 45dB to be eligible. This is the case unless the City of South Burlington has a lower standard than the FAA standard then the city standard will be used, but no new residential use in the contour will be allowed and it would be a new land use standard that needs to be implemented by the jurisdiction. There are accommodations for “block rounding” that will be used at the 65dB DNL to round out streets or neighborhoods.

An acoustical test plan (ATP) must be in place with the sound insulation program so houses can be qualified for sound insulation. The FAA must approve all the information from the ATP and then policies and procedures are developed. The FAA will only cover the cost of modifications that help sound insulation of the house, not building code issues.

Diane Carter reviewed the steps in the ATP. Houses are categorized and acoustical testing performed on a minimum of 10% of the homes in each category. Measurements are taken inside and outside the habitable rooms in the house. If the tested homes in a group have an average sound level above 45dB then the entire group will be eligible for sound insulation.

### **Policy and Procedures**

Following the approved ATP by the FAA, a policy and procedure manual is developed. This will include purpose of the program, goals and typical modifications, project planning and management, construction bid cycle, eligible spaces, acoustical treatments, and building code requirements.

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If the sound level is below 45 dB then the house is eligible for other programs, but not sound insulation. Subsequent homes in that group will be tested to qualify for sound insulation. The program starts with houses in the 70 dB line down to the 65 dB line. Other criteria could be considered to prioritize homes such as the length of time the homeowner has lived in the house, if the house is rented or owned, or completion of all homes on a street in one phase.

The pace of the program will be established, typically in this region is it about 50 homes in each phase. There is a grant for design of a phase and a second for construction, and once the process gets going there is design starting as construction starts with grants back to back.

Nic Longo noted the program is tied to FAA funding cycles and funding availability. The airport has the first funding on the Capital Improvement Plan with the FAA to commence in 2019 for the sound insulation program.

Diane Carter said types of treatment for sound insulation include acoustic windows, acoustically rated doors, caulking and weather stripping if needed, central air conditioning, closure of mail slots and pet doors. There could be other treatments if approved by the FAA such as attic and wall insulation, extra wall or ceiling boards. Commercial grade materials and double walls would be required in houses in the 75 dB or greater contour, and generally sound insulation is not recommended for single family houses.

The airport and consultant team will meet with the municipalities to look at building code compliance. If items are not eligible under the program there will be discussion of the homeowner doing the improvements or the airport paying for the improvements.

### **Program Implementation**

Sarah Degutis stated 50 up to possibly 100 houses will be selected for the each phase of the program. The process for each phase will include:

- An invitation letter, application and general survey inquiring about the number of rooms, windows, doors, children, special needs, etc. will be sent to the homeowner.
- A homeowners outreach meeting will be held to explain the program, process and what to expect.
- Pre-acoustical testing will be done unless the house is pre-qualified.
- The consultant team will do an assessment of the house to measure windows, doors, identify noise paths to pinpoint specific treatments.
- There will be a homeowners review meeting to review the planned treatments and the homeowner will be asked to sign a participation agreement and an easement if one is required.
- The team will finalize the design package for the house.
- The packages for all the houses will be bundled and put out to public bid. Contractors must be insured, bonded, licensed, and have a background check



- 
- done. The bid responses are reviewed and the bid is awarded to the lowest responsible bidder. The airport will simultaneously be proceeding with the grant as the contractor will get notice to proceed with construction.
- The contractor will visit the house and verify the products and measurements before ordering the materials. The homeowner will receive a construction schedule. Each house typically takes 30 days to complete (two weeks for construction and two weeks to wrap up remaining tasks). The homeowner will be able to remain in the house during construction. There will be multiple homes under construction at any one time so the process moves quickly.
  - Houses that were pre-acoustically tested will be post-acoustically tested.

#### *COMMENTS*

- George Maille asked if the community will have input on the rounding of the contour lines. Nic Longo said there will be public process through the committees, but the FAA approves the block rounding of contour lines.
- Charlie Baker asked about the grant match. Nic Longo said the grant is 90% federal, 6% state, and 4% local.
- George Maille asked if there is preference given to local contractors for the house bids to help the local economy. Diane Carter said there is no local business set aside per federal procurement regulations. Typically local contractors team with a national contractor familiar with these types of projects. Gene Richards said the airport will do all that is possible to have local involvement and still comply with federal regulations. Sarah Degutis noted after the pre-bid meetings there are often meetings for local contractors to meet with national contractors.
- George Maille asked about houses that are not pre-tested. Sarah Degutis said typically if 10% of a group of houses are tested and all pass then the entire group qualifies. The ATP will set the criteria to determine the testing.

#### **4.0 TAC QUESTIONS & COMMENTS**

Any questions and comments should be forwarded to the consultants ([btvsound@jonespayne.com](mailto:btvsound@jonespayne.com)) and the airport administration.

Request was made for a list of decision points for the NCP.

#### **5.0 WRAP UP & ADJOURNMENT**

Future Meetings & Agenda Items:

- March 13, 2018 NCP Chapter 4 Land Use Measures (continued)
- May 2018 – Feedback on previous meeting
- August/September 2018 – Public Hearings

With no further business and without objection the meeting was adjourned at 6:32 PM.

## **BTv NCP TAC Meeting #4**

**March 22, 2018**

**BURLINGTON INTERNATIONAL AIRPORT****Technical Advisory Committee - Sound Program, NCP Update****DATE: March 22, 2018****LOCATION: Burlington International Airport, Conference Room #3****SIGN-IN SHEET**

#	NAME	ADDRESS/COMPANY NAME	PHONE NUMBER/ EMAIL
14	Steve Marriott	13 Mill Ave SB	802 862 2990
15	Steve Wislocki	S.B School Board	
16	Diana Camerini	98 Suburban Sq	802-373-2038
17	R. du	BTV	—
18			
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Please note that this sign-in sheet and any information provided on it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.

# BURLINGTON INTERNATIONAL AIRPORT

Technical Advisory Committee - Sound Program, NCP Update

DATE: March 22, 2018

LOCATION: Burlington International Airport, Conference Room #3

## SIGN-IN SHEET

#	NAME	ADDRESS/COMPANY NAME	PHONE NUMBER/ EMAIL
1	Dan Desautels		922-0415
2	Chris Tomicovic	VT ANG	338-5584
3	Richard Lizzari	VT ANG	338-3424
4	Robert A. Mazer	TAC MEMBER SB PPS	318-8100 LSTF47@comcast.net
5	Jessie Baker	Winoski	655 6410 jbaker@winoski.org
6	Patrick Gallivan	St. Michael's College	654-2244
7	John Johnston	VT ANG	338 3531
8	Germaine Sargent	21 Elizabeth St. So. Burl.	658-1164
9	Paul Cawner	City of SB	846-4106
10	Robert McEwing	Town of Essex	802-777-9749
11			
12			
13			

Please note that this sign-in sheet and any information provided on it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.



## AGENDA

### **BTV Noise Compatibility Program (NCP) Technical Advisory Committee Meeting**

**RESCHEDULED** March 22, 2018

5:00 p.m. - 6:30 p.m.

Conference Room 3

Call in # for those who are unable to attend: 712-775-8972 Code: 235681

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- 5:00 – 5:10 Welcome and overview of agenda
- 5:10 – 5:20 Public forum and comment period
- 5:20 – 5:30 Noise Exposure Map progress update
- 5:30 – 6:15 **Chapter 4 – Recommended NCP Revisions (Part 2)**
  - Land Use Measures (continued)
    - Sound Barrier
    - Sales Assistance
    - Purchase Assurance
    - Easement Acquisition
    - Land Acquisition and Relocation
- 6:15 – 6:30 Technical advisory committee questions and comments



## **BTV Noise Compatibility Program Update – Technical Advisory Committee**

March 22, 2018

**jp** The Jones Payne Group, Inc.  
*Architects, Planners, and Information Managers*



**HARRIS MILLER MILLER & HANSON INC.**

# Purpose of TAC

- The TAC is advisory to the City solely for purposes of the BTV Part 150 Study, including:
  - Review of study inputs, assumptions, analyses, documentation, etc.
  - Input, advice, and guidance related to Noise Compatibility Plan (NCP) development
- The City shall respect and consider TAC input, but must retain overall responsibility for the Part 150 Study and NCP recommendations
- The TAC and City recognize FAA is responsible for accepting Noise Exposure Map (NEM) and NCP submissions and for approving NCP measures
- TAC members represent the interests of their organization and/or constituents
- TAC members are expected to provide two-way communication between the City and their organizations / constituents

# Agenda

Public forum and comment period

Noise Exposure Map Update

Chapter 4 - Recommended NCP Revisions (**PART 2**)

- Review Land Use Measures

TAC questions and comments period



# Public Forum and Comment Period

# Noise Exposure Map Update





## Path: Q:\Projects\305000\305990\_BT\FIGS\305581\_BT\FIG13\_2020\_Forecast\_AEN.mxd



# Noise Exposure Map (NEM) Update

- FAA has approved funding for the NEM Update
- The NEM documents the airport layout and operation, aircraft related noise exposure and land uses surrounding the airport
- Creates 2 maps
  - 2018: Current year - w/ F-16C operations
  - 2023: Forecast year - w/ F-35A operations
- The NCP process will be put on hold until the contours are developed for the NEM
- This will allow jurisdictions to understand how the noise exposure may affect their residents

# Noise Exposure Map - Schedule

		2018											
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
1	Data collection; approval of military aircraft modeling; development of operational forecasts												
2	Development of draft contours; land use analysis												
3	Draft NEM document for public review; public meetings; public comment period												
4	Finalize and submit final NEM to FAA for approval												

Legend:		
Consultant Task	Stakeholder Involvement	Agency Review

# Sound Barriers and Buffers



# Sound Barriers and Buffers

- Commonly used along roadways and at stationary noise sources
- Can be effective at airports at run-up locations. Airport buildings can offer some shielding from gate and taxiing operations



# Sound Barriers and Buffers - Effectiveness

- Barriers must be **high** relative to both the noise source (aircraft engines) and the receiver location (building windows/doors).
  - As such, barriers can only be effective for blocking ground noise, and are ineffective for airborne aircraft.
- Barriers must be **close** to either the source or the receiver.
- The barrier must be high relative to the wavelength of sound. For a broadband noise like aircraft, a barrier will be more effective at higher frequencies and less effective at lower frequencies.



# Sound Barriers and Buffers - Constraints

- 14 CFR Part 77 defines imaginary surfaces that restrict the height of objects near runways. Airspace obstruction considerations typically prevent barriers of an effective height from being constructed adjacent a runway.
- Constructing an effective barrier close to the buildings requiring shielding may be impractical or infeasible.
  - A nearby, high wall could be visually obtrusive
  - Neighborhood orientation relative to the runway may not allow for a sufficiently long barrier
  - Property considerations can be complicated by multiple property owners

# Sound Barriers and Buffers

## AIP Program Funding and Requirements

- The noise barrier must be shown to reduce aircraft noise by at least 5 dB in noncompatible areas (65+ dB DNL).
- Residences experiencing a 5 dB DNL reduction from the barrier would not be considered eligible for other mitigation measures such as sound insulation or sales assistance.

# Sound Barriers and Buffers

## Advantages

- Provides noise relief to those adjacent to wall
- Provides a visible barrier between the residential area and the airport property

## Disadvantages

- Properties which benefit from barrier are not eligible for other types of mitigation
- Expensive measure which benefits a few and will delay implementation of other programs

# Sales Assistance

## Sales Assistance

- Assists owners who wish to sell their property and relocate
- Airport will assist with the sale on the open real estate market for Fair Market Value (FMV)
- Airport does not acquire the property
- Avigation easement is required
- Owner is not eligible for relocation benefits
- No change to the underlying land use

# Sales Assistance - Implementation

## Property owner:

- Enter a participation agreement with Airport
- Market and sell their home through licensed real estate agent
- Listing price is based on fair market value (FMV), established by appraisal following federal appraisal guidelines
- Records avigation easement prior to sale of property

## Airport sponsor:

- Pays differential payment if property doesn't sell at FMV
- Pays closing costs and realtor's commission
- Conducts a market absorption study to determine the expected rate at which homes can be sold to maintain neighborhood stability

# Sales Assistance

## Advantages

- Allows the owner to relocate outside the project area
- Maintains the neighborhood
- Stabilizes market by limiting sales to market absorption
- Airport sponsor obtains an easement which makes property Part 150 land use compatible
- Owner is guaranteed fair market value for property
- Avoids vacant properties
- Maintains the jurisdiction's tax base
- Is an alternative for properties which do not qualify for sound insulation

## Disadvantages

- Does not guarantee sale of home
- Depending on market conditions process can be slow

# Purchase Assurance



# Purchase Assurance

- Assists owners who wish to sell their property and relocate
- Sale is made directly to Airport for Fair Market Value (FMV)
- Avigation easement is required
- Owner is not be eligible for relocation benefits
- No change to the underlying land use

# Purchase Assurance - Implementation

## Property owners:

- Airport purchases eligible property for FMV in exchange for an aviation easement
- Upon sale and recording of easement, the Airport sound insulates the home and sells it on the open market

## Airport Sponsor

- Responsible for closing costs associated with the acquisition of the property
- Maintains property during 18 month purchase/ sale process
- Conducts a market absorption study to determine the expected rate at which homes can be sold to maintain neighborhood stability

## Purchase Assurance

### Advantages

- Allows property owners to sell to the sponsor immediately, pending available funding
- Allows for sound insulation of property

### Disadvantages

- Maintenance and protection costs can be excessive due to length of process
- The jurisdiction will lose property tax revenue during Airport ownership of property
- Pace of program will be determined by market absorption and funding availability
- Cost of program will limit number of homes that can participate

# Purchase of Avigation Easements

## Avigation Easements

- Provides eligible property owners who wish to remain in their home and do not qualify for sound insulation the ability to obtain a cash payment.
- Avigation easement is required
- Easement values are under \$10,000 per property based upon an appraisal
- There is no change to the underlying land use

# Avigation Easement- Implementation

- Airport retains an appraiser who determines the “measure and effect of the easement conveyance on the subsequent market sale”
- A nominal easement value is determined for a given neighborhood
- Owner conveys easement in exchange for cash payment

# Avigation Easements

## Advantages

- Allows the property owner to remain in their home
- Maintains the residential neighborhood
- Owner is guaranteed a cash payment in exchange for the easement
- Maintains the jurisdiction's tax base
- Is an alternative for individuals who do not qualify for sound insulation

## Disadvantages

- Typically low participation in this type of program

# Land Acquisition and Relocation



## Land Acquisition and Relocation

- Provides eligible property owners located in areas of high noise exposure (75+ dB DNL), where other mitigation programs are not feasible, the ability to sell their property and relocate outside the noise impact area
- Airport will purchase property at FMV from owner
- Occupants will be provided relocation benefits to move outside of the noise impact area
- Airport will raze the structure upon acquisition and work with local jurisdiction to rezone the land into a compatible land use

# Land Acquisition and Relocation - Implementation

- Program consists of two transactions:
  - Purchase of the property from owner
  - Relocation of the occupants
- Purchase is based on the FMV of the property
- Relocation benefits are designed to provide new housing in a manner that is similar size and function
- Following the Airport taking possession of the property, they will arrange for the structure to be razed
- Acquired land will be included on the noise land inventory map and noise land reuse plan
- Airport will care for and manage property until such time that it can be rezoned or designated for compatible use
- Process takes 12-18 months depending on relocation needs

# Land Acquisition and Relocation

## Advantages

- Allows property owners to sell to the sponsor immediately, pending available funding
- There are no other viable mitigation options for homes located in the highest noise levels

## Disadvantages

- Jurisdictions will not receive property taxes
- The Airport obtains ownership of the property, which would result in costly maintenance to prevent deterioration including: lawn maintenance, securing from vandalism and theft, which increases administrative costs to the project

## Summary Comparison of Programs & Costs

**Below are the estimated average cost for each program per home and the number of properties that would be eligible based upon a \$5 million grant**

<b>Program</b>	<b>Cost Per Home</b>	<b># of Homes</b>
Sound Insulation	\$ 54,000	93
Sales Assistance	\$ 35,520	141
Purchase Assurance	\$ 355,200	14
Avigation Easement	\$ 2,500	2000
Acquisition & Relocation	\$ 407,000	12

Note: Cost per home is based upon actual costs from BTV Airport programs or the New England Region plus 20% administration costs

# TAC Discussion

Knowing there are new noise maps coming out later this year

- Does this affect your input on which measures should be included in the NCP?
- Should the final NCP recommendations be delayed until the new maps are published?
  - If yes, it will delay the approval of the NCP and the funding for noise mitigation programs such as sound insulation
  - If not, is their agreement to finalize the NCP to get FAA approvals so that funding can commence next year.

## NEM and NCP Schedules

- Next TAC meeting TBD
- Reinstating sound committee meetings (Q2)
- NEM commencing immediately
  - Public meeting and comment period Fall 2018
- NCP on hold until NEM contours developed

# TAC questions and comments

**Primary NCP Contact:**  
**Sarah Degutis, Project Manager**  
**The Jones Payne Group**  
**[BTVsound@jonespayne.com](mailto:BTVsound@jonespayne.com)**  
**617-790-3747**

BURLINGTON INTERNATIONAL AIRPORT  
PART 150 NOISE COMPATIBILITY PROGRAM UPDATE  
TECHNICAL PAPER – VARIOUS NOISE MITIGATION PROGRAMS  
February 27, 2018

## 1.0 Introduction

The purpose of this paper is to review the various types of noise mitigation that can be offered in addition to sound insulation which was presented in the previous technical paper.

### Additional Noise Mitigation Programs

The Federal Aviation Administration (FAA) Part 150 process allows for several types of noise mitigation programs to be offered to non-compatible land uses. In general there are 2 types of programs;

- No change in land use and
- Change in land use

An Airport sponsor may implement programs designed to acquire an easement for noise compatibility purposes if it is contained within an approved 14 CFR Part 150 Noise Compatibility Program.

The properties must be within the 65 dB DNL or higher noise contour for which the land use is not considered to be compatible (49 USC § 47502, as implemented by Table 1 of Appendix A in 14 CFR Part 150). The requirements for implementing these types of programs is defined by the FAA in accordance with Appendix R “Noise Compatibility Planning/Projects” of FAA Order 5100.38D “Airport Improvement Program (AIP) Handbook<sup>1</sup>”.

Below is a table which summarizes each potential noise mitigation measure, the estimated potential cost per parcel, whether an aviation easement is required, and the potential advantages and disadvantages. The sponsor believes that a combination of these programs may offer the best options to the community for the foreseeable future. The City of Burlington and the City of South Burlington have expressed a preference in maintaining the residential neighborhood adjacent to the airport which is currently impacted. Other adjacent jurisdictions should consider the following options and express an opinion regarding the implementation of these programs in their jurisdictions should the updated noise exposure map expand the current noise exposure area.

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<sup>1</sup> FAA Order 5100.38D “Airport Improvement Program Handbook”, Appendix R “Noise Compatibility Planning/Projects”, effective date September 30, 2014.

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Matrix of Mitigation Measures:

The matrix below identifies the various mitigation programs discussed in this paper and summarizes the type of program, need for an avigation easement, estimated average cost per home, recommended noise contour for implementation advantages and disadvantages. A more detailed discussion of each program follows:

Mitigation Measure	Easement Required	Estimated Average Potential Costs per Property	Recommended Noise Contour to be Implemented	Advantages	Disadvantages
<b>Sound Barriers and Buffers</b>	Not Applicable	N/A	70 DNL (Day-Night Average Sound Level)	<ul style="list-style-type: none"> <li>Provides noise relief to those adjacent to wall</li> <li>Provides a visible barrier between the residential area and the airport property</li> </ul>	<ul style="list-style-type: none"> <li>Properties which benefit from barrier are not eligible for other types of mitigation</li> <li>Expensive measure which benefits a few and will delay implementation of other programs</li> </ul>
<b>Sales Assistance</b>	Yes	Up to 10% of Fair Market Value (FMV) <sup>2</sup>	65-75 DNL	<ul style="list-style-type: none"> <li>Allows the property owner to relocate outside the project area</li> <li>Maintains the residential neighborhood</li> <li>Stabilizes market by limiting sales to market absorption</li> <li>Airport sponsor obtains an easement which makes property Part 150 land use compatible</li> <li>Property owner is guaranteed fair market value for property</li> <li>Avoids vacant properties</li> <li>Maintains the jurisdiction(s)' tax base</li> </ul>	<ul style="list-style-type: none"> <li>Does not guarantee sale of home</li> <li>Depending on market conditions process can be slow</li> <li>Typically very low participation in this type of program</li> <li>Developing policies regarding differential payment to ensure market stability can be difficult</li> </ul>

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<sup>2</sup> Estimated cost is 10% of average fair market value based on homes purchased by BTV 2017 home acquisition program.

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<b>Purchase Assurance</b>	Yes	FMV <sup>3</sup>	65-75 DNL	<ul style="list-style-type: none"> <li>• Allows property owners to sell to the sponsor immediately, pending available funding</li> <li>• Allows for sound insulation of property along with current homeowner's ability to move from neighborhood</li> </ul>	<ul style="list-style-type: none"> <li>• Depending on how long it takes to sell the property, maintenance and protection costs could be excessive</li> <li>• Jurisdiction(s) would lose ad valorem tax revenue during sponsor ownership of property</li> <li>• The Airport sponsor obtains ownership of the property, which would result in costly maintenance to prevent deterioration including: lawn maintenance, securing from vandalism and theft, ensuring buildings remain mold-free, securing and maintaining swimming pools, providing routine inspections, which increases administrative costs to the project</li> <li>• The market absorption and foreclosure market may result in long term vacancies and destabilize the neighborhood and property values for remaining residents</li> <li>• The Program has excessive costs and timeline which will detract funding from strategies such as Sound Insulation and Sales Assistance</li> <li>• The Airport sponsor absorbs all the risk</li> </ul>
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<sup>3</sup> Estimated cost is based on the FMV of homes purchased by BTV 2017 home acquisition program.

<b>Easement Acquisition</b>	Yes	\$2,500	65-75 DNL	<ul style="list-style-type: none"> <li>• Allows the property owner to remain in their home</li> <li>• Maintains the residential neighborhood</li> <li>• Airport sponsor obtains an easement which makes property Part 150 land use compatible</li> <li>• Property owner is guaranteed a cash payment in exchange for the easement</li> <li>• Maintains jurisdiction(s)' tax base</li> <li>• Is an alternative for individuals who do not qualify for sound insulation</li> </ul>	<ul style="list-style-type: none"> <li>• Typically very low participation in this type of program</li> </ul>
<b>Land Acquisition &amp; Relocation</b>	Prior to Land Use Change	FMV (\$296,000) & Relocation costs (\$43,000) <sup>4</sup>	75+ DNL	<ul style="list-style-type: none"> <li>• Allows homeowners to sell to the Airport sponsor immediately, pending available funding</li> <li>• There are no other viable mitigation options for homes located in the highest noise levels</li> </ul>	<ul style="list-style-type: none"> <li>• Jurisdiction(s) would lose ad valorem tax revenue</li> <li>• The Airport sponsor obtains ownership of the property, which would result in costly maintenance to prevent deterioration including: lawn maintenance, securing from vandalism and theft, which increases administrative costs to the project</li> </ul>
<b>Sound Insulation</b>	Encouraged / Not Required	\$45,000 <sup>5</sup>	65- up to the 75 DNL	<ul style="list-style-type: none"> <li>• Allows the property owner to remain in their home</li> <li>• Maintains the residential neighborhood</li> <li>• Maintains jurisdiction(s)' tax base</li> </ul>	<ul style="list-style-type: none"> <li>• Is not effective in residential properties in high DNLs</li> </ul>

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<sup>4</sup> Estimated cost is based upon the average of the 2017 property purchases by Burlington International Airport

<sup>5</sup> Estimated cost is based upon 2017 costs from other New England Region sound insulation programs

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## 2.0 Sound Barriers and Buffers (HMMH)

### Introduction to Sound Barriers

Physical barriers can be effective means of reducing noise exposure in certain situations. Barriers are commonly used along roadways and near stationary noise sources to minimize the propagation of noise to adjacent communities. Barriers can be effective at airports in containing the noise at runup locations, and airport buildings can offer some shielding from gate and taxiing operations. Barriers near runways to block takeoff and landing noise are generally not practical due to airspace restrictions.

### Sound Barrier Effectiveness

Sound barriers begin to be effective only when the line-of-sight between the source and receiver is broken. However, simply breaking the line of sight between the source and receiver provides a very minimal amount of shielding from noise produced by the source. Sound, as a wave phenomenon, experiences diffraction around objects in its path. This means that for an optimally effective noise barrier, line-of-sight blockage alone is insufficient. Two quantities must be considered when predicting the value of a noise barrier:

1. Path length difference. This is the distance the sound travels from source to receiver, over the top of the barrier, minus the direct distance from source to receiver through the barrier.
2. Wavelength of sound.

The barrier's effectiveness depends on the ratio of these two quantities. The greater the path-length difference relative to the wavelength of the sound, the more the sound will be blocked. For a broadband noise source, such as a jet aircraft, the effectiveness of the barrier is frequency-dependent, with more blockage of high-frequency components than low-frequency components. In practical terms, what this means is that for a barrier to be optimally effective, it should be:

1. High relative to source and receiver heights,
2. High relative to the wavelength of the lowest-frequency sound to be blocked, and
3. Close to either source or receiver.

The requirement that the barrier be high relative to the source height means that for aircraft noise, barriers can only be effective for blocking ground noise, and are ineffective for airborne aircraft.

### Constraints to Barrier Design

A significant constraint limiting the effectiveness of barriers at airports is the requirement to limit the height of obstacles in the airport environs. The heights of objects near an airport's runways are limited by CFR Part 77<sup>6</sup>, which defines imaginary surfaces above the airfield that cannot be penetrated by structures or other objects on the ground. These surfaces include a horizontal rectangle including and adjacent the runway, and sloping surfaces rising from this horizontal surface at a slope of 1:7 (rise:run) to the sides of the runway, and 1:50 from the ends of the runway. This severely limits the ability to build

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<sup>6</sup> Height restrictions are regulated by 14 CFR Part 77 "Objects Affecting Navigable Airspace" and other associated FAA documents.

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a barrier both high enough and close enough to the runway to be effective in blocking takeoff roll and landing roll noise.

For taxiways and runup areas sufficiently distant from runways, the Part 77 constraints may allow structures or barriers of sufficient height to provide effective shielding.

If a barrier cannot be placed close to the noise source, its effectiveness will be greatest if it can be placed close to the receiver location. This means that a high wall built adjacent to residences providing acoustic blockage, may result in visual or aesthetic intrusion to these residents. In such cases, the community would need to balance the visual intrusion against the expected noise benefits of such a structure.

### **Airport Improvement Program Funding and Requirements**

In accordance with Appendix R “Noise Compatibility Planning/Projects” of the Federal Aviation Administration (FAA) Order 5100.38D Airport Improvement Program Handbook<sup>7</sup> (AIP Handbook), a noise barrier must be able to reduce aircraft noise levels by at least 5 dB<sup>8</sup>. If construction of a noise barrier is funded through the Part 150 program, any residences receiving a 5 dB reduction in DNL would be considered mitigated and would likely not maintain eligibility for other mitigation measures such as sound insulation or acquisition.

### **Advantages**

- Provides noise relief to those adjacent to wall
- Provides a visible barrier between the residential area and the airport property

### **Disadvantages**

- Properties which benefit from barrier are not eligible for other types of mitigation
- Expensive measure which benefits a few and will delay implementation of other programs

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<sup>7</sup> FAA Order 5100.38D “Airport Improvement Program Handbook”, Appendix R “Noise Compatibility Planning/Projects”, effective date September 30, 2014.

<sup>8</sup> FAA Order 5100.38D Appendix R, Table R-6 “Noise Compatibility Planning/Project Requirements”, m. “Noise Mitigation Measures – On-airport Noise Barriers” Paragraph (4): “The project must reduce noise to a land use noncompatible with aircraft noise by at least 5 dB.”

### 3.0 Noise Compatibility Program With No Change in Land Use

#### Sales Assistance Program<sup>9</sup>

##### Objective

The objective of a Sales Assistance Program is to provide eligible property owners who wish to relocate outside the noise impact area with technical and financial assistance in the sale of their home on the open market. The Airport sponsor will not acquire the property and is responsible for closing costs. The property owner is not eligible for relocation benefits. There will not be any change to the underlying land use.

##### Implementation

The property owner(s) will enter into an agreement with the Airport sponsor agreeing to participate in the voluntary Sales Assistance Program. The property owner(s) will be responsible for the marketing and selling their home through a licensed real estate agent, including listing the property on the open market. The listing price will be based on the Fair Market Value (FMV) as established by appraisal following federal appraisal guidelines<sup>10</sup>. If the property does not sell at the FMV within a reasonable timeframe, the Airport sponsor may provide a differential payment that shall not exceed a percentage of the FMV. Prior to the sale of the home, the owner will record an avigation easement in exchange for sales assistance. It is typical for these programs to pay the realtor commission on the sale of the property. This will encourage the local realtors to participate in the program and help to ensure the market remains stable. Policies regarding length of time on market, appraisals and market absorptions will be developed as part of the program's policy and procedures process.

Once a property sells through the Sales Assistance Program, the property is then considered noise compatible under FAA criteria and a subsequent property owner will not be eligible for any of the other programs under the Noise Compatibility Program.

##### *Typical Appraisal Process*

The appraisal process shall follow federal guidelines. FMV of a property shall be determined by an appraisal of the property by a certified appraiser. This appraisal will be reviewed by a certified appraiser ("review appraiser") and the FMV will be determined<sup>11</sup>. The FMV will be used as the sale price for the home on the open market.

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<sup>9</sup> FAA Order 5100.38D Appendix R, Table R-6 "Noise Compatibility Planning/Project Requirements", f. "Acquire Easement for Noise Compatibility"

<sup>10</sup> 49 CFR part 24, the current version of FAA Order 5100.37, Land Acquisition and Relocation Assistance for Airport Projects, and the current version of Advisory Circular 150/5100-17, Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects.

<sup>11</sup> Appraisals and review's determinations must be prepared and performed in accordance with: 42 USC Chapter 61, "Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs"; 49 CFR Part 24, "Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-Assisted Programs"; the Uniform Standards of Professional Appraisal Practice ("USPAP"); and all state, local and FAA standards.

### *Neighborhood Stability*

To maintain neighborhood stability, the airport sponsor will conduct a market absorption study during program implementation to determine the expected rate at which homes can be sold without affecting the pricing of the housing market in the area.

### **Avigation Easement**

An avigation easement is required in exchange for assisting in the sale of the property. This easement will run with the property. Once easement is recorded, the property is then considered noise compatible under FAA criteria.

### **Timeline**

The sale of a property will depend upon market conditions and the sponsor's current noise grant funding. Based on current market conditions, sales could occur within 3 months based upon grant availability.

### **Advantages**

- Allows the property owner to relocate outside the project area
- Maintains the residential neighborhood
- Stabilizes market by limiting sales to market absorption
- Airport sponsor obtains an easement which makes property Part 150 land use compatible
- Owner is guaranteed fair market value for property
- Avoids vacant properties
- Maintains the jurisdiction(s)' tax base
- Is an alternative for individuals who do not qualify for sound insulation

### **Disadvantages**

- Does not guarantee sale of home
- Depending on market conditions process can be slow
- Typically very low participation in this type of program
- Developing policies regarding differential payment to ensure market stability can be difficult

## **Purchase Assurance Program**<sup>12</sup>

### **Objective**

The objective of a purchase assurance program is to provide property owners who wish to relocate outside the noise impact area with the ability to sell their property directly to the Airport sponsor in exchange for an avigation easement. Homeowners will not be eligible for relocation benefits. Funds received from the sale of the property must be reinvested in the noise mitigation program. There is no change to the underlying land use.

### **Implementation**

The Airport sponsor will purchase an eligible property from the owner in exchange for an avigation easement. The home is purchased based upon the FMV as established through the FAA's appraisal process<sup>13</sup>. Upon sale and recording of the easement, the Airport sponsor will sound insulate the home and then sell it on the open market. The Airport sponsor will be responsible for closing costs associated with the acquisition of the property.

### **Avigation Easement**

An avigation easement is required in exchange for purchasing the property. This easement will run with the property. Once the easement is recorded, the property is then considered noise compatible under FAA criteria.

### **Timeline**

It is estimated that after the Airport sponsor takes possession of these properties, it would be required to maintain these properties for a minimum of 18 months while the property undergoes the sound insulation process and is placed on the open market for sale.

### **Advantages**

- Allows property owners to sell to the sponsor immediately, pending available funding
- Allows for sound insulation of property along with current property owner's ability to move from neighborhood

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<sup>12</sup> FAA Order 5100.38D Appendix R, Table R-6 "Noise Compatibility Planning/Project Requirements", f. "Acquire Easement for Noise Compatibility"

<sup>13</sup> Appraisals and review's determinations must be prepared and performed in accordance with: 42 USC Chapter 61, "Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs; 49 CFR Part 24, "Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-Assisted Programs"; the Uniform Standards of Professional Appraisal Practice ("USPAP"); and all state, local and FAA standards.



### Disadvantages

- Depending on how long it takes to sell the property, maintenance and protection costs could be excessive
- The jurisdiction(s) would lose ad valorem tax revenue during Airport sponsor ownership of property
- The Airport sponsor obtains ownership of the property, which would result in costly maintenance to prevent deterioration including: lawn maintenance, securing from vandalism and theft, ensuring buildings remain mold-free, securing and maintaining swimming pools, providing routine inspections, which increases administrative costs to the project
- The market absorption and foreclosure market may result in long term vacancies and destabilize the neighborhood and property values for remaining residents
- The Program has excessive costs and timeline which will detract funding from strategies such as Sound Insulation and Sales Assistance
- The Airport sponsor absorbs all the risk

### Purchase of Avigation Easement<sup>14</sup>

#### Objective

The objective of an easement acquisition is to provide eligible property owners who wish to remain in their home, and do not qualify for sound insulation the ability to obtain a cash payment in exchange for the easement. There will not be any change to the underlying land use.

#### Implementation

Property owners who do not qualify for sound insulation and would like to remain in their home, may be able to obtain a one-time cash payment in exchange for an avigation easement. Easement values are typically in the \$2,000 - \$2,500 range.

#### Avigation Easement

This easement will run with the property. Once easement is recorded, the property is then considered a compatible land use under FAA criteria.

#### Timeline

The purchase of the avigation easement is dependent upon the sponsor's current noise grant funding.

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<sup>14</sup> FAA Order 5100.38D Appendix R, Table R-6 "Noise Compatibility Planning/Project Requirements", f. "Acquire Easement for Noise Compatibility"

### Advantages

- Allows the property owner to remain in their home
- Maintains the residential neighborhood
- Sponsor obtains an easement which makes property Part 150 land use compatible
- Property owner is guaranteed a cash payment in exchange for the easement
- Maintains the jurisdiction(s)' tax base
- Is an alternative for individuals who do not qualify for sound insulation

### Disadvantages

- Typically very low participation in this type of program

## 4.0 Noise Compatibility Program with a Change in Land Use

For those homes located within the highest DNL noise contours, where other noise mitigation programs are not feasible, a land acquisition and relocation may be offered to obtain land use compatibility.

### Land Acquisition and Relocation

#### Objective

The objective of a land acquisition and relocation program<sup>15</sup> is to provide owners of properties located in areas of high noise exposure (75 dB DNL), where other mitigation programs are not feasible, the ability to sell their property and relocate outside the noise impact area. The Airport sponsor will purchase the property at FMV from the owner. The occupants will be provided relocation benefits to allow them to move to an area outside the noise impact area. The sponsor will raze the structure upon acquisition and work with the local jurisdiction to rezone the land to a compatible land use.

#### Implementation

The land acquisition and relocation program is comprised of two transactions, the purchase of the property from the owner and the relocation of the occupants. The Airport sponsor will purchase an eligible property from the owner following federal requirements<sup>16</sup>. The home is purchased based upon the FMV as established through the FAA's appraisal process<sup>17</sup>. The occupants of the home will be

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<sup>15</sup> FAA Order 5100.38D Appendix R, Table R-6 "Noise Compatibility Planning/Project Requirements", e. "Acquire Land for Noise Compatibility and 49 CFR part 24, the current version of FAA Order 5100.37, Land Acquisition and Relocation Assistance for Airport Projects, and the current version of Advisory Circular 150/5100-17, Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects.

<sup>16</sup> FAA Order 5100.37B "Land Acquisition and Relocation Assistance for Airport Projects" and FAA Advisory Circular 150/5100-17 "Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Project (Consolidated through Change 7)"

<sup>17</sup> Appraisals and review's determinations must be prepared and performed in accordance with: 42 USC Chapter 61, "Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs; 49 CFR Part 24,

eligible for a package of relocation benefits that are designed to provide new housing in a manner that is similar in size and function.

After the Airport sponsor has taken possession of the property, they will arrange for the structure to be razed. The Airport sponsor will include the acquired land on the Noise Land Inventory Map and Noise Land Reuse Plan. The Airport sponsor will continue to care for and manage the property until such time as it can rezoned or designated for a compatible use.<sup>18</sup>

### **Avigation Easement**

An avigation easement will be placed on the property after the purchase of the property. The easement will run with the property and the new owners will be subject to the easement. Any proceeds derived from the future sale of the land must be utilized for noise mitigation purposes.

### **Timeline**

The acquisition and relocation process takes 12-18 months depending upon the relocation needs of the occupants.

### **Advantages**

- Allows property owners to sell to the sponsor immediately, pending available funding
- There are no other viable mitigation options for homes located in the highest noise levels

### **Disadvantages**

- Jurisdiction(s) would lose ad valorem tax revenue
- The Airport sponsor obtains ownership of the property, which would result in costly maintenance to prevent deterioration including: lawn maintenance, securing from vandalism and theft, which increases administrative costs to the project

[END OF MEMORANDUM]

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"Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-Assisted Programs"; the Uniform Standards of Professional Appraisal Practice ("USPAP"); and all state, local and FAA standards.

<sup>18</sup> FAA Order 5100.38D Appendix R, Table R-6 "Noise Compatibility Planning/Project Requirements", e. "Acquire Land for Noise Compatibility", (2) The land must be included on (2) Noise Land Inventory Map and the Noise Land Reuse Plan. APP-400 maintains current guidance on noise land inventory and reuse plans.

# MEMO

**Date:** February 23, 2018  
**To:** BTV NCP Technical Advisory Committee Members  
**From:** Sarah Degutis, Project Manager  
**Subject:** Noise Compatibility Plan – Land Use Measures Checklist  
**cc:** Gene Richards, Nic Longo; BTV

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This document is intended to provide guidance for technical advisory committee (TAC) members on the Burlington International Airport's Noise Compatibility Plan update. The TAC will be presented with various land use measures over the course of the January 23, 2017 and March 13, 2018 committee meetings and in the supporting technical papers. The intent of the following is to break down areas for the TAC members to discuss with their jurisdictions and provide feedback on as a part of the NCP process versus once a measure has been enacted as part of the implementation process.

## Areas for feedback during the NCP

1	<b>Residential Sound Insulation</b>
	Is residential sound insulation a good option for your community? If not, please share your concerns.
	Should residential sound insulation require an easement? (Note: this is the only program offered to residential properties where it is optional)
2	<b>Community Building Sound Insulation</b>
	Is community building sound insulation a good option for your community? If not, please share your concerns.
	Should schools be prioritized separately than the homes by DNL?
	Would you prioritize them at the start of a program before residential programs, at the end or keep them where they fall in the contour for priority?
3	<b>Sound Barriers and Buffers</b>
	Are sound barriers or buffers a good option for your community? If not, please share your concerns.
4	<b>Sales Assistance</b>
	Is sales assistance a good option for your community? If not, please share your concerns.
5	<b>Purchase Assurance</b>

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	Is purchase assurance a good option for your community? If not, please share your concerns.
6	<b>Easement Acquisition</b>
	Is easement acquisition a good option for your community? If not, please share your concerns.
7	<b>Land Acquisition and Relocation</b>
	Is land acquisition and relocation in the noise impact area a good option for your community?
	If not, do you agree that land acquisition and relocation be offered to those properties located in the highest noise impacted areas (75+ DNL) where other noise mitigation programs are not available?
8	<b>Avigation Easement</b>
	Based on the examples provided, what items seem reasonable for inclusion in an easement?
	Based on the examples provided, what items would your jurisdiction not want to see an easement?
	Does your jurisdiction have concerns there may be neighborhoods where some properties have easements (sales assistance/purchase assurance) and other properties do not have easement (potentially sound insulation).

#### Areas of feedback during program planning and implementation

1	<b>Sound Insulation</b>
	Should the sound insulation of the Chamberlin School be prioritized over all other measures for the residential properties?
	<b>NOTE:</b> Other decisions on the order of noise mitigation programs, pace of the sound insulation and other programs, number of homes in each grant, etc. will be determined by the Airport sponsor working with the local FAA ADO and consultant team.
2	<b>Does your jurisdiction have a preference on which noise mitigation program should be implemented?</b>

**BURLINGTON INTERNATIONAL AIRPORT  
NOISE COMPATIBILITY PROGRAM  
TECHNICAL ADVISORY COMMITTEE  
MEETING SUMMARY (#4)  
March 22, 2018**

**BTV STAFF/CONSULTANTS:**

Nic Longo, BTV (Chair)  
Gene Richards, BTV (Vice Chair)  
Larry Lackey, BTV  
Erin Desautels, Vermont Small Business Accelerators, LLC  
Diane Carter, Jones Payne Group  
Sarah Degutis, Jones Payne Group (on phone)  
Brad Nicholas, HMMH

**TAC MEMBERS:**

Chris Tumilowicz, Vermont Air National Guard  
Richard Lizzari, Vermont Air National Guard  
John Johnston, Vermont Army Guard  
George Maille, Jr., South Burlington  
Carmine Sargent, South Burlington  
Paul Conner, South Burlington Planner  
Steve Wisloski, South Burlington School Board  
Robert McEwing, Essex  
Jessie Baker, Winooski City Manager  
Patrick Gallivan, St. Michael's College

**PUBLIC ATTENDEES:**

Steve Marriott, South Burlington  
Diana Camini, South Burlington

Miranda Jurswad, The Other Paper

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**1.0 WELCOME and OVERVIEW**

Nic Longo, Aviation Deputy Director, opened the meeting at 5:05 PM. Introductions were done.

**2.0 PUBLIC FORUM AND COMMENTS**

There were no comments from the public at this time.

**3.0 NOISE EXPOSURE MAP PROGRESS UPDATE**

Nic Longo announced the Airport received funding approval for the Noise Exposure Map (NEM) to be updated. The intent is to have it submitted to the Federal Aviation Administration (FAA) by the end of the year. The NEM update is a federal process which creates an opportunity for public input. Since this process will be fast-tracked, the

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Airport is recommending the Noise Compatibility Plan (NCP) be put on hold until the updated NEM is made available to the public for review.

Nic Longo announced the Airport will hold Sound Mitigation Committee meetings during the NEM Update to continue the dialogue with the communities regarding sound issues.

The TAC will reconvene to discuss the final recommendations in the Noise Exposure Map in the third quarter of the year. The NEM will be submitted in to the FAA by the end of the year and the NCP will be submitted shortly thereafter. The NEM will include F35A operations.

Brad Nicholas, HMMH, updated the committee with specifics regarding the NEM Update. He stated NEM will look at two timeframes, the year of submission (2018) and the 2023 forecast year. The 2018 map will show existing conditions for operations for the last 12 months including the F-16. The five year forecast map (2023) will include operations from the F-35A. He reviewed the project schedule noting there is a short timeframe to collect data, evaluate compatible land uses, obtain public input and submit to the FAA for approval.

Nic Longo said the TAC will meet to discuss the first draft of the public document when it is available.

George Maille asked if the fleet mix is unchanged commercially. Nic Longo said there are no significant changes to the commercial aircraft fleet.

#### **4.0 CHAPTER 4 – RECOMMENDED NCP REVISIONS (Part 2)**

The consultant team reviewed a number of noise mitigation programs that could be adopted for use at the Airport for properties located in the 65 and higher DNL noise contour. The consultants reviewed each program, a summary of implementation and the advantages and disadvantages. The programs the consultant team reviewed were:

##### *Sound Barriers & Buffers*

Brad Nicholas reviewed the construction of a sound barrier or buffer between the Airport and the adjoining residential area. He emphasized the following key points:

- Sound barriers work best if close to the source of the sound and must have adequate height in order to provide a benefit.
- Tall structures cannot be placed close to the runway so as to avoid conflicts with aircraft operations. Therefore, the use of barriers can often not be practical for neighborhoods that are very close to the runway
- One of the disadvantages is that a high wall on the residential side of the airfield may be obtrusive to the residents who live adjacent to it
- FAA requires barriers provide a noise reduction of five decibels (dB) for the non-compatible area (i.e. the 65 dB DNL). For those properties that receive the

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- noise reduction benefit from the barrier, they are not eligible for other types of mitigation such as sound insulation.
- The FAA requires that an Airport undertake the construction of a barrier prior to implementing any other noise mitigation program so the noise reduction benefits can be measured
  - The design and construction of a barrier can be very expensive..

*Comments Regarding Barriers:*

- Paul Conner asked if the decibel reduction is inside or outside the residence. Also, what are the target locations are for a barrier.

Brad Nicholas said there must be a 5 dB improvement (reduction). He stated that should the NCP include a recommendation for a barrier, then further analysis will be conducted to identify the area where a barrier could be useful. Paul Conner commented there may not be a dramatic contribution to decibel levels, but there is a quality of life impact. Brad Nicholas said the FAA will not provide funding for mitigation unless a five dB reduction can be demonstrated. He noted some airports have built a barrier at their own cost. Nic Longo said the Airport is looking at whether the addition of an acoustic barrier material to the Airport boundary fence will help with reducing aircraft ground noise in the residential neighborhoods. Gene Richards said there are things the Airport can do to reduce ground noise and which will be documented in the NCP.

- Paul Conner asked if it is advantageous to put a barrier in the NCP as a mitigation measure and decide later whether to build it.

Brad Nicholas said the purpose of the NCP is list items the Airport wants to secure FAA funding. He noted there is no advantage to including a recommendation that will not be funded. Gene Richards said a note will be included in the Noise Compatibility Program that the Airport would like to move forward when working with the community with amenities that may help mitigate noise. Diane Carter noted that a barrier should only be included if it is likely to be built. When considering other noise mitigation program, she recommends that Airport's include any program they think may be feasible for implementation. This allows the Airport to have some flexibility to respond to the changing needs of the community. She noted the purpose for this NCP update is because the current NCP only recommends land acquisition. The more programs included in the Plan, the flexibility the Airport to implement the best program at any given time.

- Carmine Sargent asked how much money has been spent on home purchases.

Nic Longo said staff would have to compile the number over the life of the program. In the last five years, he estimated close to \$40 million has been spent. Carmine Sargent commented it is hard to understand that a barrier to help the community is too expensive when the airport has spent so much money buying



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homes to benefit the airport. The barrier should be included in the plan. A barrier labeled as an “expensive measure” is not nearly as expensive as has been spent on home purchases. Ms. Sargent requested a comparison of the cost of the home purchases to that of building a barrier. The barrier was the most popular choice in the survey.

#### *Sales Assistance*

Diane Carter reviewed a typical sales assistance program which is defined as the property owner selling their home on the open market to an willing buyer for fair market value (FMV) as established by an appraisal. The Airport will assist in the sale of the home in exchange for an avigation easement. :

- The program will be designed to ensure there is stability in the affected neighborhood to ensure markets values are not adversely affected by this program.
- The program typically pays for the real estate commission on the transaction to ensure there is consideration for the avigation easement.
- The sales assistance process can be slow depending on market conditions and a sale is not guaranteed.
- The Airports does not possession of the property.
- Houses remain on the tax rolls maintaining the local tax base.
- For individuals who want to move outside of the affected neighborhood, sales assistance may be a good alternative for houses not eligible for sound insulation.

#### *COMMENTS*

- George Maille asked if the comparable properties used for the appraisal are located in the affected neighborhood or outside the area.

Diane Carter said the comparables come from the affected neighborhood, however, she will verify with the FAA.

- Jessie Baker asked how to prevent too many houses on the market at once.

Diane Carter said a market absorption study will be conducted to ensure property values are not negatively affected. Typically houses with the highest noise level go in first and go out from there.

- The woman asked if a homeowner can put their house on the market and be in the noise program.

Diane Carter said an individual can sell their house at any time. However, to be eligible for this program, the property owners will need to wait for this program to be included in the NCP and approved by the FAA.

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*Purchase Assurance*

Diane Carter reviewed a typical purchase assistance program which is defined as the property owner selling their home to the Airport for fair market value (FMV) as established by an appraisal in exchange for an easement. The Airport will assist sound insulate the home and then sell it on the open market. :

- The market absorption study will include the houses in the purchase assurance program as well as the sales assistance program to ensure market stability.
- This can be a long process where the home remains unoccupied for a long time during the sound insulation process. This may cause concerns in the neighborhood regarding vandalism.
- It is an expensive option which would limit the number of properties that purchased in a year.

*Purchase of Aviation Easements*

Diane Carter refreshed the committee on the definition of an aviation easement. She stated that in addition to the Airport obtaining an easement in exchange for noise mitigation, the Airport can also implement a program where the easement is purchased for cash. Some important items to know are:

- Easements for noise are typically less than \$10,000.
- The value is determined by an FAA process.
- Wording for the easement is not yet finalized.
- This is an options for affected properties that are not eligible for sound insulation but want to remain in the neighborhood.

*COMMENTS*

- Paul Conner asked if a homeowner who is eligible for sound insulation can choose to just obtain a cash payment for the easement.

Diane Carter said that it could be possible to offer this as part of the mitigation program. However, it would be a discussion for the committee and the Airport to determine whether this is viable program they want to offer. After some discussion by the group, Diane Carter indicated the noise mitigation program can be designed to fit this community and if they want to offer easement acquisition to only those properties not eligible for sound insulation that can be a policy decision.

- Jessie Baker asked if there are any examples of communities partnering with sound mitigation funding to funding for property improvements.

Diane Carter said there is examples of Airports that partner with local programs to create a greater benefit for the owner. It has to be carefully crafted to ensure the Airport is not violating any grant assurances. Ms. Carter gave examples of Airports partnering with local energy or utility companies to provide a greater benefit with regard to heating and cooling system by obtaining rebates. Ms. Baker stated that Winooski has a program to assist owners of rental properties and

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wondered if that would be possible. Ms. Carter stated it would be a good discussion to have once the plan is finalized.

- Jessie Baker asked the consultants to provide the list of Airports where there are partnerships to improve properties.

Nic Longo said discussions have begun with Efficiency Vermont, BED, and Vermont Gas with regard to the Airport's upcoming program.

#### *Land Acquisition and Relocation*

Diane Carter stated Part 150 land use guidelines state that structures (houses, public buildings, schools) within the 75 dB DNL should be purchased. It is not feasible to mitigate noise impact with other programs. She briefly reviewed the acquisition and relocation process. She noted this was not being recommended for areas in lower noise contours.

#### *Comparison of Programs and Costs*

Ms. Carter reviewed a table which identified the number of homes that could be treated by program if the Airport received a \$5 million grant. The discussion review the type of program, estimated cost per home, and the average number of homes for that grant.

#### *COMMENTS*

- George Maille asked if it is better to seek more funding for each program rather than lump all into one AIP.

Diane Carter explained the Airport could certainly apply for individual grants for each approved program. It may be better to have the grant structured with multiple programs. This would allow the Airport the flexibility to use the money for a particular program that has more interest. She gave the example that if a grant is for a specific program and no one wants to participate, the money in that grant can't be used for anything else. If the grant has multiple programs, it is easier for the FAA to approve the use the funds if the need changes.

Gene Richards pointed out the noise program is an FAA program that is only available if funding is available.

- Paul Conner asked if the money received from the sale of the purchase assurance could be reused by the noise program to help fund additional purchases.

Diane Carter stated the any proceeds from the sale of a home are required to be used for noise mitigation purposes.

- Paul Conner asked the summary comparison slide be revised to show the additional funds that could be used to purchase additional homes.

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## **5.0 TAC QUESTIONS & COMMENTS**

There was discussion of waiting to receive the updated information on the NEM before moving forward. The consensus is to cancel the May 2018 TAC meeting and reconvene the Sound Mitigation Committee in June pending receipt of the updated information.

Jessie Baker requested a schedule be drafted showing both processes and when the information will be available to the public.

Paul Conner said it would be helpful to inform the public of which measures are the priority before there is a draft plan.

The committee discussed the topic for the June Sound Committee meeting could be focusing on the language of the avigation easements. Gene Richards also stated there could be a separate working committee to discuss easement language as well.

## **6.0 WRAP UP & ADJOURNMENT**

Future Meetings & Agenda Items:

- TAC meetings on hold until NEM contours developed
- Sound committee will be reinstated with Q2 meeting
- Fall 2018 – NEM Public Hearing

With no further business and without objection the meeting was adjourned at 6:28 PM.

**BTv NCP TAC Meeting #5**

**September 19, 2019**

# BURLINGTON INTERNATIONAL AIRPORT

## Technical Advisory Committee Meeting

DATE: September 19, 2019

### SIGN-IN SHEET

#	NAME	ADDRESS/COMPANY NAME	PHONE NUMBER/ EMAIL
1	Bob McEwing	Northeast Airport Consultants	McEwing@NE6CVT.com
2	Tim McCole	HERITAGE	914 356 2161 Tim.McCole@FlyHERITAGE.com
3	Chris Morgan	406 N. Brownell Rd Williston, VT.	MorganCW@comcast.net
4	Donna Constantineau	1730 Essex Rd Williston, VT 05445	donnamarie.papernoon@gmail.com
5	Col John Johnston	VTARNG	John.m.johnston@mil@mail.mil
6	John Klesch	Stitzel Page Fletcher for SB Sch. Dist.	jklesch@firmspf.com
7	Jim Duncan	26 Hall St Winooski Winooski City Council	jduncan@winooski.vt.gov
8	Richard Lizzari	VTNG Colchester 789 National Grid Rd	802 338-3424 Richard.Lizzari@winooski.vt.gov
9	Jessie Baker	City of Winooski	jbaker@winooski.vt.gov
10	Paul Conner	South Burlington	pconner@sbort.com
11	Tim George	7 Brandyman St, Burl.	tgeorge@burlington.gov
12			
13			



## AGENDA

### **BTV Noise Compatibility Program (NCP) Technical Advisory Committee Meeting**

**September 19, 2019**

5:00 p.m. - 6:30 p.m.

Conference Room 3

Teleconference for those who are unable to attend: 321-586-0839 PIN: 818 198 348#

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5:00 – 5:10     Welcome and overview of agenda

5:10 – 5:20     Public forum and comment period

5:20 – 5:30     Update of Noise Exposure Map

5:30 – 6:00     Review City's Recommended Noise Compatibility Program & next steps

6:15 – 6:30     Technical Advisory Committee questions and comments

Adjournment



**BTV Noise Compatibility Program  
Update – Technical Advisory  
Committee**

September 19, 2019

 **The Jones Payne Group, Inc.**  
*Architects, Planners, and Information Managers*

 **HARRIS MILLER MILLER & HANSON INC.**





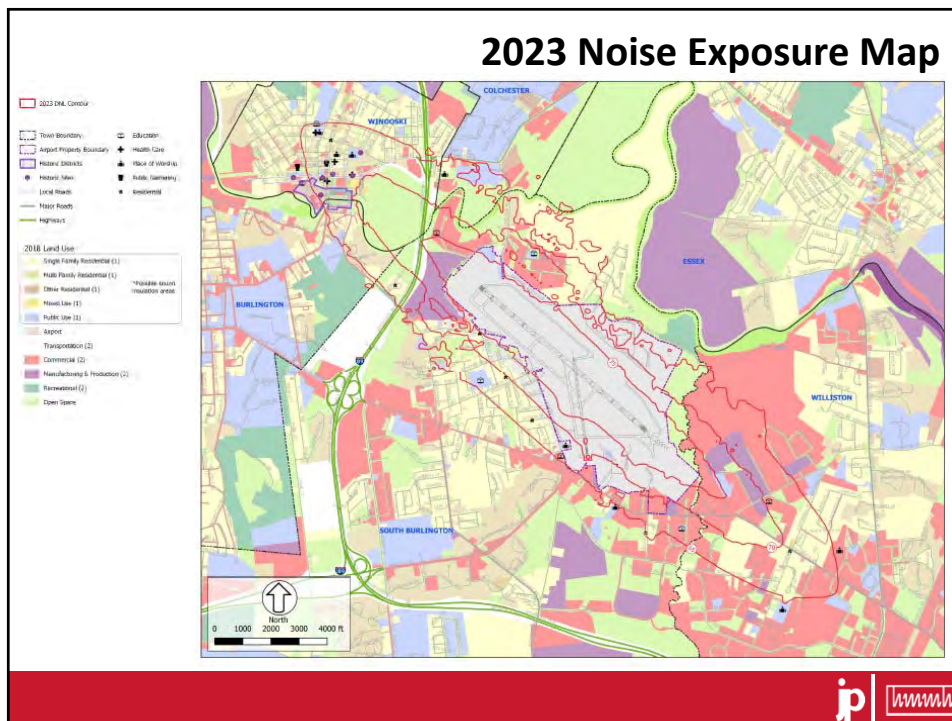
## Public Forum and Comment Period



## Purpose of TAC

- The TAC is advisory to the City solely for purposes of the BTV Part 150 Study, including:
  - Review of study inputs, assumptions, analyses, documentation, etc.
  - Input, advice, and guidance related to Noise Compatibility Plan (NCP) development
- The City shall respect and consider TAC input, but must retain overall responsibility for the Part 150 Study and NCP recommendations
- The TAC and City recognize FAA is responsible for accepting Noise Exposure Map (NEM) and NCP submissions and for approving NCP measures
- TAC members represent the interests of their organization and/or constituents
- TAC members are expected to provide two-way communication between the City and their organizations / constituents





## Noise Exposure Map

- Open House held on May 29 and May 30, 2019
- NEM to be submitted to FAA on September 23, 2019
- Final document available on [www.BTVSound.com](http://www.BTVSound.com)

## Estimated Population and Dwelling Units

**Table 5. Estimated Residential Population within for 65 dB DNL Historical Contour Cases**

Sources: US Census (2010), Jones Payne Group (2018)

65 dB Day-Night Average Sound Level, DNL Contour	Estimated Dwelling Units and Population	Land Use Inventoried and Depicted for this 2018/2023 NEM <sup>1</sup>			Comparable Previously Documented Values <sup>2</sup>
		On Single Family Parcels	On Multi-Family & Mixed Use Parcels	Estimated Total	Estimated Total
2015 Noise Exposure Map	Dwelling Units	616	203	819	976 <sup>3</sup>
	Population	1,429	471	1,900	2,267 (2,531) <sup>3</sup>
"ANG Scenario 1" Contour from the USAF's September 2013 FEIS, Figure BR3.2-8.	Dwelling Units	1,186	1,758	2,944	2,963 <sup>4</sup>
	Population	2,752	4,079	6,830	6,663 <sup>4</sup>
2018 Noise Exposure Map	Dwelling Units	134	30	164	
	Population	311	70	380	
2023 Noise Exposure Map	Dwelling Units	890	1,750	2,640	
	Population	2,065	4,060	6,125	



## NCP GOALS & OPTIONS

### Noise Compatibility Program (NCP) Update Project Focus and Goals:

- Goal is to find ways to transition from land acquisition to other land use measures
- Focus is on updating land use measures
- Recommendations will be based on the 2023 noise contour

- Mitigation options must:
  - Meet eligibility requirements for federal funding under FAA guidelines
  - Provide a benefit to the local residents; especially those that are in non-compatible areas identified on the FAA accepted NEM
- Mitigation measures will be evaluated using factors such as:
  - Technical feasibility
  - Impacts to residents
  - Cost
  - Schedule



## Recommended Monitoring & Review Elements

### Monitoring & Review of NEM & NCP

- Update of NEM one year after full operation of F35 aircraft
- Estimated funding in FFY2021.

### Flight Track Monitoring

- Acquisition of a flight track monitoring system



## Recommended Land Use Measures

### Land Acquisition & Relocation

- Property located in the 75 DNL contour
- Voluntary purchase of residential units from owner using federal guidelines
- Relocation benefits for the occupants
- Demolition of structure
- Land reuse study for compatible use of land



### Sound Insulation

- Property located in the 65 – 70 DNL contour
- Property located in the 75 DNL where majority of property is outside the 75 DNL
- No aviation easement

### Residential

- Installation of acoustical windows and doors
- Reduce interior noise level to 45 dB DNL
- Must have existing interior noise level above 45 dB DNL to qualify
- Owner remains in home

### Community Buildings

- Eligible community buildings include schools and other noise sensitive buildings.



## Recommended Land Use Measures

### Sales Assistance

- Property located in the 65 – 70 DNL contour
- Avigation easement required
- Airport assists with the sale of the home on the open market; airport does NOT take possession of property
- Homeowner enters program by signing agreement which includes:
  - Homeowner to list property at Fair Market Value (FMV)
  - Homeowner to convey Avigation Easement prior to sale of home
  - Airport guarantees they will provide a differential to assist in the sale of the property if seller receives an offer of less than FMV
- Owner / Occupant does not receive relocation benefits

### Purchase Assurance

- Property located in the 65 – 70 DNL contour
- Avigation easement required
- Airport takes possession of property and resells it on the open market
- Homeowner enters program by signing agreement which includes:
  - Homeowner to sell property at appraised Fair Market Value (FMV)
  - Homeowner to convey Avigation Easement prior to sale of home
- Owner / Occupant does not receive relocation benefits
- Airport maintains and preserves property during the sound insulation process



## Recommended Land Use Measures

Below are the estimated average cost for each program per home and the number of properties that would be eligible based upon a \$5 million grant

Program	Cost Per Home	# of Homes
Sound Insulation	\$ 54,000	93
Sales Assistance	\$ 35,520	141
Purchase Assurance	\$ 355,200	14
Acquisition & Relocation	\$ 407,000	12

Note: Cost per home is based upon actual costs from BTV Airport programs or the New England Region plus 20% administration costs



### **NCP Next Steps**

- NCP Public Hearing - Thursday, October 24
- Submit NCP to FAA – December 2019
- Anticipated NCP Approval – June 2020



### **TAC questions and comments**

**Primary NCP Contact:**  
Diane Carter, Project Manager  
The Jones Payne Group  
BTVsound@jonespayne.com  
617-790-3747



**BURLINGTON INTERNATIONAL AIRPORT  
PART 150 NOISE COMPATIBILITY PROGRAM UPDATE (NCP)  
RECOMMENDED NOISE MITIGATION PROGRAM**

**UPDATED SEPTEMBER 23, 2019**

## **Introduction**

The purpose of this paper is to provide the Technical Advisory Committee (TAC) with the recommended noise compatibility program (NCP) for Burlington International Airport. These recommendations are based upon feedback from the committee members, written comments from local jurisdictions including South Burlington and Winooski and public comments received at the Noise Exposure Map Open House.

The purpose of this NCP update is to develop a more robust noise mitigation program focused on community-based programs which are designed to preserve and enhance the existing land use rather than a program focused on changing the existing land use. The City prefers the local surrounding residential areas to remain as a source of affordable housing and stability for the area. All programs are recommended to be voluntary.

Upon approval of the NCP by the FAA, the City will undertake the development of a noise implementation plan which will develop key policies, funding, and phasing priorities and schedules.

## **2018 and 2023 Noise Exposure Map**

The Noise Exposure (NEM) Map Update identified the existing and projected aircraft operations and associated noise exposure. This update was undertaken to accurately assess the anticipated impacts of the transition of Vermont Air National Guard from F16 to F35 military aircraft operations.

The 2023 noise contour is anticipated to elongate along the ends of Runway 15/33 and contract along the sideline bringing a larger impact to the north into the Town of Winooski and reducing the number dwelling units in South Burlington when compared to the 2020 contour.

## **Estimated Population and Dwelling Units**

The 2018 and 2023 Noise Exposure Map document provides detailed analysis of the estimated affected population and land. Table 4, Estimated Residential Population within the 2018 and 2023 Contour Cases and Table 5, Estimated Residential Population within the 65 dB DNL Historical Contour Cases delineate the population and dwelling units by jurisdiction for each noise contour band.

The table below presents the summarized estimated residential population within the 2023 NEM contour. These estimates were developed by counting the dwelling units within each contour band and assuming the average household size for the units within the Census blocks is 2.32 residents.

The table below summarizes the total population and dwelling units that located within the 65 and higher dB DNL contour. These dwelling units will be eligible for the FAA approved noise compatibility program providing they meet FAA participation requirements.

### Estimated Population and Dwelling Units within the 2023 Noise Contours

Day-Night Average Sound Level (DNL)	Estimated Dwelling Units and Population	Single Family Parcels	Multi-Family & Mixed Use Parcels	Estimated Total
65 -70 dB Contour	Dwelling Units	781	1,563	2,344
	Population	1,812	3,626	5,438
70-75 dB Contour	Dwelling Units	97	186	283
	Population	225	432	657
75 dB+	Dwelling Units	12	1	13
	Population	28	2	30
<b>Total</b>	<b>Dwelling Units</b>	<b>890</b>	<b>1,750</b>	<b>2,640</b>
	<b>Population</b>	<b>2,065</b>	<b>4,060</b>	<b>6,125</b>

### Noise Compatibility Program Recommendations

The NCP is comprised of three types of measures; 1) airport operations, 2) monitoring and review and 3) land use. Below are the measures the City intends to include in the NCP.

#### Airport Operations Measures

No new aircraft operations measures are being considered under this update. A summary of actions taken under the previous NCP is contained in the Noise Exposure Map document, Chapter 4, Existing Noise Compatibility Program.

#### Monitoring and Review Elements

##### Ongoing Monitoring & Review of NEM and NCP Status

This measure provides for the revision of the NEM and NCP when unanticipated changes in the level of airport activity occur.

**Recommendations: The City recommends the NEM and NCP documents are updated when necessitated by operational changes. The Airport is committed with the Vermont Air National Guard to a joint NEM update one year after the operation of the F35 aircraft. This update is anticipated to be funded in FFY2021.**

##### Noise Monitoring and Flight Track Monitoring

Acquisition of noise monitoring and flight tracking system will provide the City, public and operators with information regarding aircraft operations.

**Recommendation: The City recommends the purchase of a noise monitoring and flight tracking system.**



## **Land Use Measures**

The City will utilize the 2023 NEM future contour as the means of determining eligibility and implementation for the land use measures recommended.

The properties must be within the 65 dB DNL or higher noise contour for which the land use is considered not compatible (49 USC § 47502, as implemented by Table 1 of Appendix A in 14 CFR Part 150). The requirements for implementing these types of programs is defined by the FAA in accordance with Appendix R “Noise Compatibility Planning/Projects” of FAA Order 5100.38D “Airport Improvement Program (AIP) Handbook<sup>1</sup>”.

## **Land Acquisition and Relocation**

Non-compatible land use includes residences within the 65 dB DNL contour. Eligible property owners will be paid fair market value for their property at the highest and best rate, and provided relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the “Uniform Act”) and implementation of Department of Transportation (DOT) regulations. The City, in coordination with applicable jurisdictions, will define program boundaries and identify options for compatible reuse of the acquired properties.

**Recommendation: The City recommends land acquisition and relocation for non-compatible residential land use within the 75 dB DNL and higher noise contour where the majority of the parcel is located within the contour. It is no longer recommending acquisition for land below 75 dB DNL.**

## **Sound Insulation of Residences and Noise Sensitive Buildings**

Qualified incompatible residential and noise sensitive land uses within the 65 up to 75 dB DNL contours and residential land use located within the 75 dB DNL noise contours where the majority of the parcel is located outside the 75 dB DNL contour would be included in a sound insulation program. For qualified properties, the City will provide an acoustical treatment package designed to reduce interior noise levels to 45 DNL and a minimum reduction of 5 dB from the existing interior noise level in accordance with FAA guidelines<sup>2</sup>.

**Recommendation: The City is recommending sound insulation for residential and noise sensitive land within the 65 up to the 75 dB DNL noise contour. It is recommending sound insulation for residential land located in the 75 dB DNL where the majority of the parcel is not located within the 75 dB DNL contour. The City will not require an avigation easement.**

## **Purchase Assurance Program<sup>3</sup>**

Qualified incompatible residential and noise sensitive land uses within the 65 up to 75 dB DNL contours would be included in a purchase assurance program. The City would acquire the home in exchange for an avigation easement, provide sound insulation and resell the home on the open market for fair

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<sup>1</sup> FAA Order 5100.38D “Airport Improvement Program Handbook”, Appendix R “Noise Compatibility Planning/Projects”, Change 1, effective date February 26, 2019.

<sup>2</sup> FAA Order 5100.38D “Airport Improvement Program Handbook”, Appendix R “Noise Compatibility Planning/Projects”, Change 1, effective date February 26, 2019.

<sup>3</sup> FAA Order 5100.38D Appendix R, Table R-6 “Noise Compatibility Planning/Project Requirements”, f. “Acquire Easement for Noise Compatibility”

market value. Proceeds from the sale of the home would be utilized to fund further noise mitigation programs. Land use includes eligible properties within the 65 dB DNL noise level or higher for which the land use is considered non-compatible. (49 USC § 47502, as implemented by Table 1 of Appendix A in 14 CFR part 150).

**Recommendation: The City is recommending a purchase assurance for non-compatible land use within the 65 up to 75 dB DNL noise contour. Per FAA requirements an avigation easement will be required.**

#### **Sales Assistance Program<sup>4</sup>**

Qualified incompatible residential and noise sensitive land uses within the 65 up to 75 dB DNL contours would be included in a sales assistance program. In exchange for an avigation easement, the City would provide an incentive to assure homeowners receives fair market value for the sale of their home on the open market. Land use includes eligible properties within the 65 dB DNL noise level or higher for which the land use is not considered to be compatible as well as those properties approved by the FAA for neighborhood equity<sup>5</sup>. (49 USC § 47502, as implemented by Table 1 of Appendix A in 14 CFR part 150).

**Recommendation: The City is recommending a sales assistance program for non-compatible land use within the 65 up to 75 dB DNL noise contour where properties are not eligible for sound insulation. Per FAA requirements an avigation easement will be required.**

[END OF MEMORANDUM]

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<sup>4</sup> FAA Order 5100.38D Appendix R, Table R-6 “Noise Compatibility Planning/Project Requirements”, f. “Acquire Easement for Noise Compatibility”

<sup>5</sup> FAA Order 5100.38D “Airport Improvement Program Handbook”, Appendix R “Noise Compatibility Planning/Projects”, Change 1, effective date February 26, 2019.

**BURLINGTON INTERNATIONAL AIRPORT  
NOISE COMPATIBILITY PROGRAM  
TECHNICAL ADVISORY COMMITTEE  
MEETING SUMMARY (#5)  
September 19, 2019**

**BTV STAFF/CONSULTANTS:**

Nic Longo, BTV (Chair)  
Gene Richards, BTV (Vice Chair)  
Larry Lackey, BTV  
Bill Keogh, Burlington Airport Commission  
Erin Desautels, Vermont Small Business Accelerators, LLC  
Diane Carter, Jones Payne Group  
Christina Mastrantonio, Jones Payne Group  
Bradon Robinette, HMMH

**TAC MEMBERS:**

Richard Lizzari, Vermont Air National Guard  
John Johnston, Vermont Army Guard  
Paul Conner, South Burlington Planner  
Robert McEwing, Town of Essex  
Jessie Baker, Winooski City Manager  
Kevin Dorn, City of South Burlington  
Jonathan D'Amore, St. Michael's College  
Tim McCole, Heritage Aviation

**PUBLIC ATTENDEES:**

Tim George, City of Burlington  
John Klesch, Stitzel Page Fletcher, for SB School District  
Jim Duncan, Winooski City Council  
Chris Morgan, Williston  
Donna Constantineau, Williston  
Richard Doucette, FAA, New England Region

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**1.0 WELCOME and OVERVIEW**

Gene Richards, Aviation Director, opened the meeting at 5:05 PM. Introductions were done.

Nic Longo thanked the members of the Technical Advisory Committee for their support in updating the Noise Compatibility Program and hopefully come to a final decision on the recommended program.

**2.0 PUBLIC FORUM AND COMMENTS**

Donna Constantineau stated the arrival of the F35 woke her out of a deep sleep. They are far louder than the F16 aircraft. She feels the quality of life for these people is affected as

well as property values. She expressed disappointment that her home does not fall within the noise mitigation area.

### **3.0 NOISE EXPOSURE MAP PROGRESS UPDATE**

Diane Carter thanked the TAC for all their hard work as we approach this final step. She recognized the TAC's request to halt the NCP process in order to develop updated noise exposure maps that included the F35 operations allowing for the Airport, the neighboring jurisdictions and the community to have a more accurate understanding of the anticipated noise levels and the affected areas.

She reviewed the 2023 Noise Exposure Map which was submitted to the FAA on September 23, 2019. She noted upon approval by the FAA, it will become a map used for defining the noise mitigation areas. She highlighted the 66 DNL, noting the line moves around a bit more accurately reflecting the terrain around the airport. She added the map also reflects the noise sensitive buildings including schools, places of worship and daycare facilities. This map includes the additional buildings noted by the Town of Winooski in its written comments. She stated all written comments received from the two Open Houses were included in the submission. The Airport is in the process of reviewing those comments and will post a response on the BTVSound.com

### **4.0 RECOMMENDED Noise Compatibility Program (NCP)**

The consultant team reviewed the programs that will be included in the NCP. These recommendations are based on the input received from the City of South Burlington and the City of Winooski as well as additional written comments from other affected entities and individuals. The recommended program includes:

#### *Monitoring & Review Elements:*

- Monitoring and Review of NEM & NCP
  - Flight Track Monitoring System
- The group held a discussion regarding the flight tracking system. It was noted if approved the grant would be for the purchase of a system and would not include the annual maintenance contract. A discussion about adding noise monitors to the system was held. Data collected by the noise monitoring system would not be used in the development of future contours. The radar data would be utilized to develop the model flight tracks. The contour will be generated by the noise modelling software, AEDT. It was decided this recommendation would be amended for a Noise Monitoring and Flight Tracking System. Richard Doucette stated the DOD would be contributing to the update of the noise map one year after the F35 have been in operation. DOD should have more updated information about actual aircraft operations.

#### *Recommended Land Use Measures (Voluntary):*

Diane Carter reviewed the recommended land use measures.

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Paul Connor noted the Airport's recommended NCP closely mirrors the City of South Burlington's recommendations. He thanked the Airport for their collaborative approach to this process.

- Land Acquisition & Relocation for properties in the 75 DNL and higher contours
- Sound Insulation for residential properties and noise sensitive buildings:
  - Located from the 65 DNL up to the 75 DNL contour and
  - Located in the 75 DNL where the majority of the home is located outside the 75 DNL contour and the owner has declined acquisition
  - No aviation easement
- Sales Assistance for residential properties
  - Located from the 65 DNL up to the 75 DNL contour
  - Aviation easement required
  - Eligible properties that do not qualify for sound insulation
- Purchase Assurance for residential properties
  - Located from the 65 DNL up to the 75 DNL contour
  - Aviation easement required

Jessie Baker asked what language would be used for the aviation easement. Diane Carter stated the aviation easement language hasn't been finalized. This would be an activity for the Sound Committee moving forward during the development of the noise implementation program. Nic Longo stated the Airport intends to restart the Sound Committee in December 2019 with a focus on crafting the noise implementation plan including phasing, priorities, and policies for each of these programs.

A community member asked if the Fair Market Value (FMV) is determined today or when the property is sold. Diane Carter stated the FMV is determined at the time of the sale of the property. The appraisals are based on sales of homes in the area.

Diane Carter review the estimated average cost per home for each of these program based on a \$5 million grant. Paul Connor stated there would be additional funds added to the noise mitigation program upon the sale of any properties that participate in the purchase assurance program.

Diane Carter stated the NCP will not contain any recommendations for the acquisition of easements. It will also not include any recommendation for sound barriers or walls. With regard to sound barriers, it does not prohibit the potential future development of a sound wall or barrier. It will not be eligible for FAA funding. If this were included in the NCP, the homes located adjacent to the barrier may become ineligible for other types of mitigation since the barrier would be providing noise reduction.

#### *Comparison of Programs and Costs*

Ms. Carter reviewed a table which identified the number of homes that could be treated by program if the Airport received a \$5 million grant. The discussion review the type of program, estimated cost per home, and the average number of homes for that grant.

## **6.0 WRAP UP & ADJOURNMENT**

### Future Meetings & Agenda Items:

- NCP Public Hearing is scheduled for October 24, 2019
- NCP to be submitted to FAA at the end of the year
- Approval expected prior to May 1, 2020
- Sound committee will be reinstated

With no further business and without objection the meeting was adjourned at 6:18 PM.

## Presentation to Chittenden County Regional Planning Council





# Updates to Noise Exposure Map and Noise Compatibility Program

2019





# PART 150 HISTORY

## Part 150 History:

**2008** BTV's most recent NCP was completed and approved by FAA

**2013** The VT Air National Guard operations changed and a new Noise Exposure Map (NEM) update was undertaken

**2015** (December) FAA accepted the updated NEM and noise contours for 2015 and 2020

**2017** NCP update commences

**2019** BTV published the NEM update following the change in aircraft operations (including, but not limited to, F-35s)

## Estimated Residential Population within 2018 and 2023 NEM Contours

Day-Night Average Sound Level (DNL) Contour Interval	Estimated Dwelling Units and Population	Burlington		Colchester		Essex		South Burlington		Williston		Winooski		Total	
		2018	2023	2018	2023	2018	2023	2018	2023	2018	2023	2018	2023	2018	2023
		Single Family Parcels													
65-70 dB	Dwelling Units	-	51	-	9	-	-	126	356	-	105	-	260	126	781
	Population	-	118	-	21	-	-	292	826	-	244	-	603	292	1,812
70-75 dB	Dwelling Units	-	-	-	-	-	-	8	96	-	1	-	-	8	97
	Population	-	-	-	-	-	-	19	223	-	2	-	-	19	225
75 dB +	Dwelling Units	-	-	-	-	-	-	12	-	-	-	-	-	12	-
	Population	-	-	-	-	-	-	28	-	-	-	-	-	28	-
Total 65 dB +	Dwelling Units	-	51	-	9	-	-	134	464	-	106	-	260	134	890
	Population	-	118	-	21	-	-	311	1,076	-	246	-	603	311	2,065
Multi-Family & Mixed Use Parcels															
65-70 dB	Dwelling Units	-	209	-	13	-	-	30	344 <sup>1</sup>	-	4	-	993 <sup>2</sup>	30	1,563
	Population	-	485	-	30	-	-	70	798 <sup>1</sup>	-	9	-	2,304 <sup>2</sup>	70	3,626
70-75 dB	Dwelling Units	-	81 <sup>3</sup>	-	-	-	-	14	2	-	2	-	89 <sup>4,5</sup>	-	186
	Population	-	188 <sup>3</sup>	-	-	-	-	32	5	-	5	-	206 <sup>4,5</sup>	-	432
75 dB +	Dwelling Units	-	-	-	-	-	-	1	-	-	-	-	-	1	-
	Population	-	-	-	-	-	-	2	-	-	-	-	-	2	-
Total 65 dB +	Dwelling Units	-	290	-	13	-	-	30	359	-	6	-	1,082	30	1,750
	Population	-	673	-	30	-	-	70	833	-	14	-	2,510	70	4,060
Estimated Totals - All Parcel Types															
65-70 dB	Dwelling Units	-	260	-	22	-	-	156	700	-	109	-	1,253	156	2,344
	Population	-	603	-	51	-	-	362	1,624	-	253	-	2,907	362	5,438
70-75 dB	Dwelling Units	-	81	-	-	-	-	8	110	-	3	-	89	8	283
	Population	-	188	-	-	-	-	19	255	-	7	-	206	19	657
75 dB +	Dwelling Units	-	-	-	-	-	-	13	-	-	-	-	-	13	-
	Population	-	-	-	-	-	-	30	-	-	-	-	-	30	-
Total 65 dB +	Dwelling Units	-	341	-	22	-	-	164	823	-	112	-	1,342	164	2,640
	Population	-	791	-	51	-	-	380	1,909	-	260	-	3,113	380	6,125
<b>Notes:</b>															
1 Includes estimated units at: 303 Lime Kiln Rd. (18); 305 Lime Kiln Rd. (18); 325 Lime Kiln Rd. (40); 327 Lime Kiln Rd. (40); 331 Lime Kiln Rd. (40); 378 Lime Kiln Rd. (24); 380 Lime Kiln Rd. (24); 418 Lime Kiln Rd. (24)															
2 Includes estimated units at: 81 E Allen St. (2); 20 W Canal St. (96); 79 W Canal St. (24); 23 Weaver Ln. (4); 4 Weaver Ln. (2); 240 E Allen St. (0); 114 Main St. (5); 54 Leclair St. (2); 158 Main St. (6); 167 Main St. (3); 99 Weaver St. (3)															
3 No city records available for 109 Mulberry Ln. and 116 Mulberry Ln.															
4 Includes estimates for 1 Abeanki Way (26)															
5 Includes 106 E Allen St., which is a new building with an unknown unit count.															
<b>Additional:</b>															
- A single family parcel has a single dwelling on the property while a multi-family parcels has two or more dwelling units. All units are assumed to have an average population of 2.32, based on US Census data.															
- Each property considered for inclusion in the program also must meet any other eligibility requirements that the FAA may adopt. For example, consistent with FAA policy guidance set out in 14 CFR Part 150, Docket No. 28149, "Final Policy on Part 150 Approval of Noise Mitigation Measures: Effect on the Use of Federal Grants for Noise Mitigation Projects", effective October 1, 1998, new non-compatible land uses established after that date within October 1, 1998, will not be eligible for acquisition. Current FAA guidelines are probably best described in the FAA's Airport Improvement Program (AIP) Handbook, September 30, 2014. See also footnotes 26 and 27 in Section 4.3 of this document.															

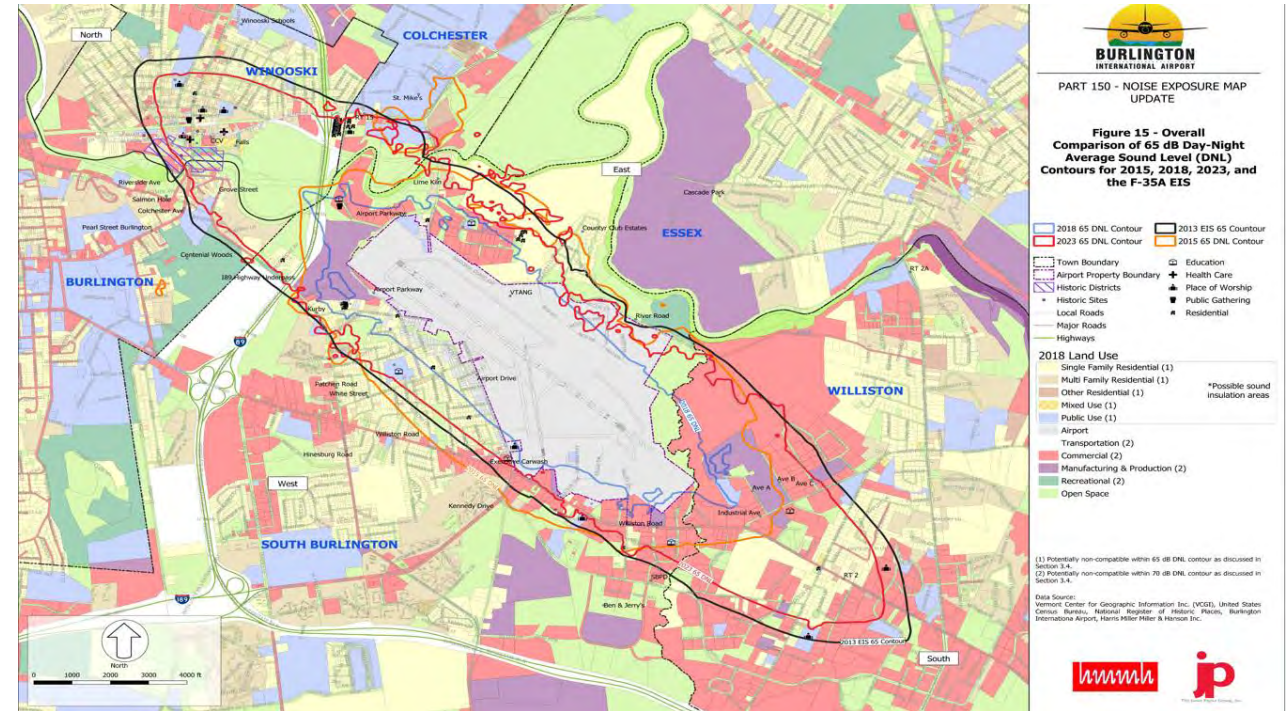
Table 5 presents the estimated residential population within the three historical contours presented in Figure 15 along with the 2018 and 2023 NEM contours. The purpose of this table is to provide a dwelling and population comparison to the historical contours presented in Figure 15, all with the same land use data and dwelling inventory methodology used in this NEM. The dwelling unit and population estimates in the middle three columns of Table 5 (labeled as "Land Use Inventoried and Depicted for this 2018/2023 NEM") were developed from the same land use data set used for this NEM update. Therefore, the numbers provided differ from the original documents, each of which used different land use data and/or methodologies. Table 5 also provides the

## WHAT IS A PART 150 NOISE STUDY?

- Title 14 of the Code of Federal Regulations Part 150 (Part 150) "Airport Noise Compatibility Planning" sets forth standards for airport operators to use in documenting noise exposure around airports and establishing programs which may be eligible for federal funding to minimize noise-related land use incompatibilities. It is a voluntary process.
- It consists of two parts:
  - Noise Exposure Map (NEM):** Detailed description of airport layout, operations, noise exposure, land uses, and noise/land use compatibility for the study year and a forecast year
  - Noise Compatibility Program (NCP):** A proposed plan to reduce noise exposure, and identify land use mitigation measures to address existing non-compatible uses and land use control measures to prevent new non-compatible uses

# WHAT IS A “NOISE EXPOSURE MAP” (NEM)?

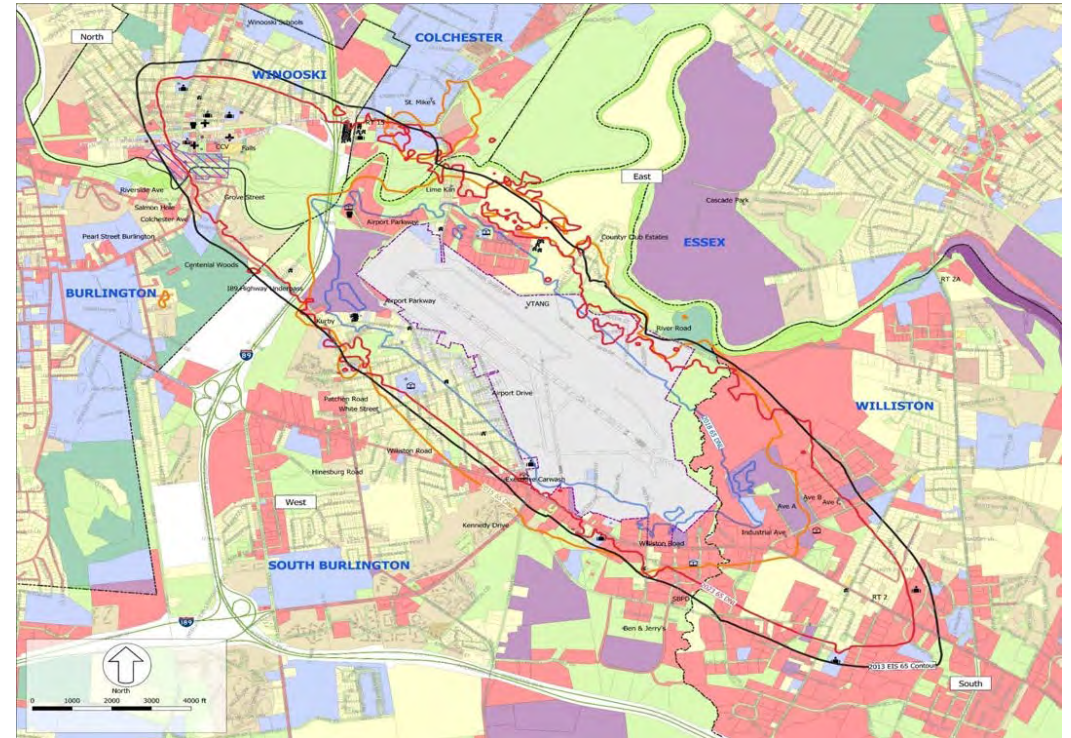
- A **noise exposure map** is a graphical presentation of the specific aircraft noise levels (noise contours) around an airport depicted over the existing land use. The noise level is expressed as Day-Night Average Sound Level (DNL). The Updated NEM depicts the noise levels for the current condition (2018) and 5 years in the future (2023).





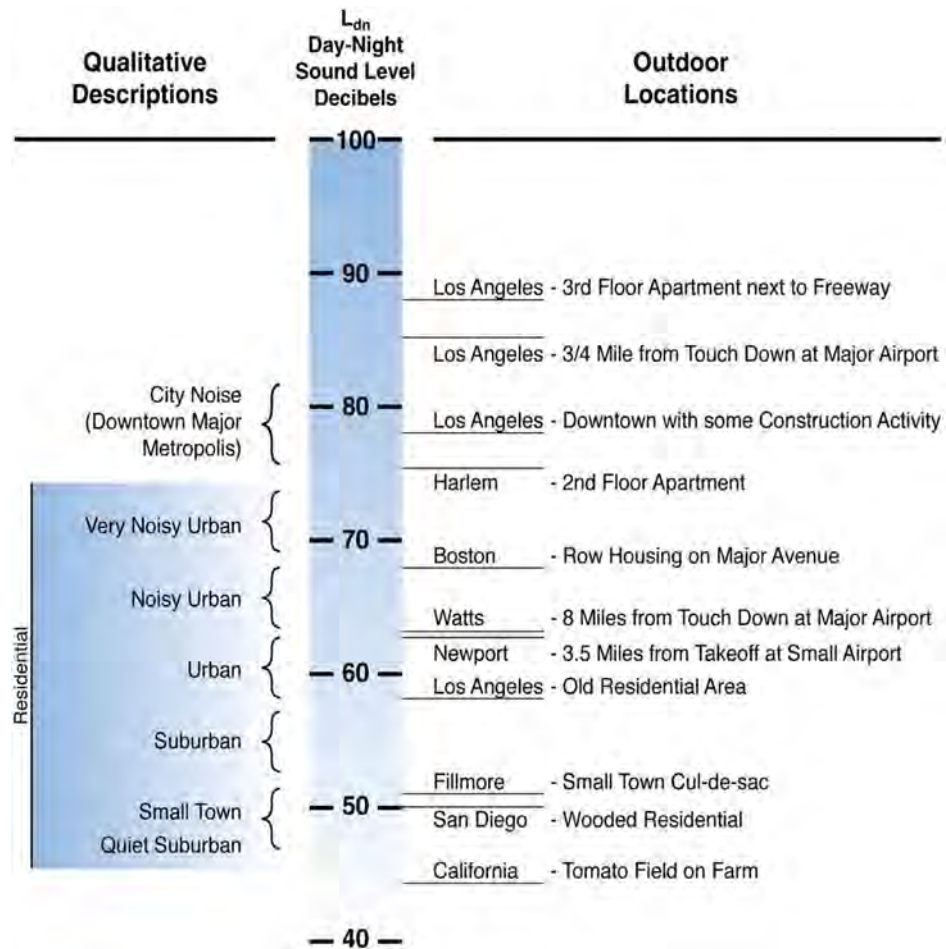
## WHAT IS A NOISE CONTOUR?

- A **noise contour** is a line on a map that depicts equal levels of noise exposure as generated by a required FAA computer model, (AEDT).
- The **Day-Night Sound Level (DNL)** is a 24 hour weighted energy average noise level based on A-weighted decibels (dBA) that adds a 10 dB penalty for aircraft noise occurring between 10 p.m. and 7 a.m. The FAA requires the use of DNL as the noise metric for the NEM.

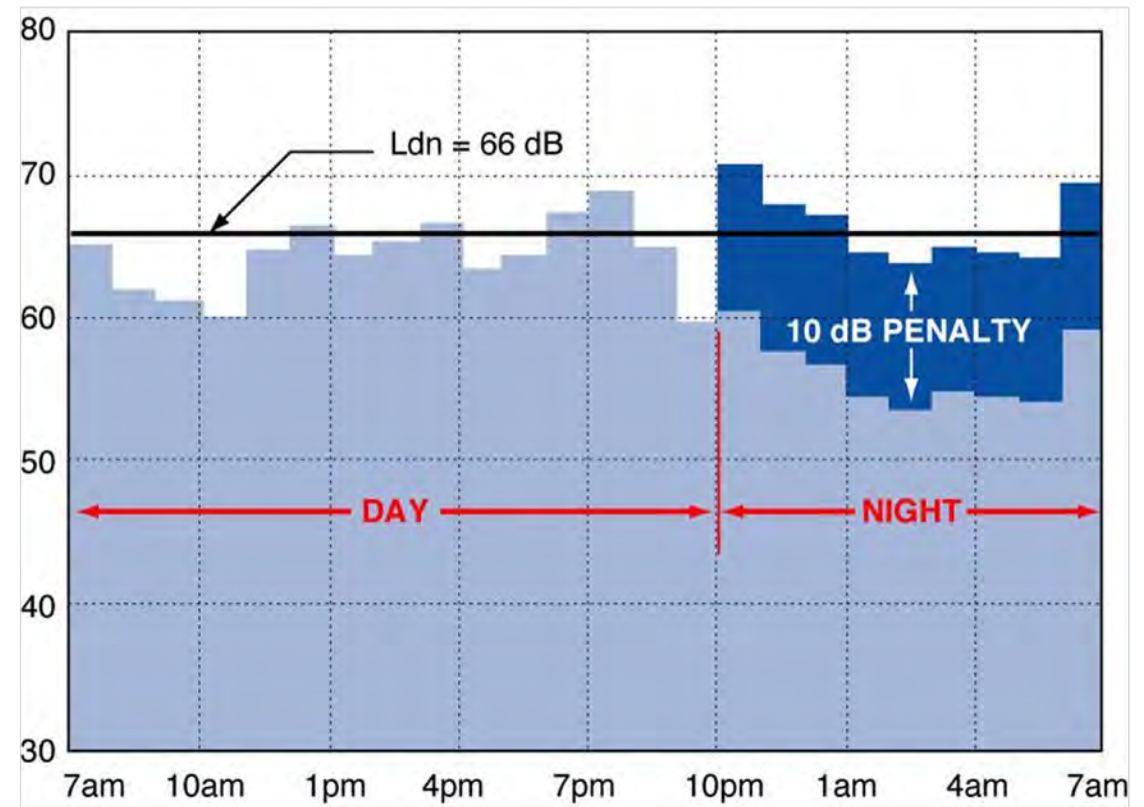


# SOUND TERMINOLOGY

## DNL Examples



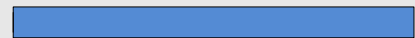
## Day-Night Sound Level



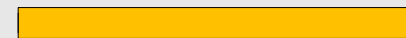
## ANTICIPATED NEM UPDATE SCHEDULE

		2018												2019									
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
1	Data collection; approval of military aircraft modeling; development of operational forecasts																						
2	Development of draft contours; land use analysis																						
3	Draft NEM document for public review; public meetings; public comment period																						
4	Finalize and submit final NEM to FAA for approval																						

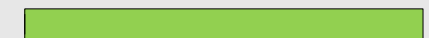
### Legend:



Consultant Task



Stakeholder Involvement



Agency Review

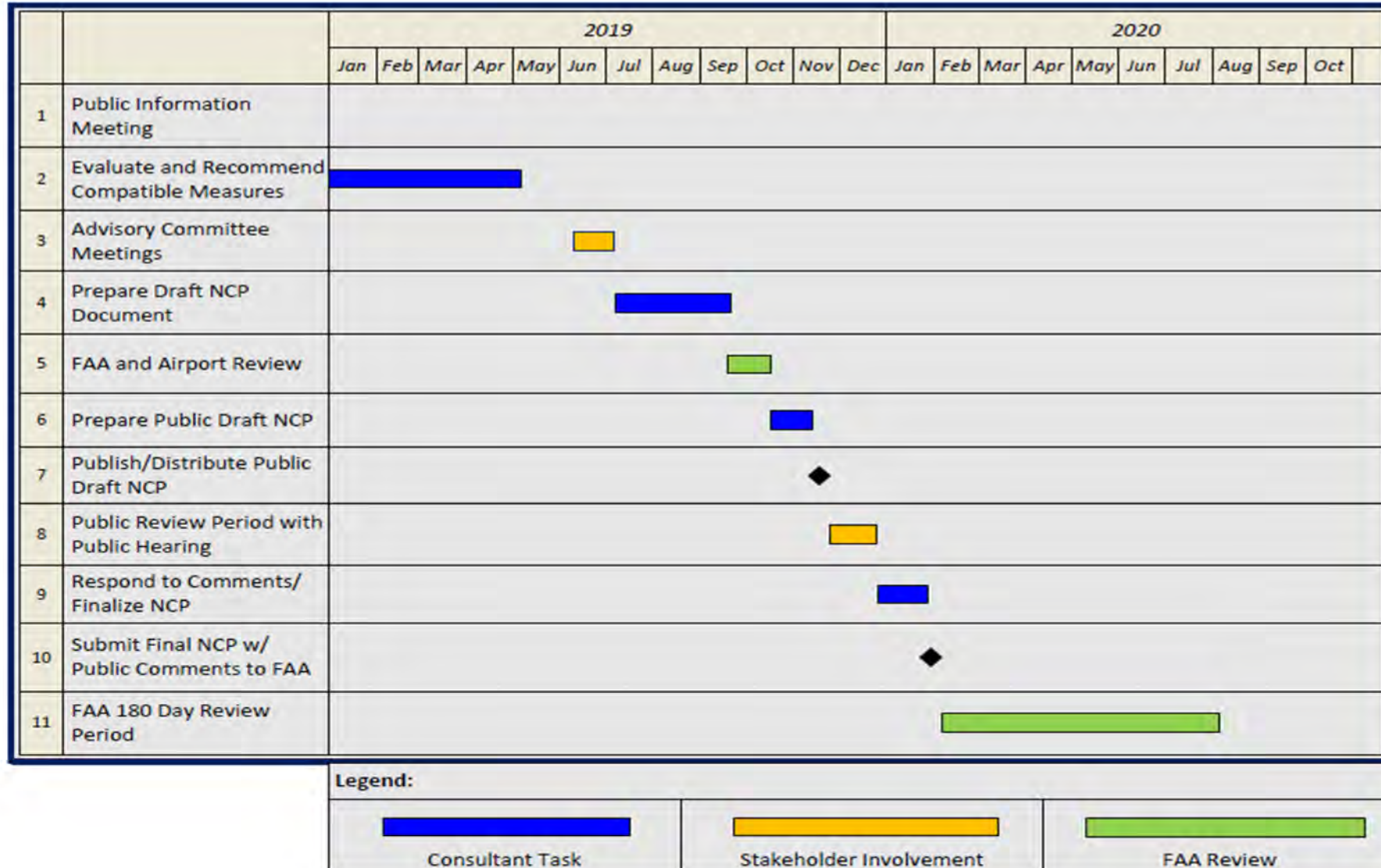


## WHAT IS A NOISE COMPATIBILITY PROGRAM?

- The **Noise Compatibility Program (NCP)** is a land use planning study that recommends noise mitigation efforts and recommends future land use planning initiatives for areas located within the 65 DNL and higher noise contour.
- The **NCP** is being updated to reflect new recommendations for noise mitigation.



# ANTICIPATED NCP UPDATE SCHEDULE





# NCP POTENTIAL LAND USE MEASURES

## Sound Insulation

### *Residential*

- Installation of acoustical windows and doors in exchange for an aviation easement
- Reduce interior noise level to 45dB DNL
- Must have existing interior noise level above 45 dB DNL to qualify
- Owner remains in home

### *Community Buildings*

- Eligible community buildings include schools



## Land Acquisition & Relocation

- Voluntary purchase of property from owner using federal guidelines
- Relocation benefits for the occupants
- Demolition of structure
- Land reuse study for compatible use of land

## Sound Buffers/Barriers

- Various types of buffers and barriers would be reviewed
- Site specific studies for buffers and barriers would take place in the noise mitigation implementation

# NCP POTENTIAL LAND USE MEASURES

## Sales Assistance

- Airport assists with the sale of the home on the open market; airport does NOT take possession of property
- Homeowner enters program by signing agreement which includes:
  - Homeowner to list property at Fair Market Value (FMV)
  - Homeowner to convey Avigation Easement prior to sale of home
  - Airport guarantees they will provide a differential to assist in the sale of the property if seller receives an offer of less than FMV
- Owner/Occupant does not receive relocation benefits

## Easement Acquisition for New Development

- Acquire an avigation easement for new development within the 65, 70 and 75 dB DNL contours

## Purchase Assurance

- Airport takes possession of property and resells it on the open market
- Homeowner enters program by signing agreement which includes:
  - Homeowner to sell property at appraised Fair Market Value (FMV)
  - Homeowner to convey Avigation Easement prior to sale of home
- Owner/Occupant does not receive relocation benefits
- Airport maintains and preserves property during the sound insulation process

## Real Estate Disclosure

- Develop a real estate disclosure policy for land uses within the 65 dB DNL through coordination with the local land use jurisdictions

For more information visit: [www.btvsound.com](http://www.btvsound.com)



Thank You

Nic Longo  
Deputy Director of Aviation  
802-503-7568  
[nlongo@btv.areo](mailto:nlongo@btv.areo)





## PART 150 - NOISE EXPOSURE MAP UPDATE

**Figure 15 - Overall Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS**

2018 65 DNL Contour  
2023 65 DNL Contour  
2013 EIS 65 Countour  
2015 65 DNL Contour

Town Boundary  
Airport Property Boundary  
Historic Districts  
Historic Sites  
Local Roads  
Major Roads  
Highways  
Education  
Health Care  
Place of Worship  
Public Gathering  
Residential

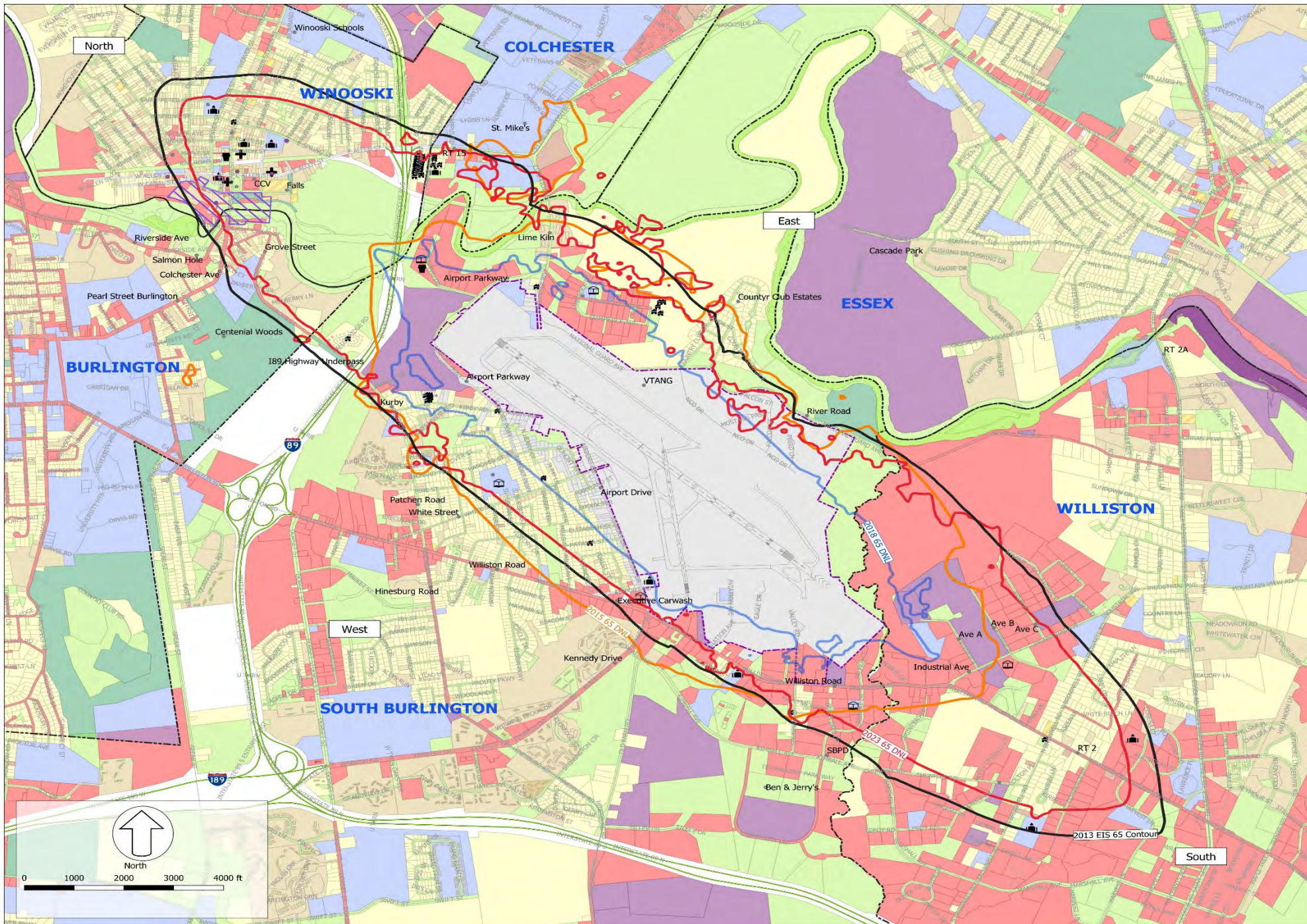
### 2018 Land Use

Single Family Residential (1)  
Multi Family Residential (1)  
Other Residential (1)  
Mixed Use (1)  
Public Use (1)  
Airport  
Transportation (2)  
Commercial (2)  
Manufacturing & Production (2)  
Recreational (2)  
Open Space

\*Possible sound insulation areas

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







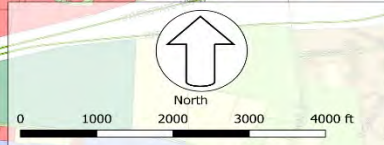
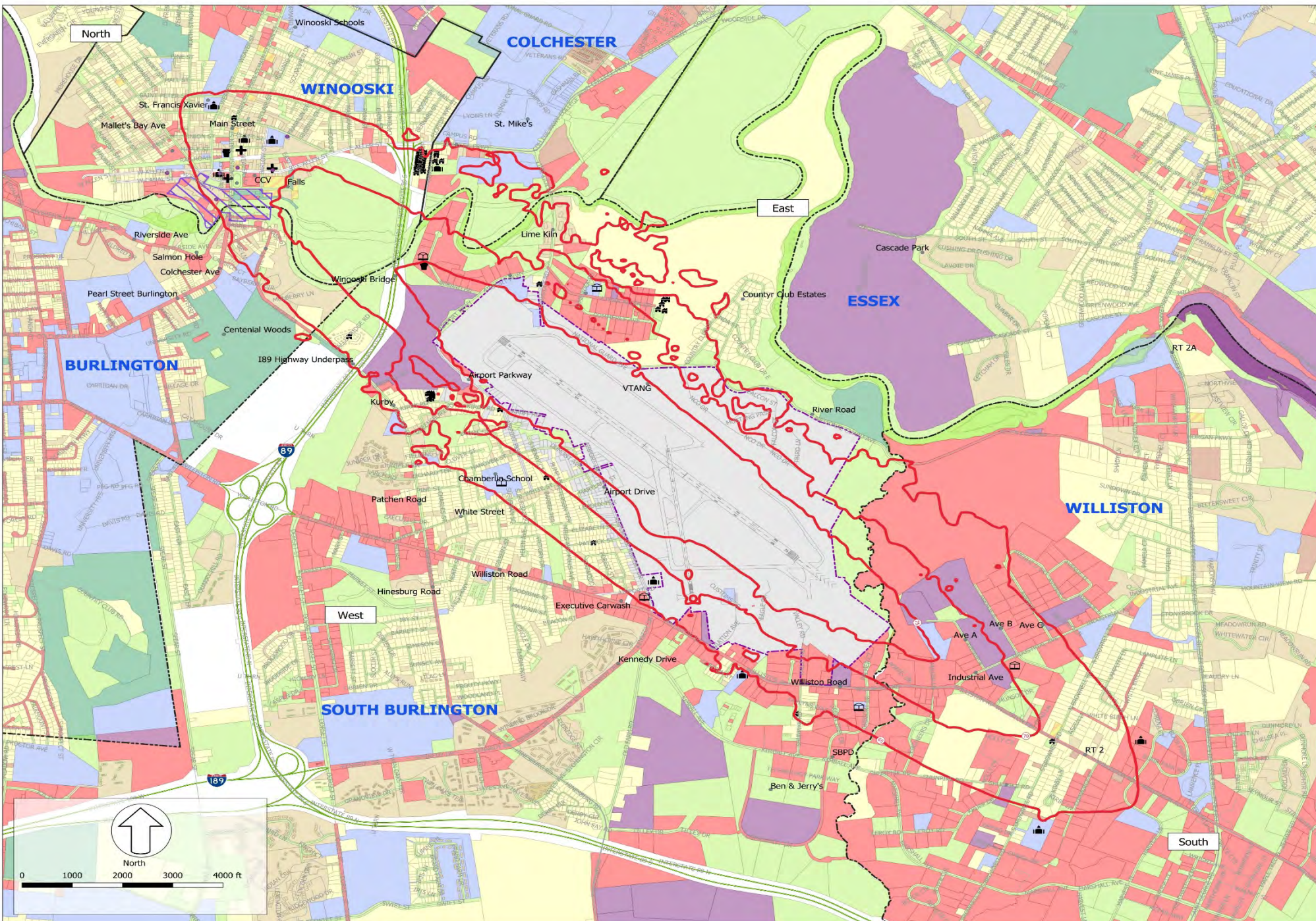
## PART 150 - NOISE EXPOSURE MAP UPDATE

**Figure 13 - Overall  
2023 Forecast Conditions Noise  
Exposure Map**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







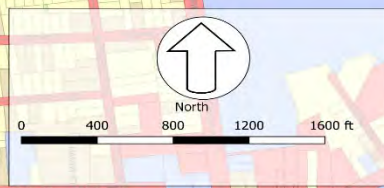
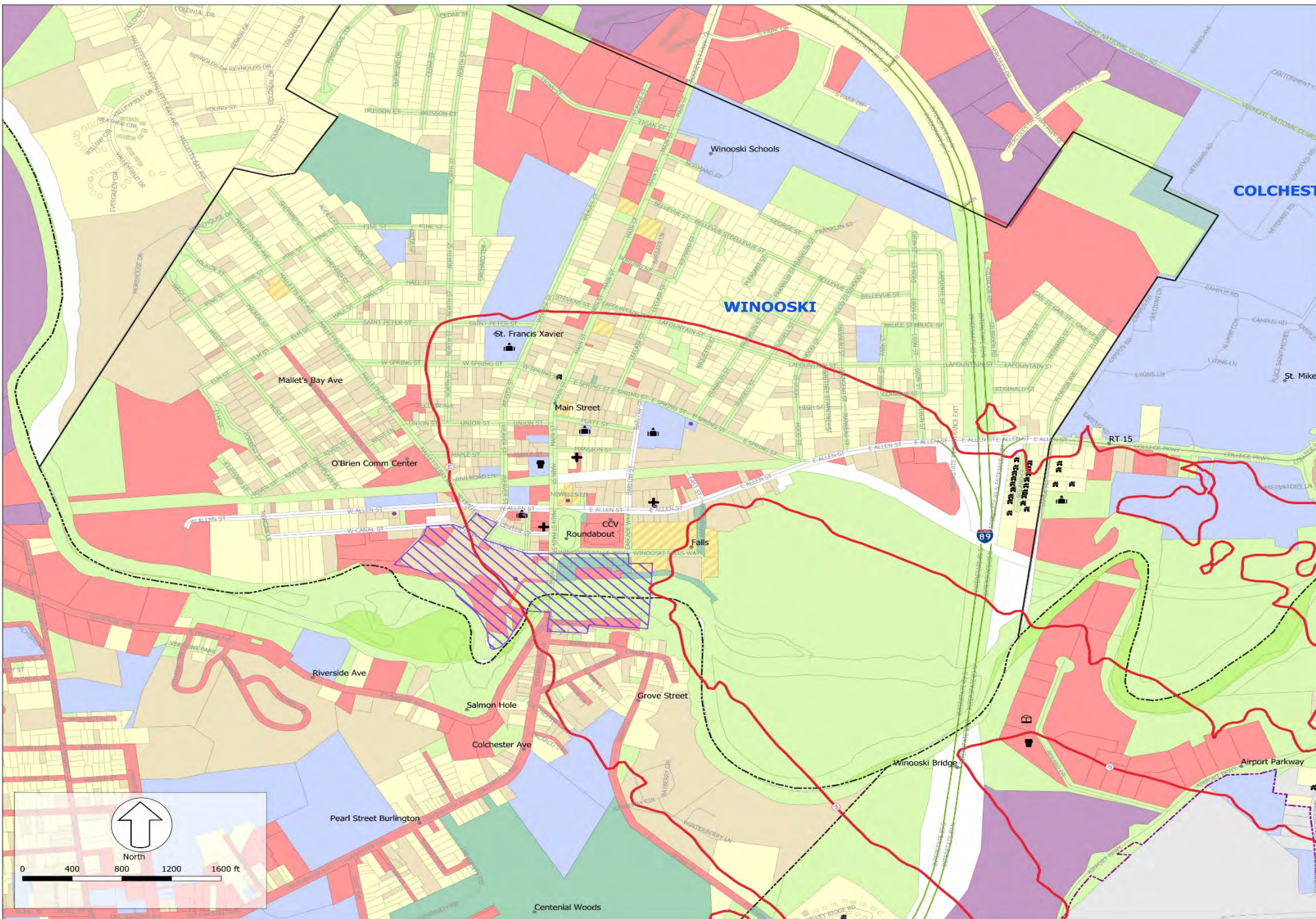
PART 150 - NOISE EXPOSURE MAP  
UPDATE

**WINOOSKI**  
**Figure 13 - North**  
**2023 Forecast Conditions Noise**  
**Exposure Map**

- 2023 DNL Contour
  - Town Boundary
  - Airport Property Boundary
  - Historic Districts
  - Historic Sites
  - Local Roads
  - Major Roads
  - Highways
  - Education
  - Health Care
  - Place of Worship
  - Public Gathering
  - Residential
- 2018 Land Use**
- Single Family Residential (1)
  - Multi Family Residential (1)
  - Other Residential (1)
  - Mixed Use (1)
  - Public Use (1)
  - Airport
  - Transportation (2)
  - Commercial (2)
  - Manufacturing & Production (2)
  - Recreational (2)
  - Open Space
- \*Possible sound insulation areas

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

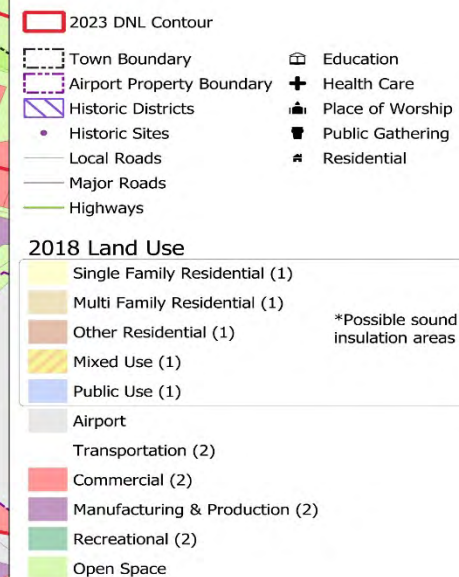






PART 150 - NOISE EXPOSURE MAP  
UPDATE

**BURLINGTON**  
**Figure 13 - North**  
**2023 Forecast Conditions Noise**  
**Exposure Map**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

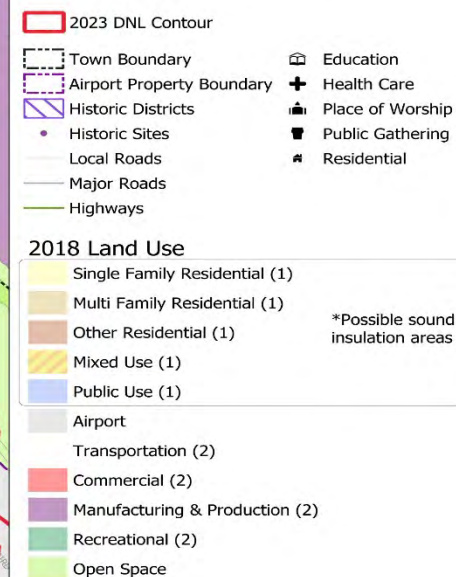






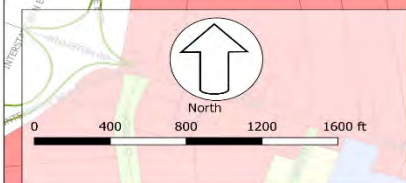
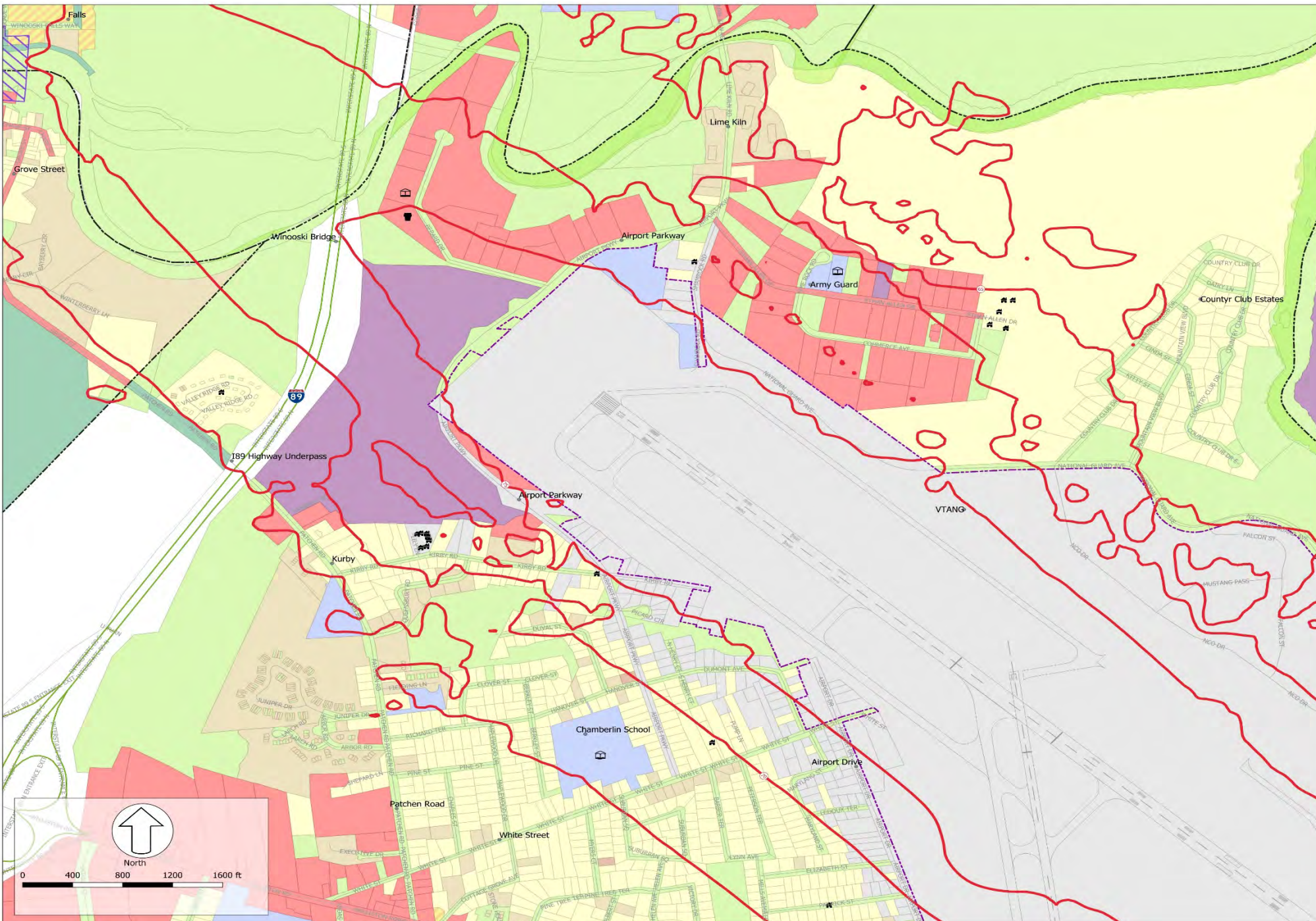
PART 150 - NOISE EXPOSURE MAP  
UPDATE

**SOUTH BURLINGTON (NORTH)  
Figure 13 - West  
2023 Forecast Conditions Noise  
Exposure Map**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







PART 150 - NOISE EXPOSURE MAP  
UPDATE

**SOUTH BURLINGTON (SOUTH)**  
**Figure 13 - West**  
**2023 Forecast Conditions Noise**  
**Exposure Map**

2023 DNL Contour

Town Boundary

Airport Property Boundary

Historic Districts

Historic Sites

Local Roads

Major Roads

Highways

Education

Health Care

Place of Worship

Public Gathering

Residential

2018 Land Use

Single Family Residential (1)

Multi Family Residential (1)

Other Residential (1)

Mixed Use (1)

Public Use (1)

Airport

Transportation (2)

Commercial (2)

Manufacturing & Production (2)

Recreational (2)

Open Space

\*Possible sound insulation areas

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.





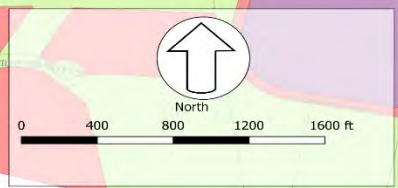
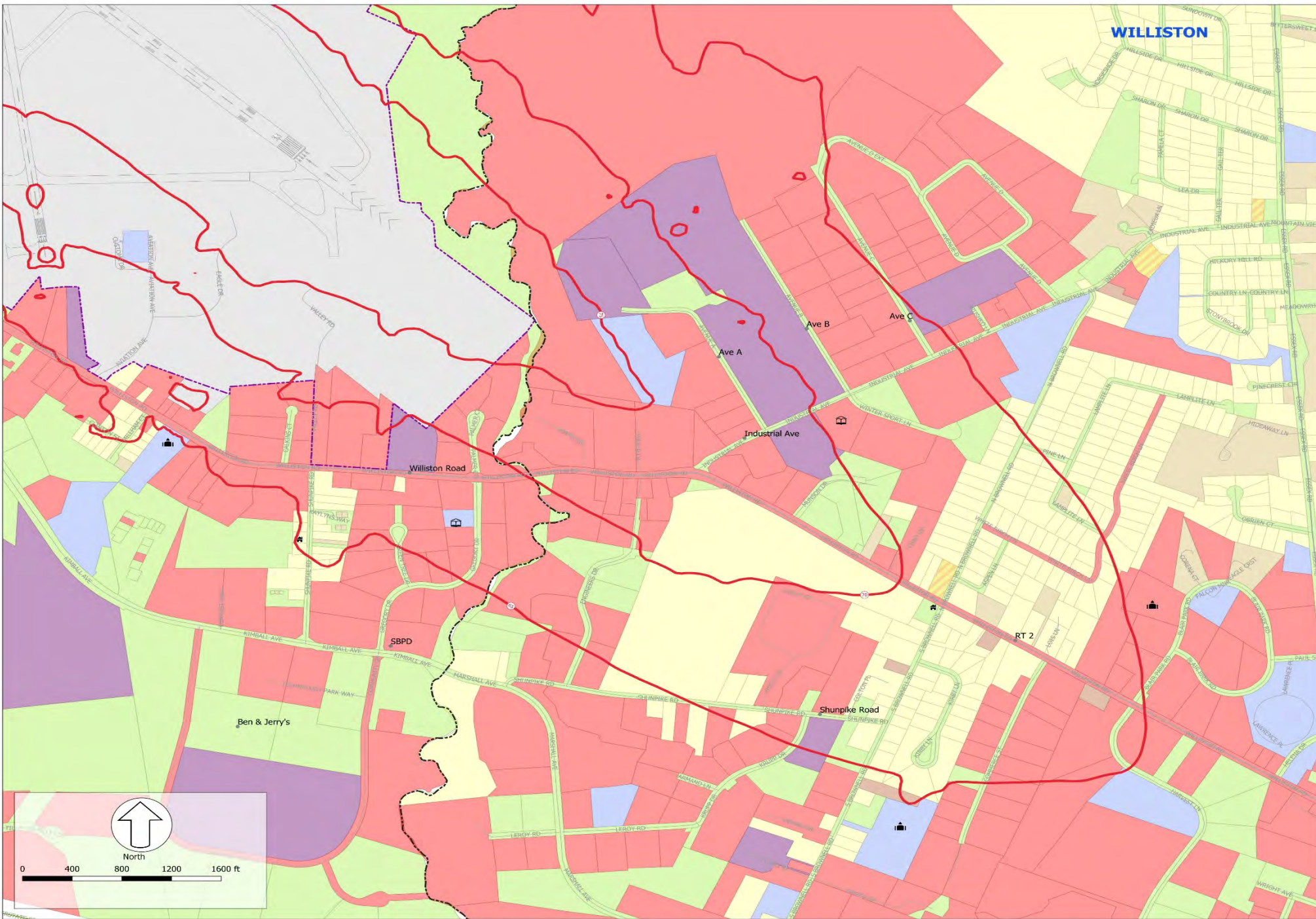
PART 150 - NOISE EXPOSURE MAP  
UPDATE

**WILLISTON**  
**Figure 13 - South**  
**2023 Forecast Conditions Noise**  
**Exposure Map**

- 2023 DNL Contour
  - Town Boundary
  - Airport Property Boundary
  - Historic Districts
  - Historic Sites
  - Local Roads
  - Major Roads
  - Highways
  - Education
  - Health Care
  - Place of Worship
  - Public Gathering
  - Residential
- 2018 Land Use**
- Single Family Residential (1)
  - Multi Family Residential (1)
  - Other Residential (1)
  - Mixed Use (1)
  - Public Use (1)
  - Airport
  - Transportation (2)
  - Commercial (2)
  - Manufacturing & Production (2)
  - Recreational (2)
  - Open Space
- \*Possible sound insulation areas

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

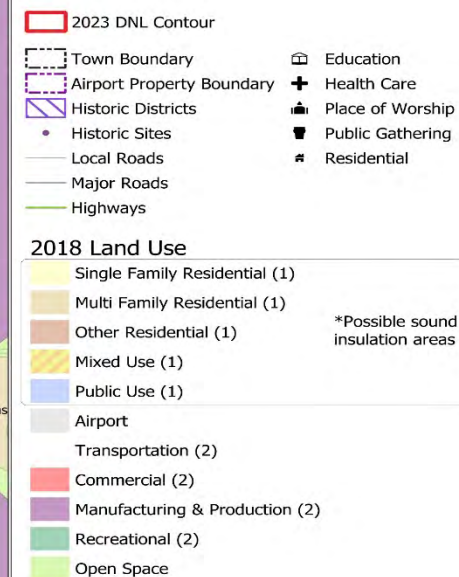






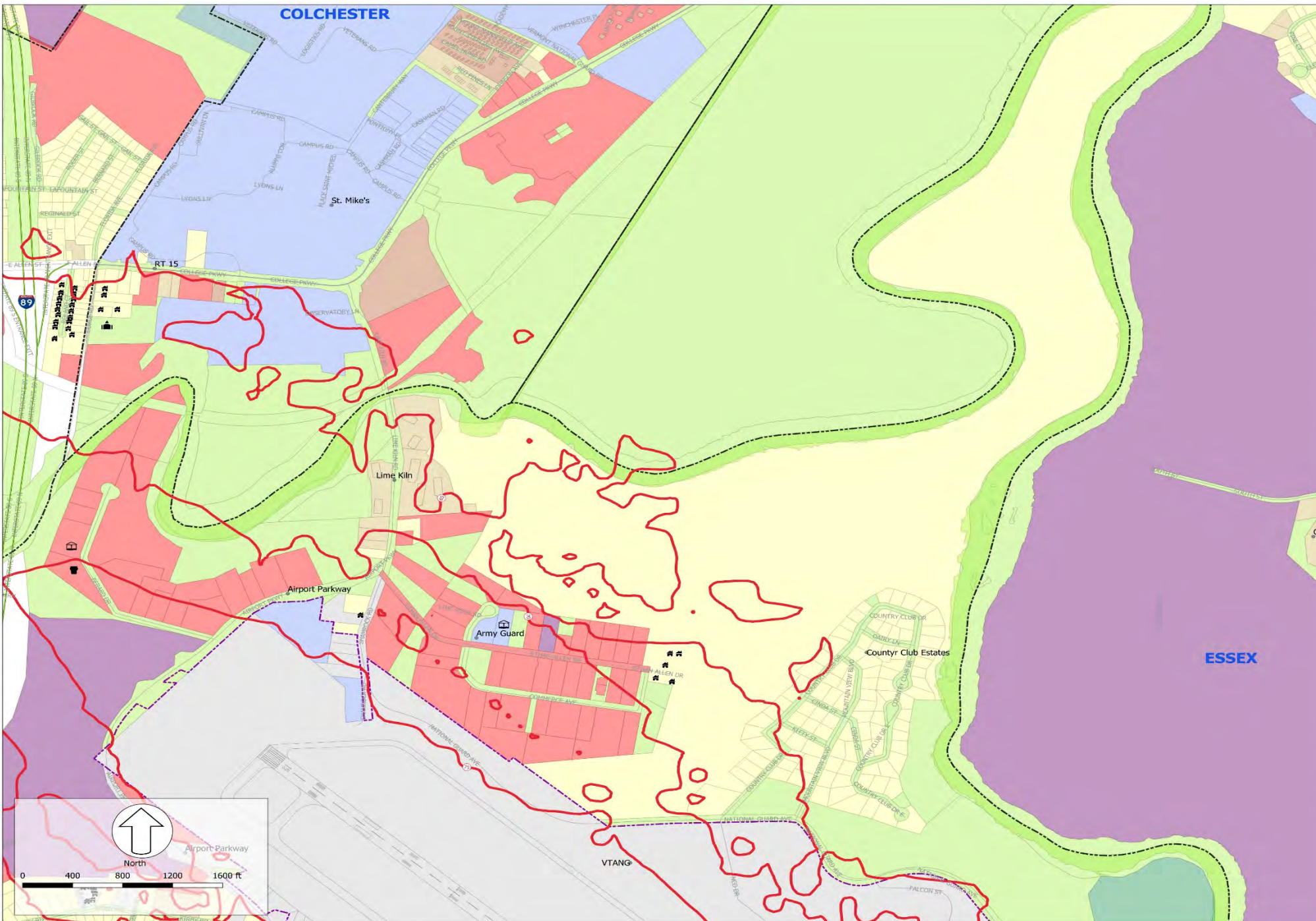
PART 150 - NOISE EXPOSURE MAP  
UPDATE

**COLCHESTER / ESSEX**  
**Figure 13 - East**  
**2023 Forecast Conditions Noise**  
**Exposure Map**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







# PART 150 - NOISE EXPOSURE MAP UPDATE

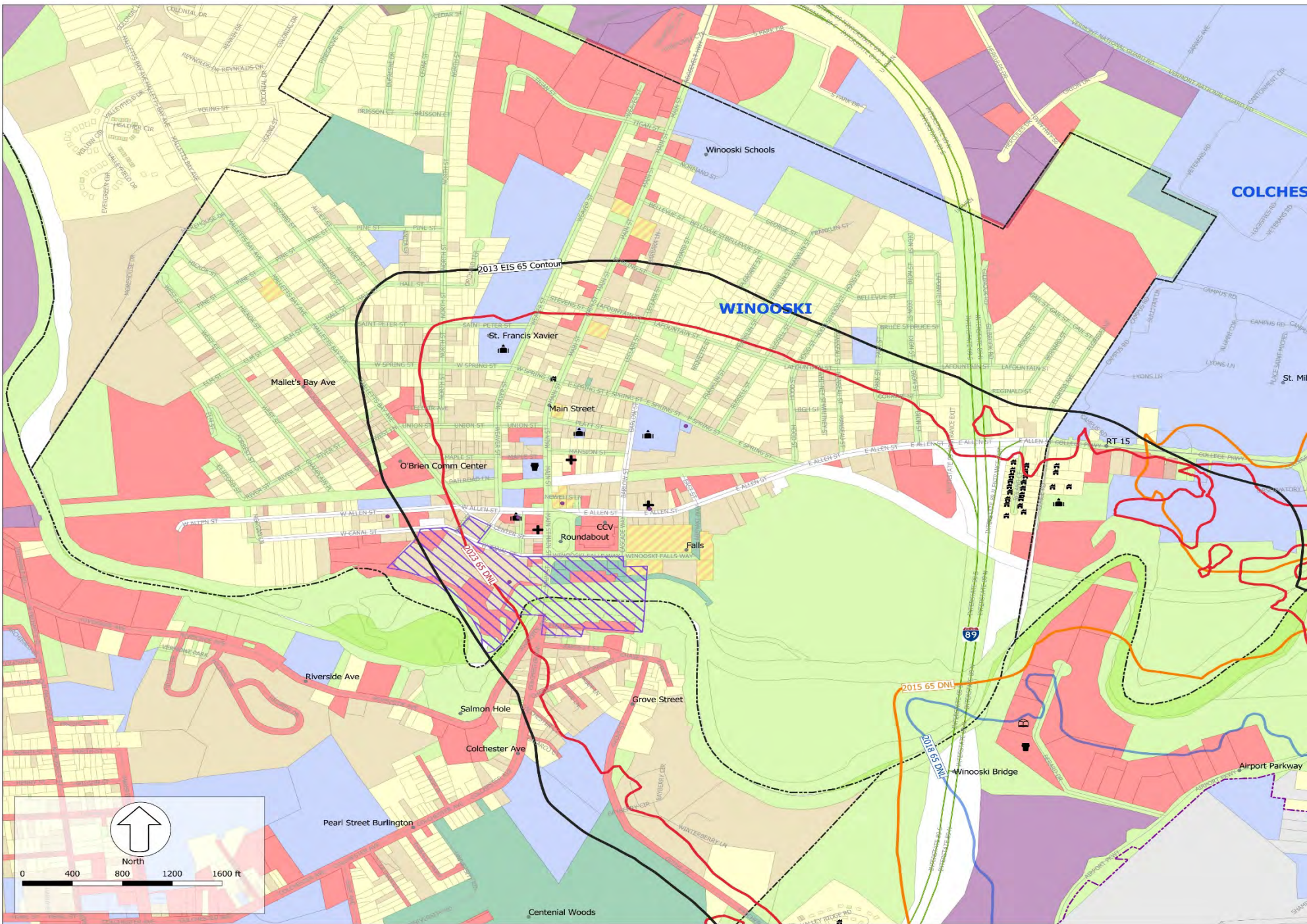
**WINOOSKI**  
**Figure 15 - North**  
**Comparison of 65 dB Day-Night**  
**Average Sound Level (DNL)**  
**Contours for 2015, 2018, 2023, and**  
**the F-35A EIS**

- |                           |                      |
|---------------------------|----------------------|
| 2018 65 DNL Contour       | 2013 EIS 65 Countour |
| 2023 65 DNL Contour       | 2015 65 DNL Contour  |
| Town Boundary             | Education            |
| Airport Property Boundary | Health Care          |
| Historic Districts        | Place of Worship     |
| Historic Sites            | Public Gathering     |
| Local Roads               | Residential          |
| Major Roads               |                      |
| Highways                  |                      |

- 2018 Land Use**
- |                                |                                  |
|--------------------------------|----------------------------------|
| Single Family Residential (1)  | *Possible sound insulation areas |
| Multi Family Residential (1)   |                                  |
| Other Residential (1)          |                                  |
| Mixed Use (1)                  |                                  |
| Public Use (1)                 |                                  |
| Airport                        |                                  |
| Transportation (2)             |                                  |
| Commercial (2)                 |                                  |
| Manufacturing & Production (2) |                                  |
| Recreational (2)               |                                  |
| Open Space                     |                                  |

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

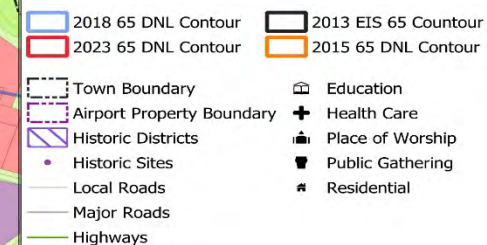




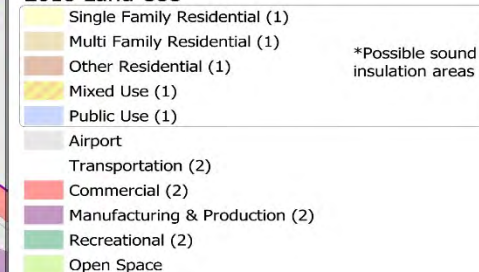


## PART 150 - NOISE EXPOSURE MAP UPDATE

### BURLINGTON Figure 15 - West Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS

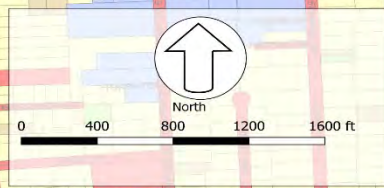
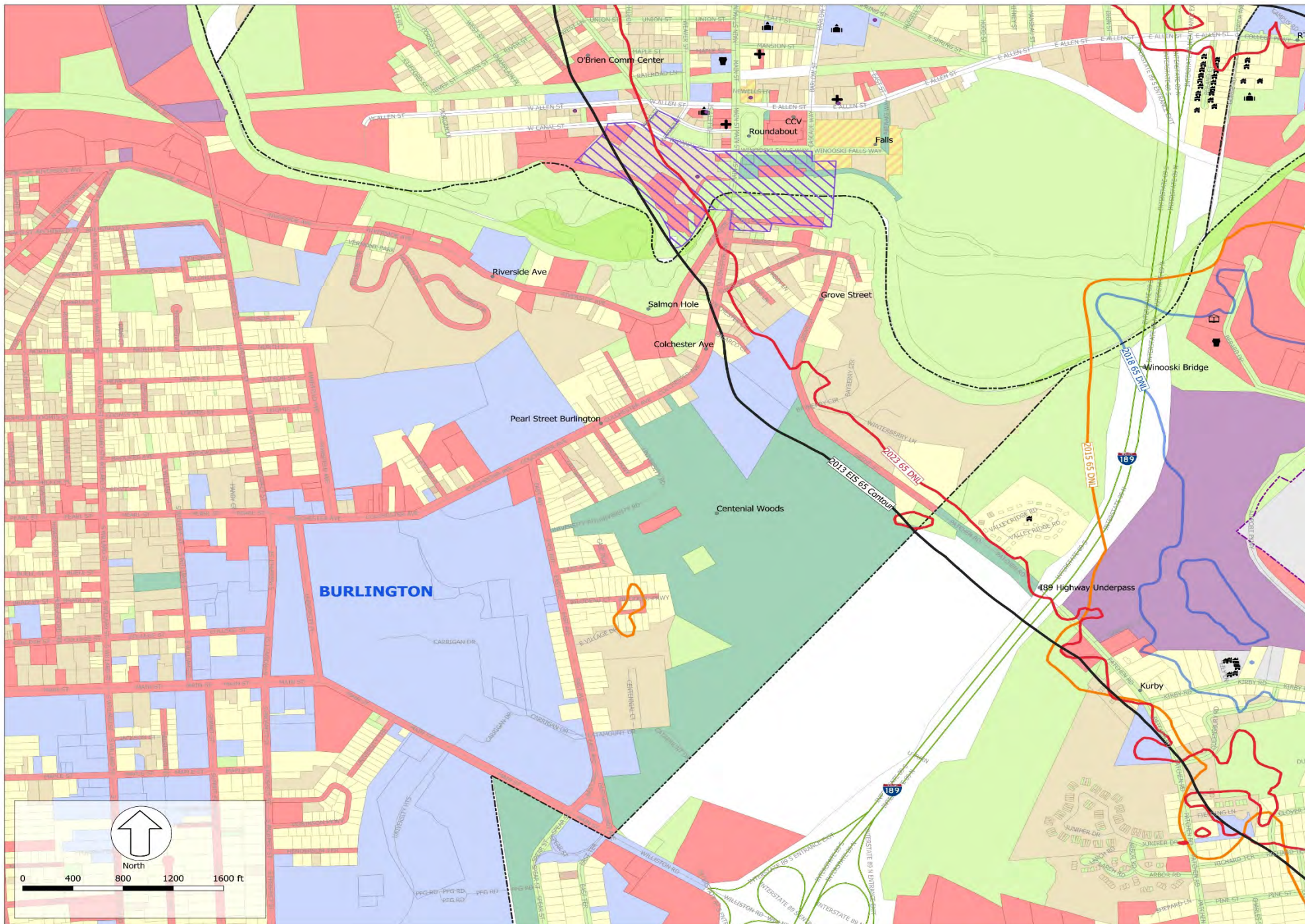


#### 2018 Land Use



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

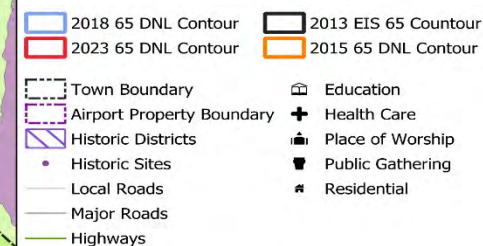




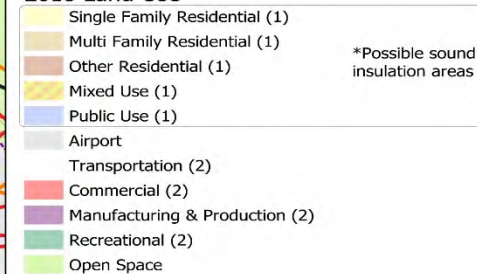


## PART 150 - NOISE EXPOSURE MAP UPDATE

### SOUTH BURLINGTON (NORTH) Figure 15 - South Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS



#### 2018 Land Use



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







PART 150 - NOISE EXPOSURE MAP  
UPDATE

**SOUTH BURLINGTON (SOUTH)**  
**Figure 15 - East**  
**Comparison of 65 dB Day-Night**  
**Average Sound Level (DNL)**  
**Contours for 2015, 2018, 2023, and**  
**the F-35A EIS**

2018 65 DNL Contour  
2023 65 DNL Contour  
2013 EIS 65 Countour  
2015 65 DNL Contour

Town Boundary  
Airport Property Boundary  
Historic Districts  
Historic Sites  
Local Roads  
Major Roads  
Highways  
Education  
Health Care  
Place of Worship  
Public Gathering  
Residential

**2018 Land Use**

Single Family Residential (1)  
Multi Family Residential (1)  
Other Residential (1)  
Mixed Use (1)  
Public Use (1)  
Airport  
Transportation (2)  
Commercial (2)  
Manufacturing & Production (2)  
Recreational (2)  
Open Space

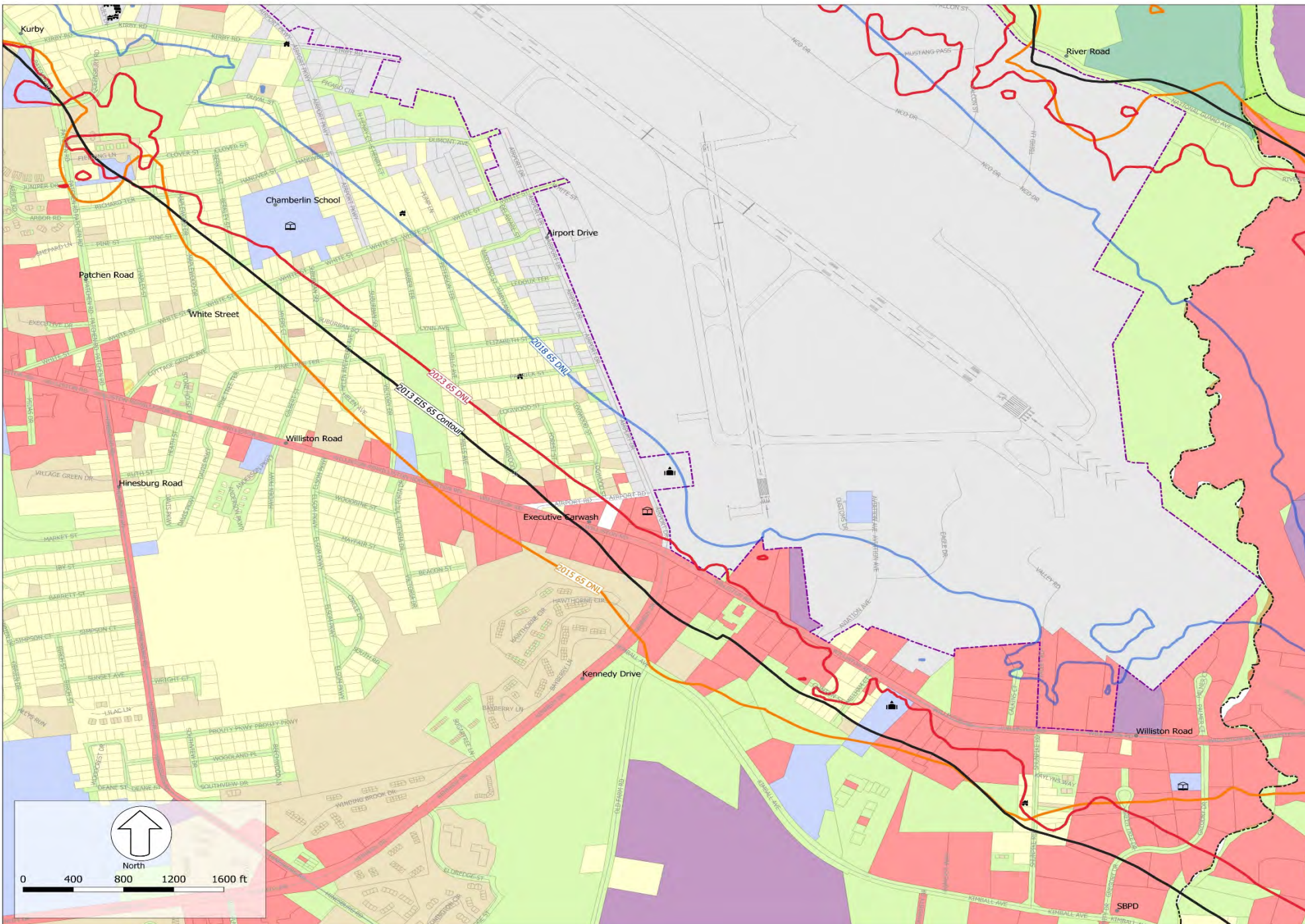
\*Possible sound  
insulation areas

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.



The Jones Payne Group, Inc.

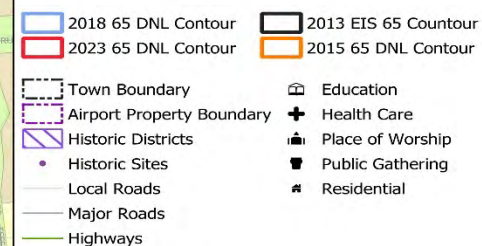




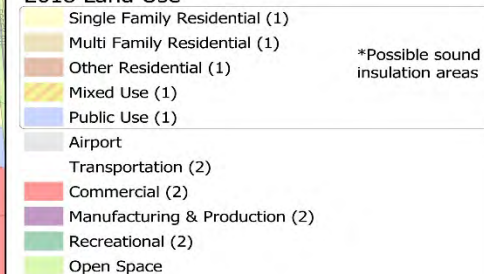


## PART 150 - NOISE EXPOSURE MAP UPDATE

### **WILLISTON** **Figure 15 - East** **Comparison of 65 dB Day-Night** **Average Sound Level (DNL)** **Contours for 2015, 2018, 2023, and** **the F-35A EIS**

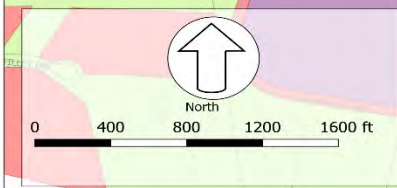
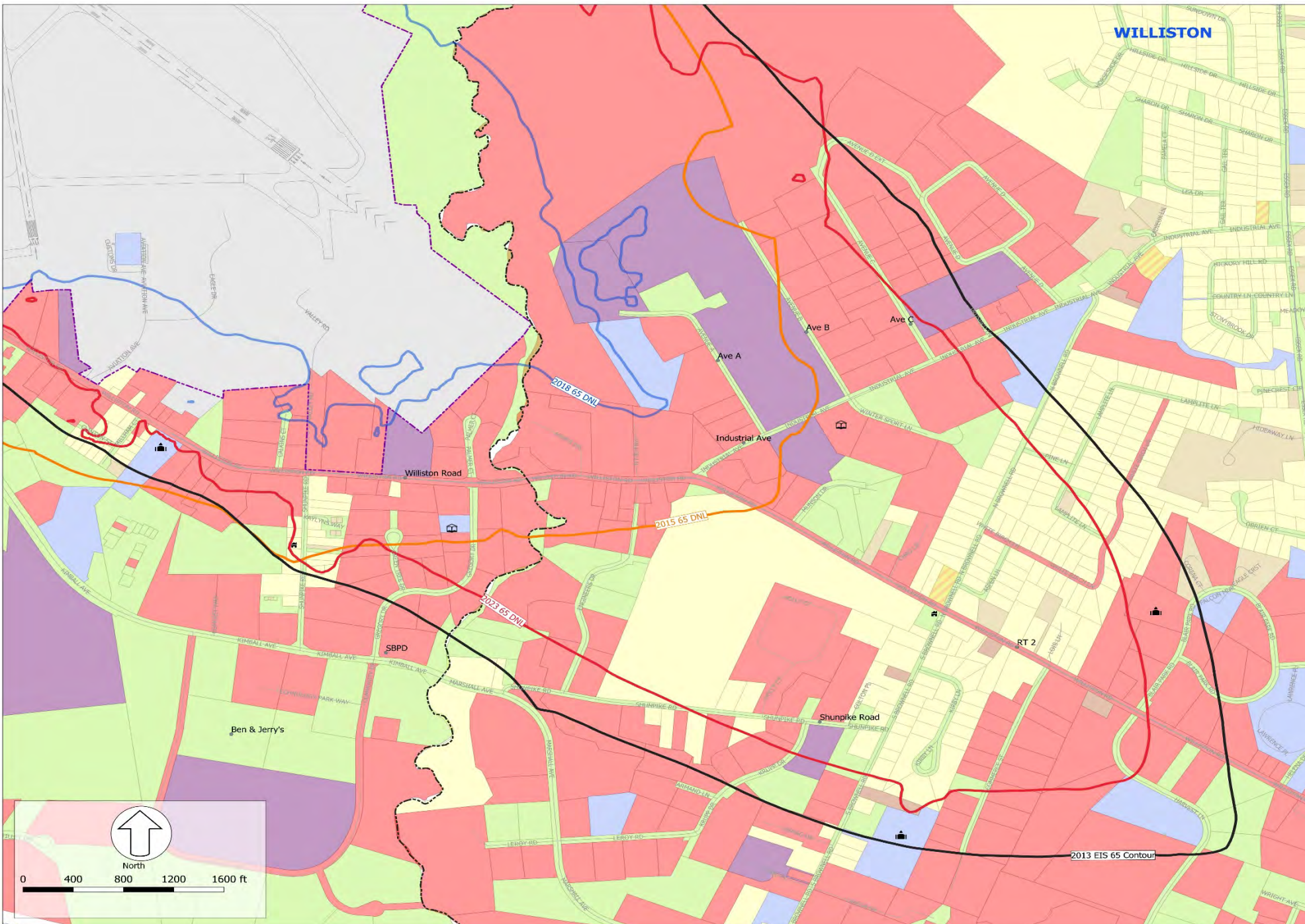


#### 2018 Land Use



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







## PART 150 - NOISE EXPOSURE MAP UPDATE

### COLCHESTER / ESSEX Figure 15 - East Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS

- 2018 65 DNL Contour
- 2023 65 DNL Contour
- 2013 EIS 65 Countour
- 2015 65 DNL Contour

- Town Boundary
- Airport Property Boundary
- Historic Districts
- Historic Sites
- Local Roads
- Major Roads
- Highways
- Education
- Health Care
- Place of Worship
- Public Gathering
- Residential

#### 2018 Land Use

- Single Family Residential (1)
  - Multi Family Residential (1)
  - Other Residential (1)
  - Mixed Use (1)
  - Public Use (1)
  - Airport
  - Transportation (2)
  - Commercial (2)
  - Manufacturing & Production (2)
  - Recreational (2)
  - Open Space
- \*Possible sound insulation areas

- (1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

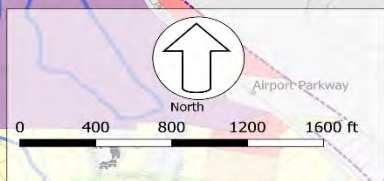
Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.



COLCHESTER

ESSEX

VTANG

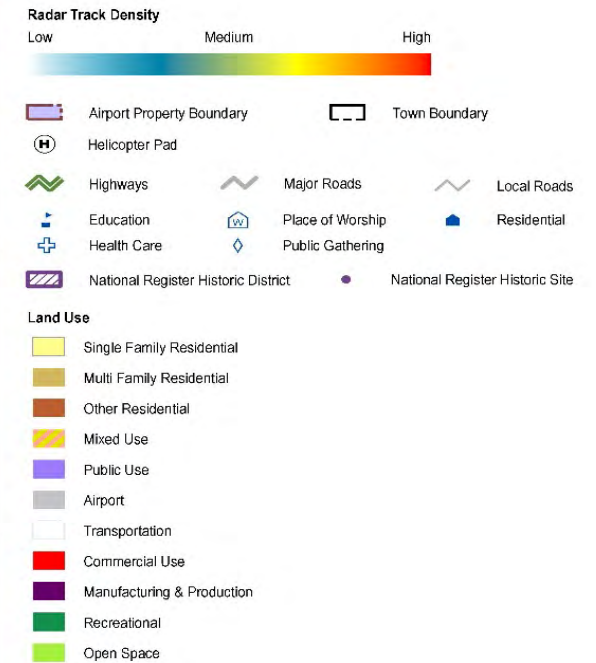




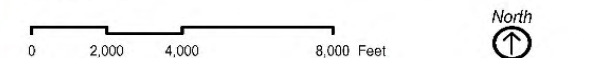


## PART 150 - NOISE EXPOSURE MAP UPDATE

**Figure 17**  
**Radar Sample Departure Tracks**



Data Sources:  
Chittenden County Regional Planning Commission, Vermont Center for Geographic Information, Inc. (VCGI),  
United States Census Bureau, Burlington International Airport, Campbell & Paris Engineers P.C.,  
Harris Miller Miller & Hanson Inc.

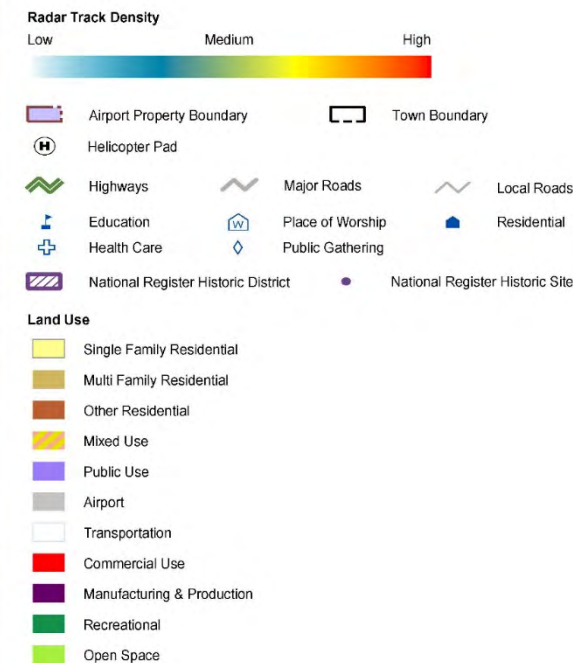






## PART 150 - NOISE EXPOSURE MAP UPDATE

**Figure 16**  
**Radar Sample Arrival Tracks**



Data Sources:  
Chittenden County Regional Planning Commission, Vermont Center for Geographic Information, Inc. (VCGI),  
United States Census Bureau, Burlington International Airport, Campbell & Paris Engineers P.C.,  
Harris Miller Miller & Hanson Inc.

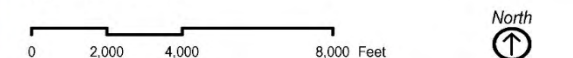




Table 2. 14 CFR Part 150 Noise / Land Use Compatibility Guidelines

Source: 14 CFR Part 150, Appendix A, Table 1

Land Use	Yearly Day-Night Average Sound Level, DNL, in Decibels (Key and notes on following page)					
	<65	65-70	70-75	75-80	80-85	>85
<b>Residential Use</b>						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
<b>Public Use</b>						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
<b>Commercial Use</b>						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
<b>Manufacturing and Production</b>						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
<b>Recreational</b>						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

## Key to Table 2

- **SLCUM:** Standard Land Use Coding Manual.
- **Y(Yes):** Land use and related structures compatible without restrictions.
- **N(No):** Land use and related structures are not compatible and should be prohibited.
- **NLR:** Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
- **25, 30, or 35:** Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

# SOUND TERMINOLOGY

- **A-weighted decibel (dBA)**
  - Reflects the manner humans hear different pitches of sound
  - All federal agencies have adopted dBA for environmental studies
- **dBA** can be used for different units of measure, like maximum and average
- **Day-Night Average Sound Level (DNL or Ldn)**
  - Cumulative sound measure
  - Equal to steady level that contains same energy as the actual time-varying sound
  - Increases sounds from 10 p.m. to 7 a.m. 10-fold
  - Used by all federal agencies that deal with aviation noise

## LAND USE COMPATIBILITY

- 14 CFR Part 150 provides guidelines (Appendix A, Table 1) for compatibility based on categories of land use:
  - Residential Use
  - Public Use
  - Commercial Use
  - Manufacturing and Production
  - Recreational
- Note: All land uses are considered compatible by Part 150 if exposed to an annual-average Day-Night Average Sound Level (DNL) of less than 65 dB

## Presentation to Burlington City Council





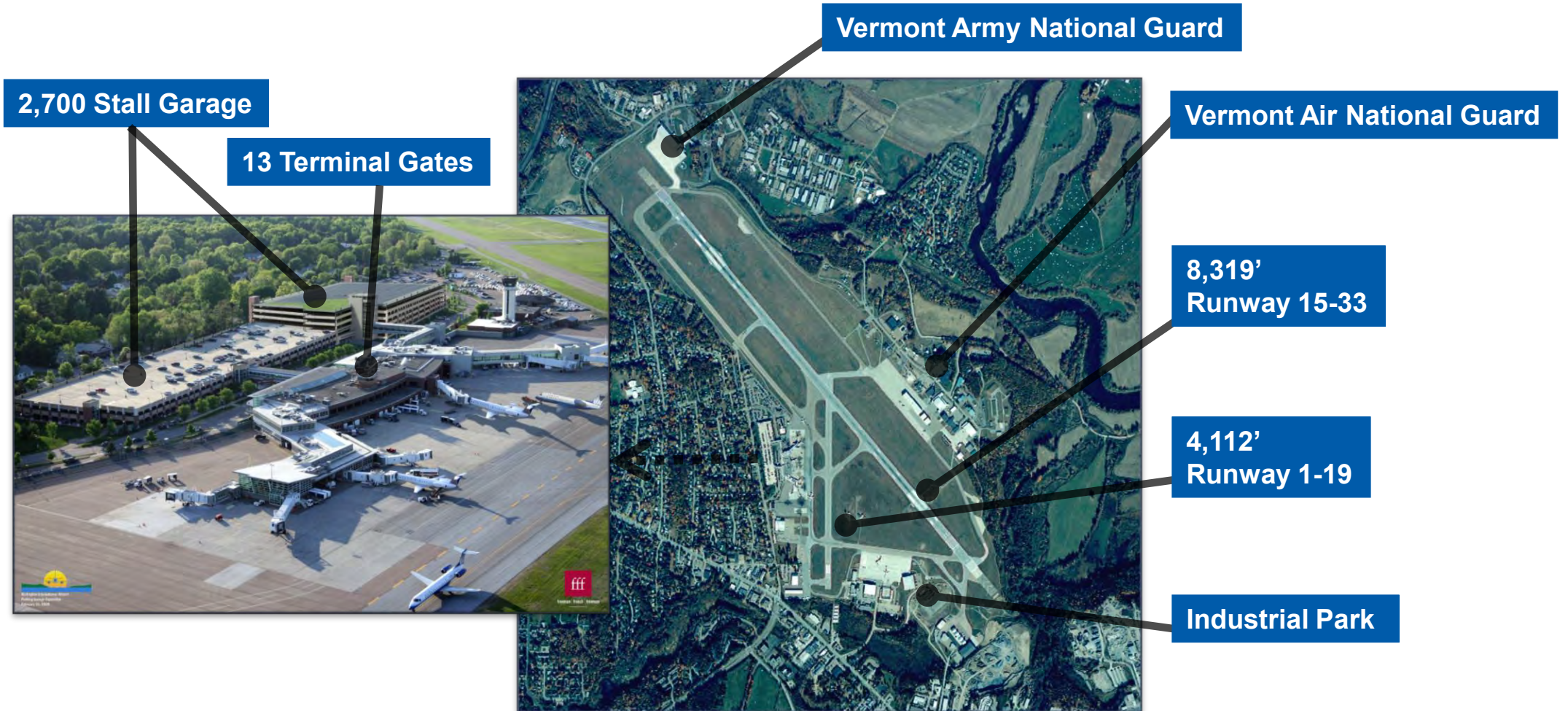
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## Burlington International Airport – City Council

December 2<sup>nd</sup>, 2019







# Airlines/Operations



- New York (JFK) – began March 2018
- Atlanta (ATL)
  - Continues to use mainline service (Boeing 737, Airbuses 320)



- Charlotte (CLT) service strong
- Chicago (ORD) – began June 2018
- Philadelphia (PHL) service strong



- Chicago (ORD) – Continues to use mainline service (Boeing 737, Airbus 320)
- Newark (EWR) – Added daily mainline service (Boeing 737, Airbus 320)



- New York (JFK) – consistently strong load factors



- Denver (DEN) – Mainline service (Airbus 320), seasonal service back in spring
- Orlando (MCO) – Seasonal service back for winter



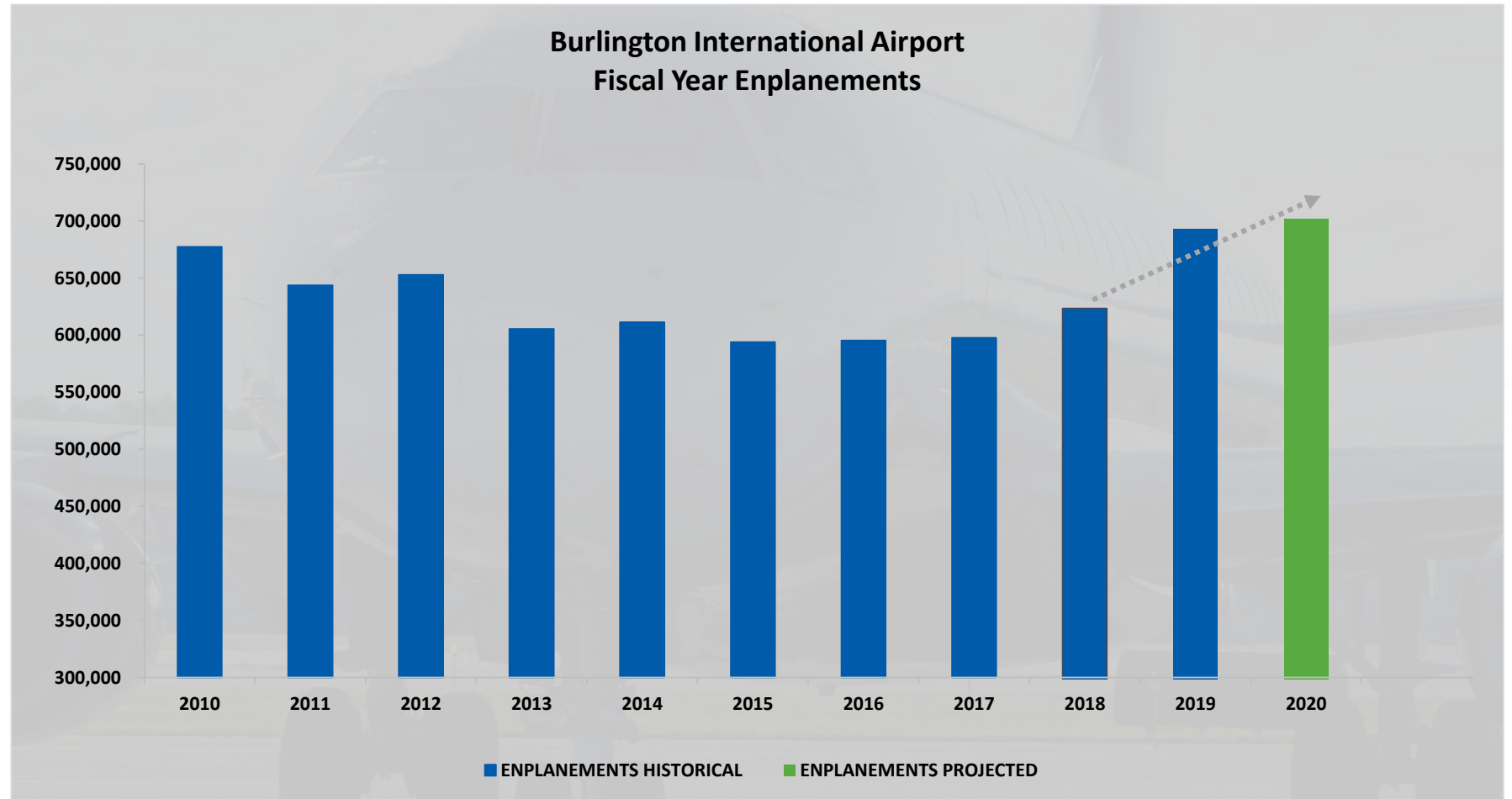
#### NON-STOP FLIGHTS TO:

Toronto | New York | Washington D.C. | Charlotte  
Orlando | Chicago | Philadelphia | Atlanta  
Detroit | Denver

# Enplanements

## Facts & Forecasts

- 693,208 enplanements in FY19, an 11.2% increase over FY18
- Long term steady growth through economic cycles
- Anticipating steady enplanements with new routes





Fiscal Year	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	Total
<b>2017</b>													
Enplanements	57,997	60,108	52,211	60,851	46,359	46,117	44,537	42,279	46,600	44,871	45,683	50,187	<b>597,800</b>
Avail. Seats	69,210	70,401	65,756	68,245	56,905	60,416	56,345	51,403	57,816	60,967	62,270	66,377	<b>746,111</b>
Load Factor	84%	85%	79%	89%	81%	76%	79%	82%	85%	74%	73%	76%	<b>80%</b>
<b>2018</b>													
Enplanements	56,956	58,215	49,995	59,378	46,781	46,076	46,684	46,371	48,526	53,285	53,367	57,855	<b>623,489</b>
Avail. Seats	68,242	69,191	69,093	68,284	55,460	55,218	58,028	54,650	57,907	67,428	67,994	75,383	<b>766,878</b>
Load Factor	83%	84%	72%	87%	84%	83%	80%	85%	84%	79%	77%	75%	<b>81%</b>
<b>2019</b>													
Enplanements	67,921	66,807	60,193	67,781	55,549	50,605	46,356	49,867	56,400	54,340	55,209	62,180	<b>693,208</b>
Avail. Seats	85,249	85,587	87,639	84,796	73,653	67,415	62,554	61,636	70,410	64,617	66,565	76,292	<b>886,413</b>
Load Factor	80%	78%	69%	80%	75%	75%	74%	81%	80%	84%	83%	82%	<b>78%</b>

**\* Approximately 16% increase in available seats from FY18 to FY19**

# Revenue Enhancements



### Car Rentals

- Approximately **\$22 Million** in Gross Sales Per Year
- Increased MAG approximately **8%** since 2017

### QTA

- New ground lease
- Fuel surcharge
- Reimbursement of facility manager



Currently served by:



## Skinny Pancake serves BTV in three locations

---

- Gross revenue exceeds **\$3.2 million dollars** a year
- **\$1,000,000** investment in facilities
- Facilities continue to make improvements to increase sales
- Successful Local Burlington Concessionaire
- Emphasis on local organic fresh produce and farm to table
- Facilities serve award winning local beer and spirits



## Hudson News serves BTV in three locations

- Exceeds **\$2.4 million** a year in gross revenue, FY2019 on target for 16% increase over FY18
- News & Gift contract expires FY2029
- Current concessionaire is Hudson News in three locations
  - Sales exceed 50% Vermont Products
  - Extensive infrastructure remodeling
- Airport is focusing on expanding news and gift options





## Airport Hotel

- Parties: BTV Hotel, LLC, controlled by the principals of DEW Corporation and Alpha Inn Management
- Flag: Hotel will be affiliated with a major brand and will be operated at a standard of not less than three (3) stars
- Lease Term: 49.5 years, building reverts back to BTV afterward
- Revenue Total Monthly Rent equal to 2% of Gross Hotel Revenue during Lease Years 1-2, then 3% of Gross Revenues during Lease Years 3-10, then 3.25% of Gross Revenues during Lease Years 11-48
- Minimum Annual Lease Guarantee: Based on 75% of Average Gross Revenues of previous two years
- Annual Capital Reserve: Hotel to review annual capital plans and expenditures with BTV



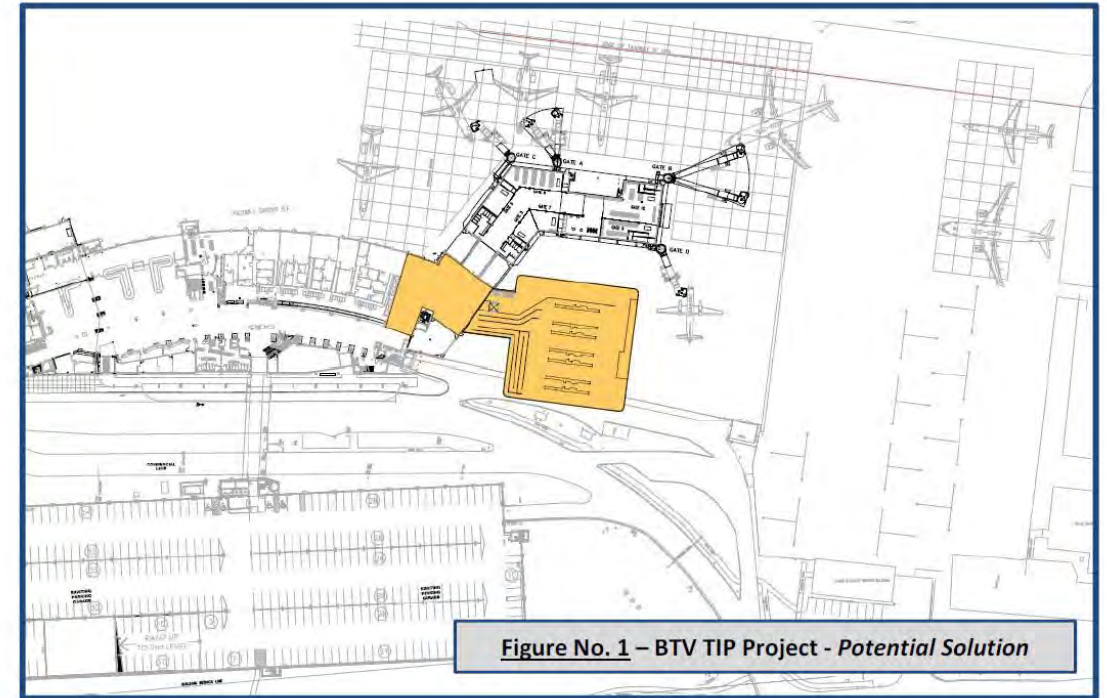
**FAIRFIELD**  
Marriott®



*Net ground lease revenue to BTV is forecasted to exceed \$100k annually. In addition, significant ancillary revenue will be generated from long term parking by the expected 20% of hotel guests who leave their cars while traveling*

## Terminal Integration Project

- Burlington International Airport has been appropriated \$10 Million in supplemental discretionary funding to consolidate the TSA checkpoint into a new facility, expanding the Terminal Building.
- Anticipated bidding will occur January 2020 with final grant award in Federal Fiscal Year 2020
- This consolidated TSA checkpoint will allow greater volume throughput accommodating additional passengers to travel out of BTV.









# Noise Program

# PART 150 HISTORY

## Part 150 History:

**2008** BTV's most recent NCP was completed and approved by FAA

**2013** The VT Air National Guard operations changed and a new Noise Exposure Map (NEM) update was undertaken

**2015** (December) FAA accepted the updated NEM and noise contours for 2015 and 2020

**2017** NCP update commences

**2019** BTV published the NEM update following the change in aircraft operations (including, but not limited to, F-35s)

## Estimated Residential Population within 2018 and 2023 NEM Contours

Day-Night Average Sound Level (DNL) Contour Interval	Estimated Dwelling Units and Population	Burlington		Colchester		Essex		South Burlington		Williston		Winooski		Total	
		2018	2023	2018	2023	2018	2023	2018	2023	2018	2023	2018	2023	2018	2023
		Single Family Parcels													
65-70 dB	Dwelling Units	-	51	-	9	-	-	126	356	-	105	-	260	126	781
	Population	-	118	-	21	-	-	292	826	-	244	-	603	292	1,812
70-75 dB	Dwelling Units	-	-	-	-	-	-	8	96	-	1	-	-	8	97
	Population	-	-	-	-	-	-	19	223	-	2	-	-	19	225
75 dB +	Dwelling Units	-	-	-	-	-	-	12	-	-	-	-	-	-	12
	Population	-	-	-	-	-	-	28	-	-	-	-	-	-	28
Total 65 dB +	Dwelling Units	-	51	-	9	-	-	134	464	-	106	-	260	134	890
	Population	-	118	-	21	-	-	311	1,076	-	246	-	603	311	2,065
Multi-Family & Mixed Use Parcels															
65-70 dB	Dwelling Units	-	209	-	13	-	-	30	344 <sup>1</sup>	-	4	-	993 <sup>2</sup>	30	1,563
	Population	-	485	-	30	-	-	70	798 <sup>1</sup>	-	9	-	2,304 <sup>2</sup>	70	3,626
70-75 dB	Dwelling Units	-	81 <sup>3</sup>	-	-	-	-	14	-	2	-	-	89 <sup>4,5</sup>	-	186
	Population	-	188 <sup>3</sup>	-	-	-	-	32	-	5	-	-	206 <sup>4,5</sup>	-	432
75 dB +	Dwelling Units	-	-	-	-	-	-	1	-	-	-	-	-	-	1
	Population	-	-	-	-	-	-	2	-	-	-	-	-	-	2
Total 65 dB +	Dwelling Units	-	290	-	13	-	-	30	359	-	6	-	1,082	30	1,750
	Population	-	673	-	30	-	-	70	833	-	14	-	2,510	70	4,060
Estimated Totals - All Parcel Types															
65-70 dB	Dwelling Units	-	260	-	22	-	-	156	700	-	109	-	1,253	156	2,344
	Population	-	603	-	51	-	-	362	1,624	-	253	-	2,907	362	5,438
70-75 dB	Dwelling Units	-	81	-	-	-	-	8	110	-	3	-	89	8	283
	Population	-	188	-	-	-	-	19	255	-	7	-	206	19	657
75 dB +	Dwelling Units	-	-	-	-	-	-	13	-	-	-	-	-	-	13
	Population	-	-	-	-	-	-	30	-	-	-	-	-	-	30
Total 65 dB +	Dwelling Units	-	341	-	22	-	-	164	823	-	112	-	1,342	164	2,640
	Population	-	791	-	51	-	-	380	1,909	-	260	-	3,113	380	6,125
<u>Notes:</u>															
1 Includes estimated units at: 303 Lime Kiln Rd. (18); 305 Lime Kiln Rd. (18); 325 Lime Kiln Rd. (40); 327 Lime Kiln Rd. (40); 331 Lime Kiln Rd. (40); 378 Lime Kiln Rd. (24); 380 Lime Kiln Rd. (24); 418 Lime Kiln Rd. (24)															
2 Includes estimated units at: 81 E Allen St. (2); 20 W Canal St. (96); 79 W Canal St. (24); 23 Weaver Ln. (4); 4 Weaver Ln. (2); 240 E Allen St. (0); 114 Main St. (5); 54 Leclair St. (2); 158 Main St. (6); 167 Main St. (3); 99 Weaver St. (3)															
3 No city records available for 109 Mulberry Ln. and 116 Mulberry Ln.															
4 Includes estimates for 1 Abeanki Way (26)															
5 Includes 106 E Allen St., which is a new building with an unknown unit count.															
<u>Additional:</u>															
- A single family parcel has a single dwelling on the property while a multi-family parcels has two or more dwelling units. All units are assumed to have an average population of 2.32, based on US Census data.															
- Each property considered for inclusion in the program also must meet any other eligibility requirements that the FAA may adopt. For example, consistent with FAA policy guidance set out in 14 CFR Part 150, Docket No. 28149, "Final Policy on Part 150 Approval of Noise Mitigation Measures: Effect on the Use of Federal Grants for Noise Mitigation Projects", effective October 1, 1998, new non-compatible land uses established after that date within October 1, 1998, will not be eligible for acquisition. Current FAA guidelines are probably best described in the FAA's Airport Improvement Program (AIP) Handbook, September 30, 2014. See also footnotes 26 and 27 in Section 4.3 of this document.															

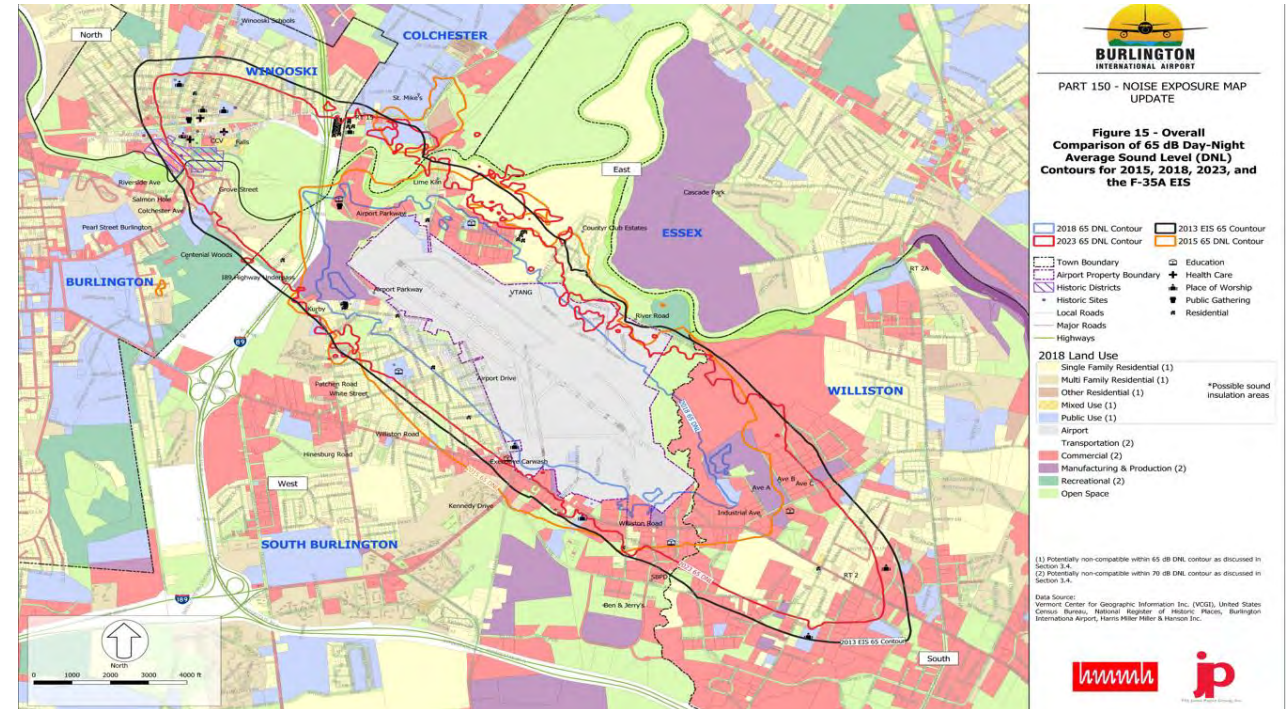
Table 5 presents the estimated residential population within the three historical contours presented in Figure 15 along with the 2018 and 2023 NEM contours. The purpose of this table is to provide a dwelling and population comparison to the historical contours presented in Figure 15, all with the same land use data and dwelling inventory methodology used in this NEM. The dwelling unit and population estimates in the middle three columns of Table 5 (labeled as "Land Use Inventoried and Depicted for this 2018/2023 NEM") were developed from the same land use data set used for this NEM update. Therefore, the numbers provided differ from the original documents, each of which used different land use data and/or methodologies. Table 5 also provides the

## WHAT IS A PART 150 NOISE STUDY?

- Title 14 of the Code of Federal Regulations Part 150 (Part 150) "Airport Noise Compatibility Planning" sets forth standards for airport operators to use in documenting noise exposure around airports and establishing programs which may be eligible for federal funding to minimize noise-related land use incompatibilities. It is a voluntary process.
- It consists of two parts:
  - Noise Exposure Map (NEM):** Detailed description of airport layout, operations, noise exposure, land uses, and noise/land use compatibility for the study year and a forecast year
  - Noise Compatibility Program (NCP):** A proposed plan to reduce noise exposure, and identify land use mitigation measures to address existing non-compatible uses and land use control measures to prevent new non-compatible uses

# WHAT IS A “NOISE EXPOSURE MAP” (NEM)?

- A **noise exposure map** is a graphical presentation of the specific aircraft noise levels (noise contours) around an airport depicted over the existing land use. The noise level is expressed as Day-Night Average Sound Level (DNL). The Updated NEM depicts the noise levels for the current condition (2018) and 5 years in the future (2023).





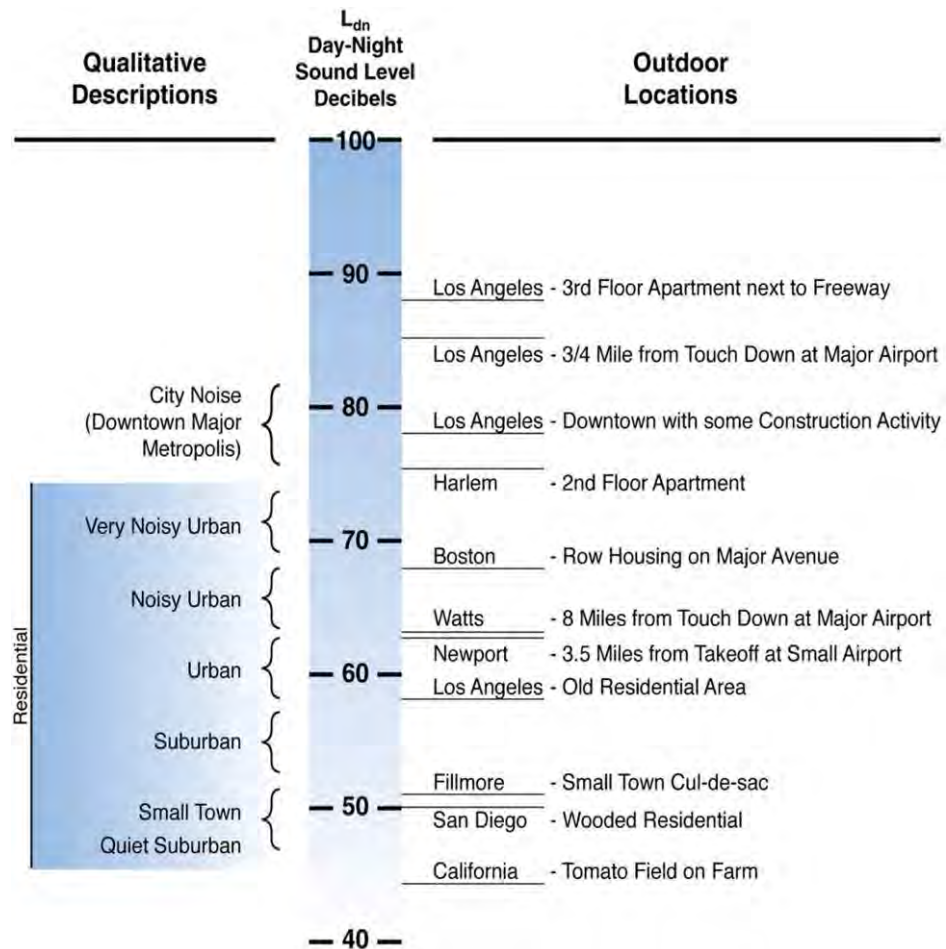
## WHAT IS A NOISE CONTOUR?

- A **noise contour** is a line on a map that depicts equal levels of noise exposure as generated by a required FAA computer model, (AEDT).
- The **Day-Night Sound Level (DNL)** is a 24 hour weighted energy average noise level based on A-weighted decibels (dBA) that adds a 10 dB penalty for aircraft noise occurring between 10 p.m. and 7 a.m. The FAA requires the use of DNL as the noise metric for the NEM.

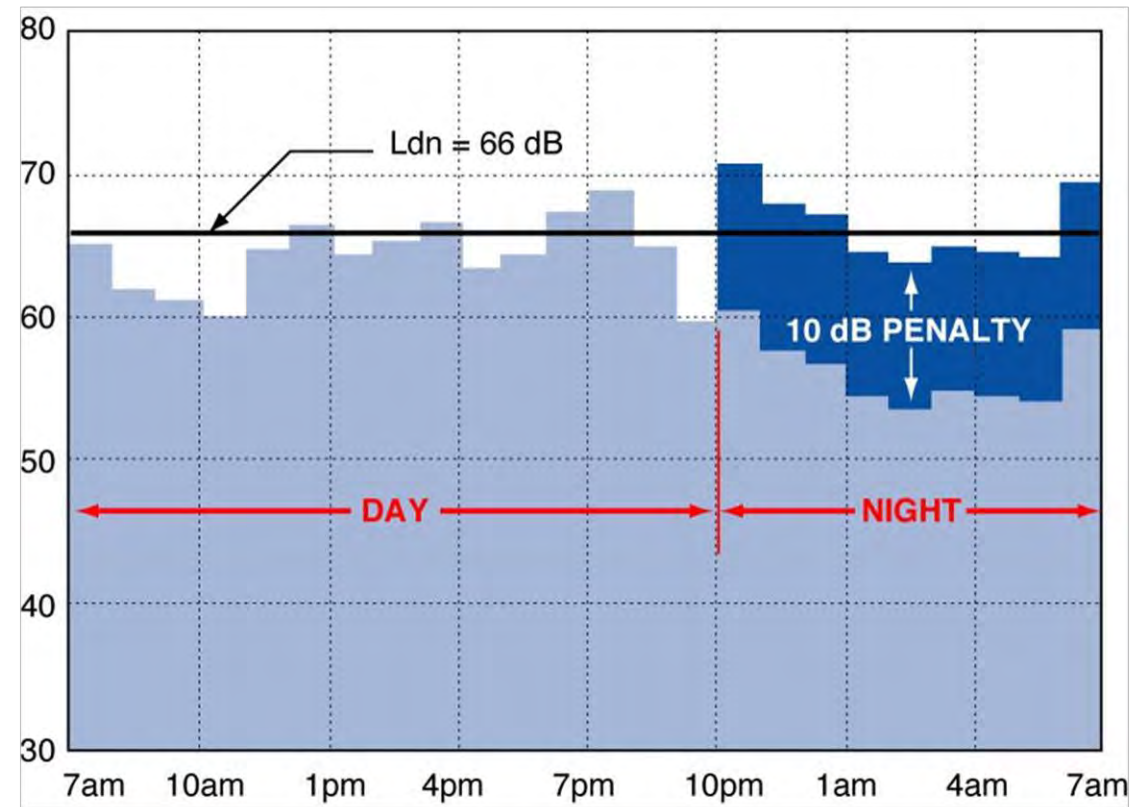


# SOUND TERMINOLOGY

## DNL Examples



## Day-Night Sound Level





## WHAT IS A NOISE COMPATIBILITY PROGRAM?

- The **Noise Compatibility Program (NCP)** is a land use planning study that recommends noise mitigation efforts and recommends future land use planning initiatives for areas located within the 65 DNL and higher noise contour.
- The **NCP** is being updated to reflect new recommendations for noise mitigation.



# NCP GOALS & OPTIONS

## Noise Compatibility Program (NCP) Update Project Focus and Goals:

- Goal is to find ways to transition from land acquisition to other land use measures
- Focus is on updating land use measures
- Recommendations will be based on the 2020 noise contour
- Study will incorporate community feedback
- Advisory committee will be formed for feedback and updates

## Mitigation Options must:

- Meet eligibility requirements for federal funding under FAA guidelines
- Provide a benefit to the local residents; especially those that are in non-compatible areas identified on the FAA accepted NEM

## Mitigation measures will be evaluated using factors such as:

- Technical feasibility
- Impacts to residents
- Cost
- Schedule

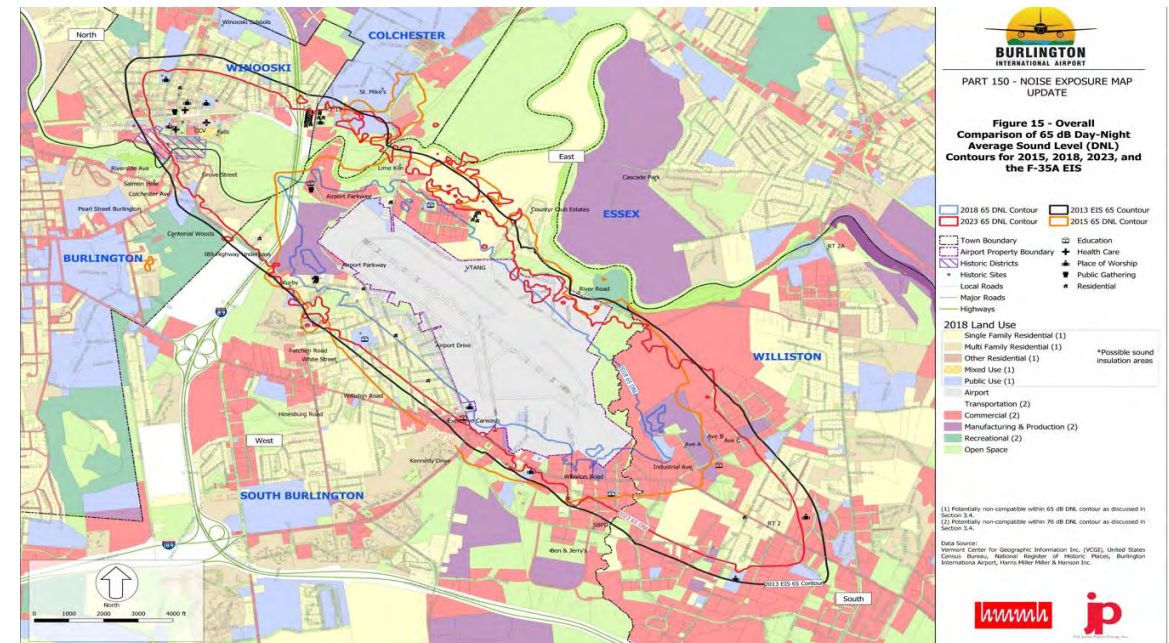
# RECOMMENDED MONITORING & REVIEW ELEMENTS

## Monitoring & Review of NEM & NCP

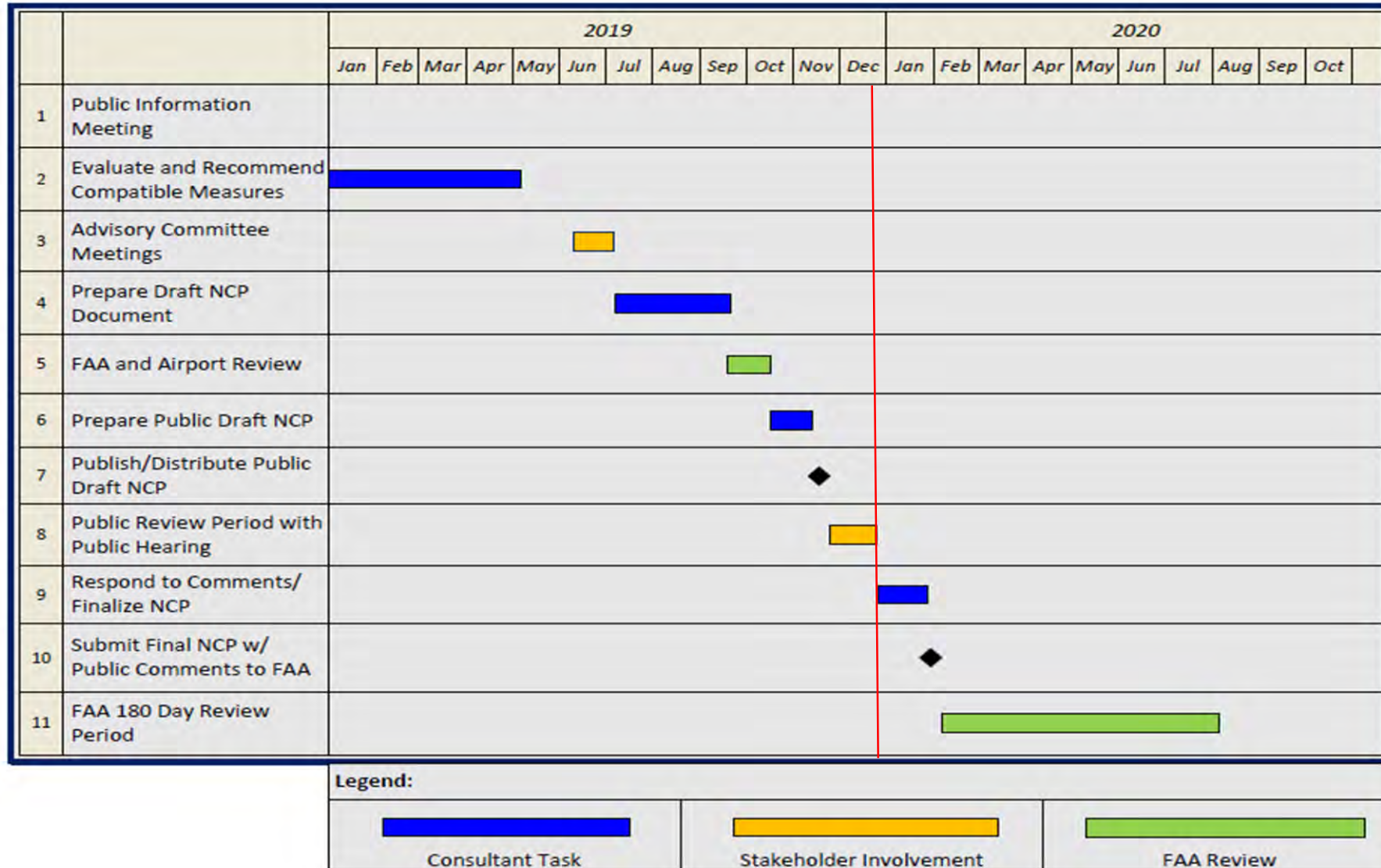
- Update of NEM one year after full operation of F35 aircraft
- Estimated funding in FFY2021

## Noise and Flight Track Monitoring

- Acquisition of a noise and flight track monitoring system



# ANTICIPATED NCP UPDATE SCHEDULE





# NCP RECOMMENDED LAND USE MEASURES

## Land Acquisition & Relocation

- Property located in the 75 DNL contour and higher
- Voluntary purchase of residential units from owner using federal guidelines
- Relocation benefits for the occupants
- Demolition of structure
- Land reuse study for compatible use of land



## Sound Insulation

- Property located between the 65-75 DNL contour
- Property located in the 75 DNL where majority of property is outside the 75 DNL
- No aviation easement

### Residential

- Installation of acoustical windows and doors in exchange for an aviation easement
- Reduce interior noise level to 45 dB DNL
- Must have existing interior noise level above 45 dB DNL to qualify
- Owner remains in home

### Community Buildings

- Eligible community buildings include schools and other noise sensitive buildings

# NCP RECOMMENDED LAND USE MEASURES

## Sales Assistance

- Property located between the 65-75 DNL contour
- Avigation easement required
- Airport assists with the sale of the home on the open market; airport does NOT take possession of property
- Homeowner enters program by signing agreement which includes:
  - Homeowner to list property at Fair Market Value (FMV)
  - Homeowner to convey Avigation Easement prior to sale of home
  - Airport guarantees they will provide a differential to assist in the sale of the property if seller receives an offer less than FMV
- Owner/Occupant does not receive relocation benefits

## Purchase Assurance

- Property located between the 65-75 DNL contour
- Avigation easement required
- Airport takes possession of property and resells it on the open market
- Homeowner enters program by signing agreement which includes:
  - Homeowner to sell property at appraised Fair Market Value (FMV)
  - Homeowner to convey Avigation Easement prior to sale of home
- Owner/Occupant does not receive relocation benefits
- Airport maintains and preserves property during the sound insulation process



## NCP NEXT STEPS

- NCP Public Hearing - Thursday, October 24<sup>th</sup>, Comments open until November 25<sup>th</sup>
- Submit NCP to FAA – December 2019
- Development of Implementation Plan – concurrent with FAA's review
- Anticipated NCP Approval – June 2020

# BTV



Thank You

# Appendix

Day-Night Average Sound Level (DNL) Contour Interval	Estimated Dwelling Units and Population	Burlington		Colchester		Essex		South Burlington		Williston		Winooski		Total	
		2018	2023	2018	2023	2018	2023	2018	2023	2018	2023	2018	2023	2018	2023
		Single Family Parcels													
65-70 dB	Dwelling Units	-	51	-	9	-	-	126	356	-	105	-	260	126	781
	Population	-	118	-	21	-	-	292	826	-	244	-	603	292	1,812
70-75 dB	Dwelling Units	-	-	-	-	-	-	8	96	-	1	-	-	8	97
	Population	-	-	-	-	-	-	19	223	-	2	-	-	19	225
75 dB +	Dwelling Units	-	-	-	-	-	-	-	12	-	-	-	-	-	12
	Population	-	-	-	-	-	-	-	28	-	-	-	-	-	28
Total 65 dB +	Dwelling Units	-	51	-	9	-	-	134	464	-	106	-	260	134	890
	Population	-	118	-	21	-	-	311	1,076	-	246	-	603	311	2,065
Multi-Family & Mixed Use Parcels															
65-70 dB	Dwelling Units	-	209	-	13	-	-	30	344 <sup>1</sup>	-	4	-	993 <sup>2</sup>	30	1,563
	Population	-	485	-	30	-	-	70	798 <sup>1</sup>	-	9	-	2,304 <sup>2</sup>	70	3,626
70-75 dB	Dwelling Units	-	81 <sup>3</sup>	-	-	-	-	-	14	-	2	-	89 <sup>4,5</sup>	-	186
	Population	-	188 <sup>3</sup>	-	-	-	-	-	32	-	5	-	206 <sup>4,5</sup>	-	432
75 dB +	Dwelling Units	-	-	-	-	-	-	-	1	-	-	-	-	-	1
	Population	-	-	-	-	-	-	-	2	-	-	-	-	-	2
Total 65 dB +	Dwelling Units	-	290	-	13	-	-	30	359	-	6	-	1,082	30	1,750
	Population	-	673	-	30	-	-	70	833	-	14	-	2,510	70	4,060
Estimated Totals - All Parcel Types															
65-70 dB	Dwelling Units	-	260	-	22	-	-	156	700	-	109	-	1,253	156	2,344
	Population	-	603	-	51	-	-	362	1,624	-	253	-	2,907	362	5,438
70-75 dB	Dwelling Units	-	81	-	-	-	-	8	110	-	3	-	89	8	283
	Population	-	188	-	-	-	-	19	255	-	7	-	206	19	657
75 dB +	Dwelling Units	-	-	-	-	-	-	-	13	-	-	-	-	-	13
	Population	-	-	-	-	-	-	-	30	-	-	-	-	-	30
Total 65 dB +	Dwelling Units	-	341	-	22	-	-	164	823	-	112	-	1,342	164	2,640
	Population	-	791	-	51	-	-	380	1,909	-	260	-	3,113	380	6,125

## NCP RECOMMENDED LAND USE MEASURES

**Below are the estimated average cost for each program per home and the number of properties that would be eligible based upon a \$5 million grant**

<b>Program</b>	<b>Cost Per Home</b>	<b># of Homes</b>
Sound Insulation	\$ 54,000	93
Sales Assistance	\$ 35,520	141
Purchase Assurance	\$ 355,200	14
Acquisition & Relocation	\$ 407,000	12

Note: Cost per home is based upon actual costs from BTV Airport programs or the New England Region plus 20% administration costs





## PART 150 - NOISE EXPOSURE MAP UPDATE

**Figure 15 - Overall Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS**

2018 65 DNL Contour  
2023 65 DNL Contour  
2013 EIS 65 Countour  
2015 65 DNL Contour

Town Boundary  
Airport Property Boundary  
Historic Districts  
Historic Sites  
Local Roads  
Major Roads  
Highways  
Education  
Health Care  
Place of Worship  
Public Gathering  
Residential

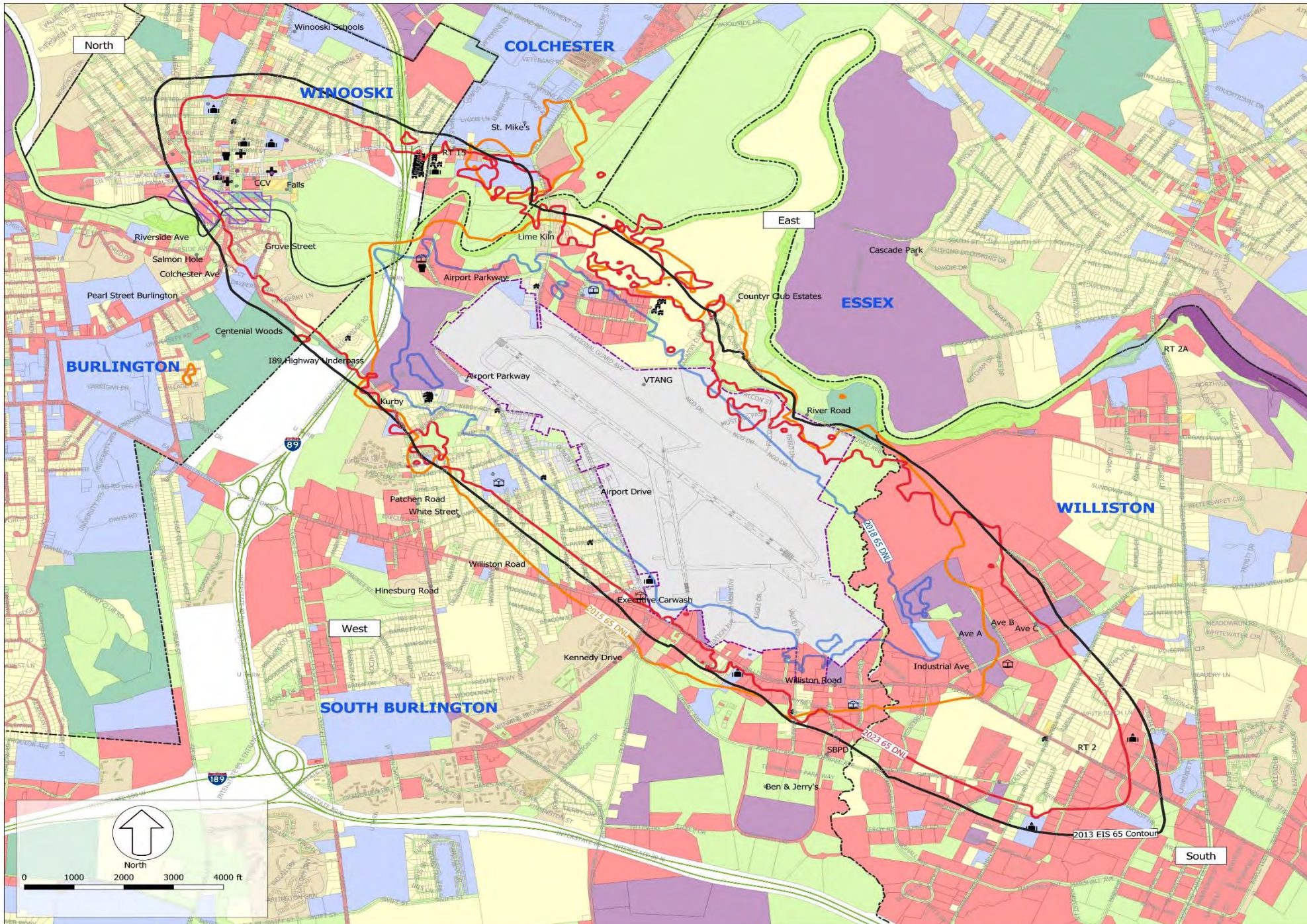
### 2018 Land Use

Single Family Residential (1)  
Multi Family Residential (1)  
Other Residential (1)  
Mixed Use (1)  
Public Use (1)  
Airport  
Transportation (2)  
Commercial (2)  
Manufacturing & Production (2)  
Recreational (2)  
Open Space

\*Possible sound insulation areas

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







## PART 150 - NOISE EXPOSURE MAP UPDATE

**Figure 13 - Overall  
2023 Forecast Conditions Noise  
Exposure Map**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

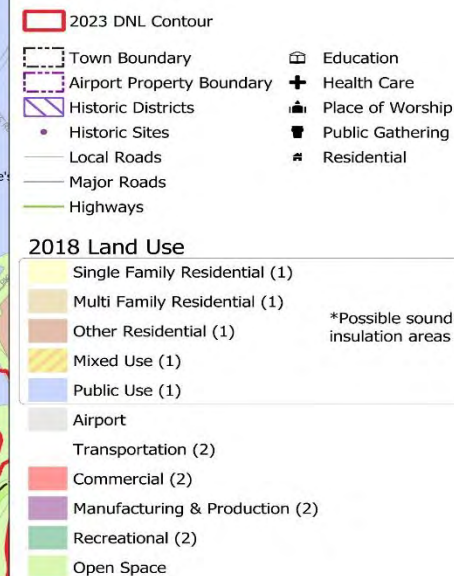






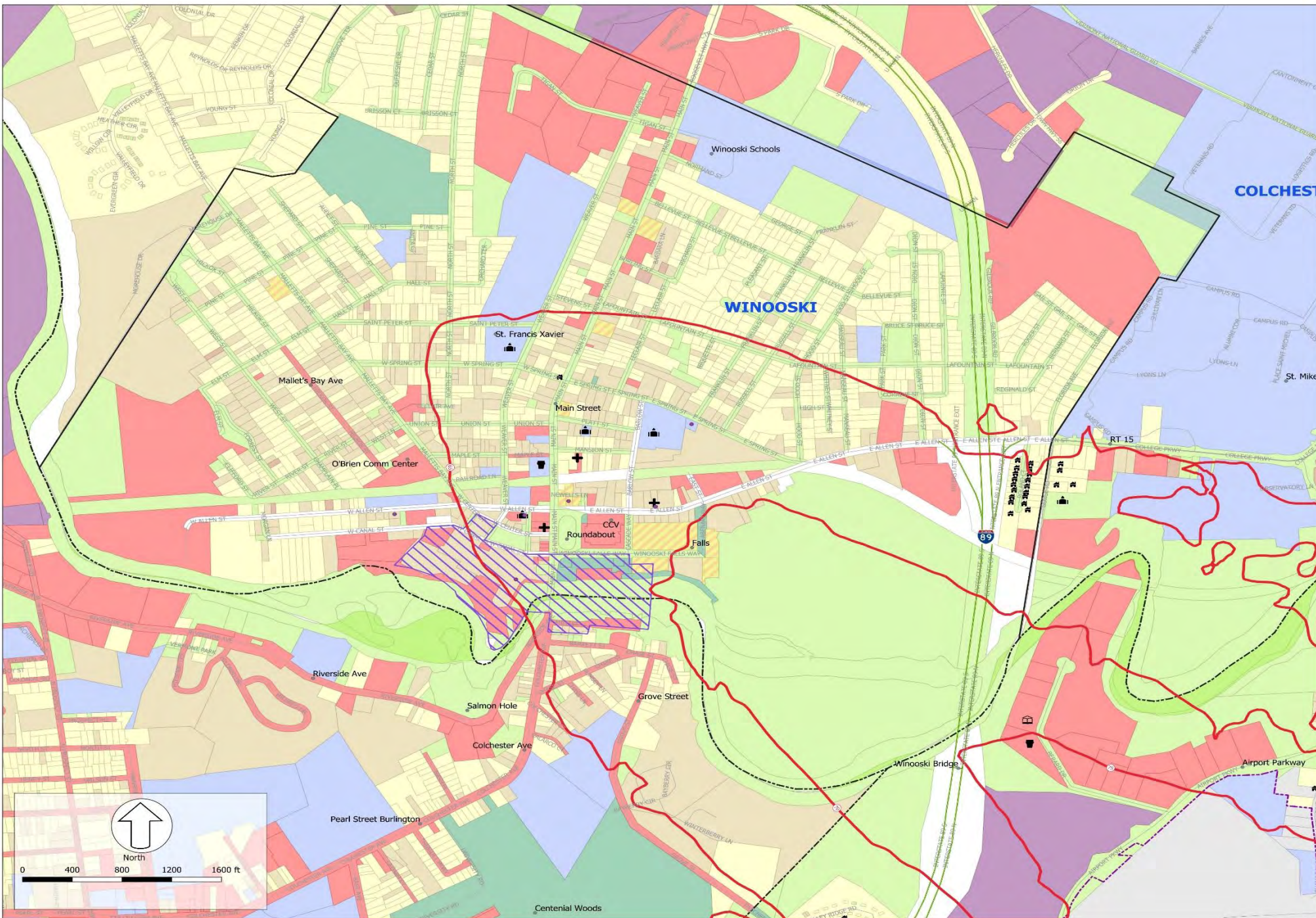
## PART 150 - NOISE EXPOSURE MAP UPDATE

### WINOOSKI Figure 13 - North 2023 Forecast Conditions Noise Exposure Map



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







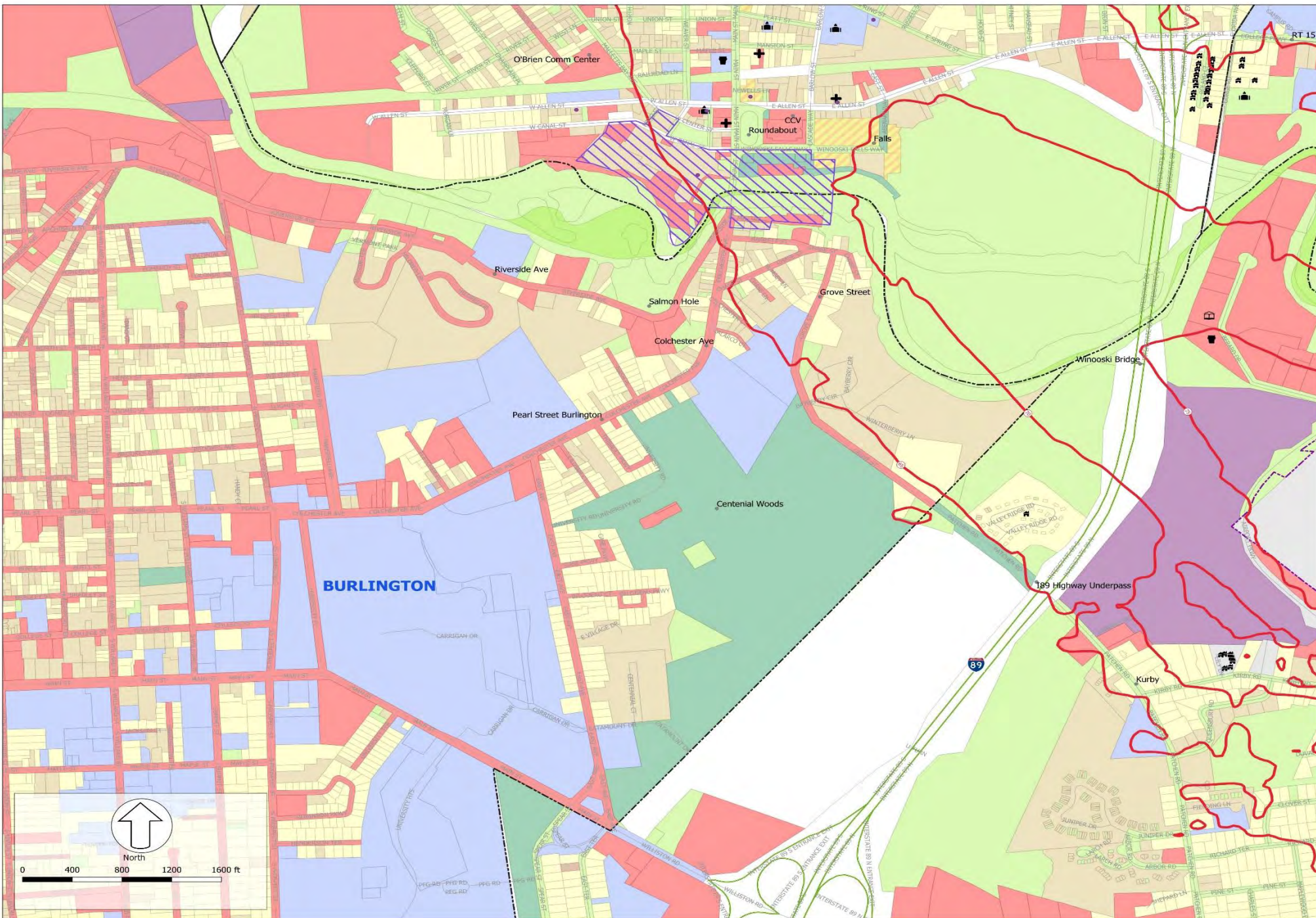
PART 150 - NOISE EXPOSURE MAP  
UPDATE

**BURLINGTON**  
**Figure 13 - North**  
**2023 Forecast Conditions Noise**  
**Exposure Map**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







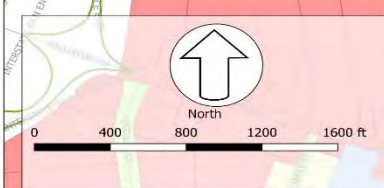
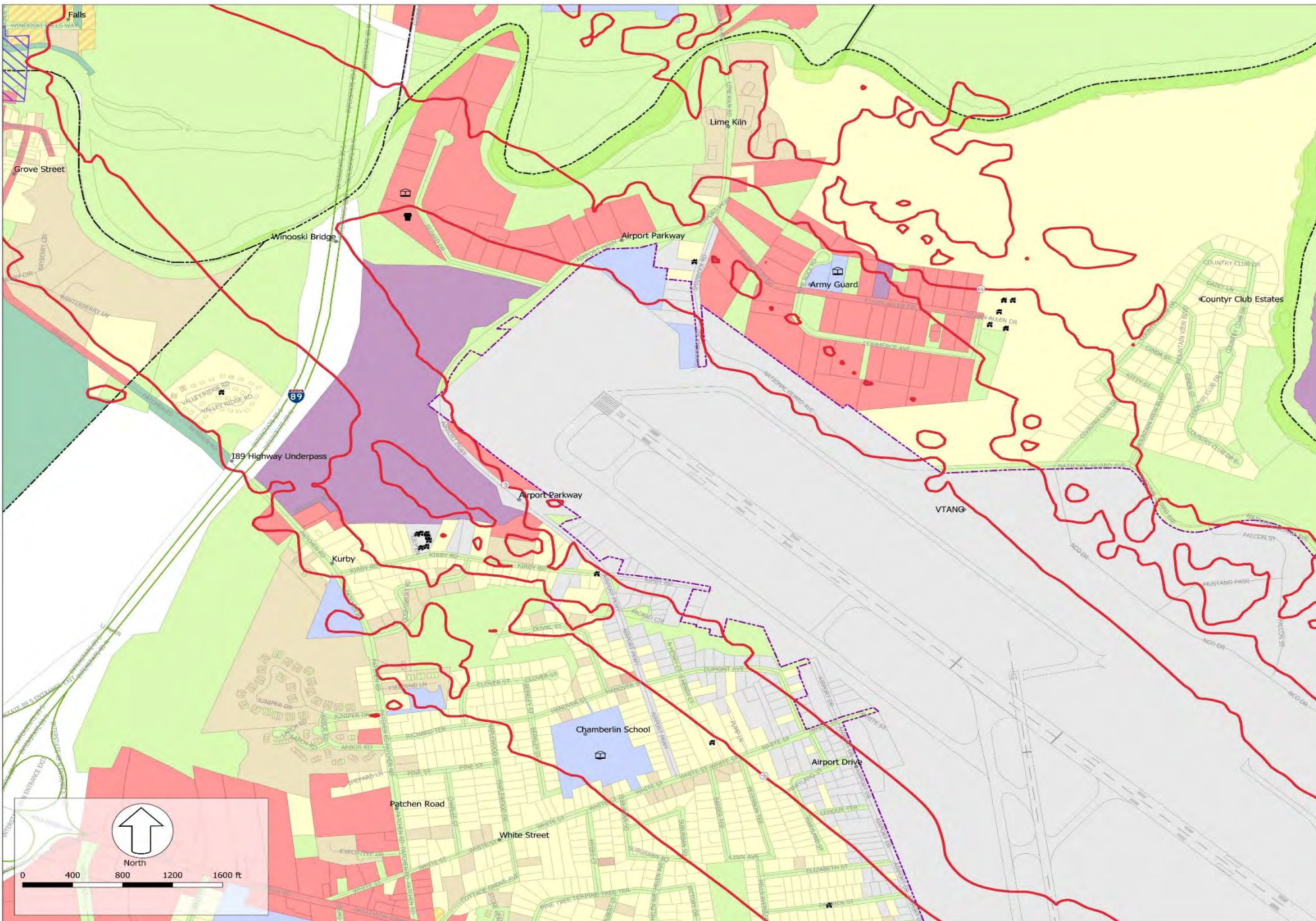
PART 150 - NOISE EXPOSURE MAP  
UPDATE

**SOUTH BURLINGTON (NORTH)  
Figure 13 - West  
2023 Forecast Conditions Noise  
Exposure Map**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







PART 150 - NOISE EXPOSURE MAP  
UPDATE

**SOUTH BURLINGTON (SOUTH)**  
**Figure 13 - West**  
**2023 Forecast Conditions Noise**  
**Exposure Map**

2023 DNL Contour

Town Boundary

Airport Property Boundary

Historic Districts

Historic Sites

Local Roads

Major Roads

Highways

Education

Health Care

Place of Worship

Public Gathering

Residential

**2018 Land Use**

Single Family Residential (1)

Multi Family Residential (1)

Other Residential (1)

Mixed Use (1)

Public Use (1)

Airport

Transportation (2)

Commercial (2)

Manufacturing & Production (2)

Recreational (2)

Open Space

\*Possible sound insulation areas

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.





PART 150 - NOISE EXPOSURE MAP  
UPDATE

**WILLISTON**  
**Figure 13 - South**  
**2023 Forecast Conditions Noise**  
**Exposure Map**

- 2023 DNL Contour

Town Boundary

Airport Property Boundary

Historic Districts

Historic Sites

Local Roads

Major Roads

Highways

Education

Health Care

Place of Worship

Public Gathering

Residential

2018 Land Use

Single Family Residential (1)

Multi Family Residential (1)

Other Residential (1)

Mixed Use (1)

Public Use (1)

Airport

Transportation (2)

Commercial (2)

Manufacturing & Production (2)

Recreational (2)

Open Space

\*Possible sound insulation areas

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.





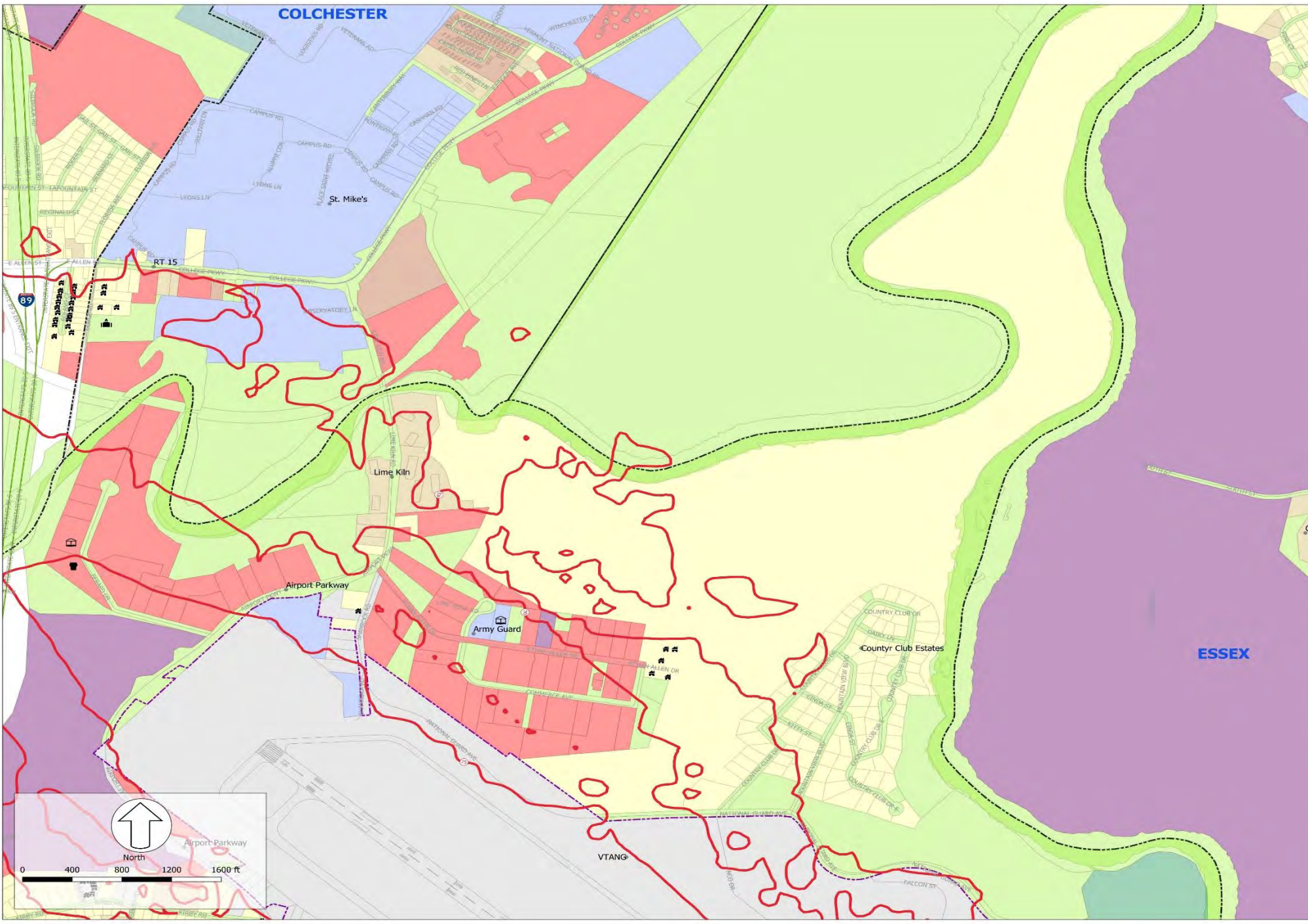
PART 150 - NOISE EXPOSURE MAP  
UPDATE

**COLCHESTER / ESSEX**  
**Figure 13 - East**  
**2023 Forecast Conditions Noise**  
**Exposure Map**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

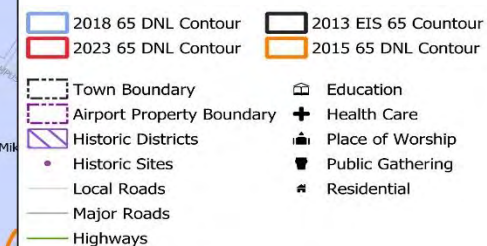




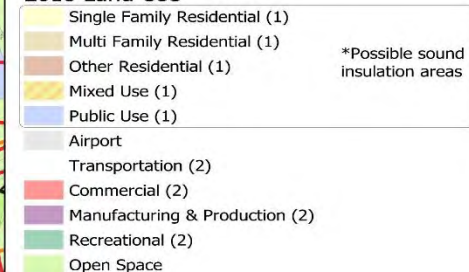


## PART 150 - NOISE EXPOSURE MAP UPDATE

### WINOOSKI Figure 15 - North Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS

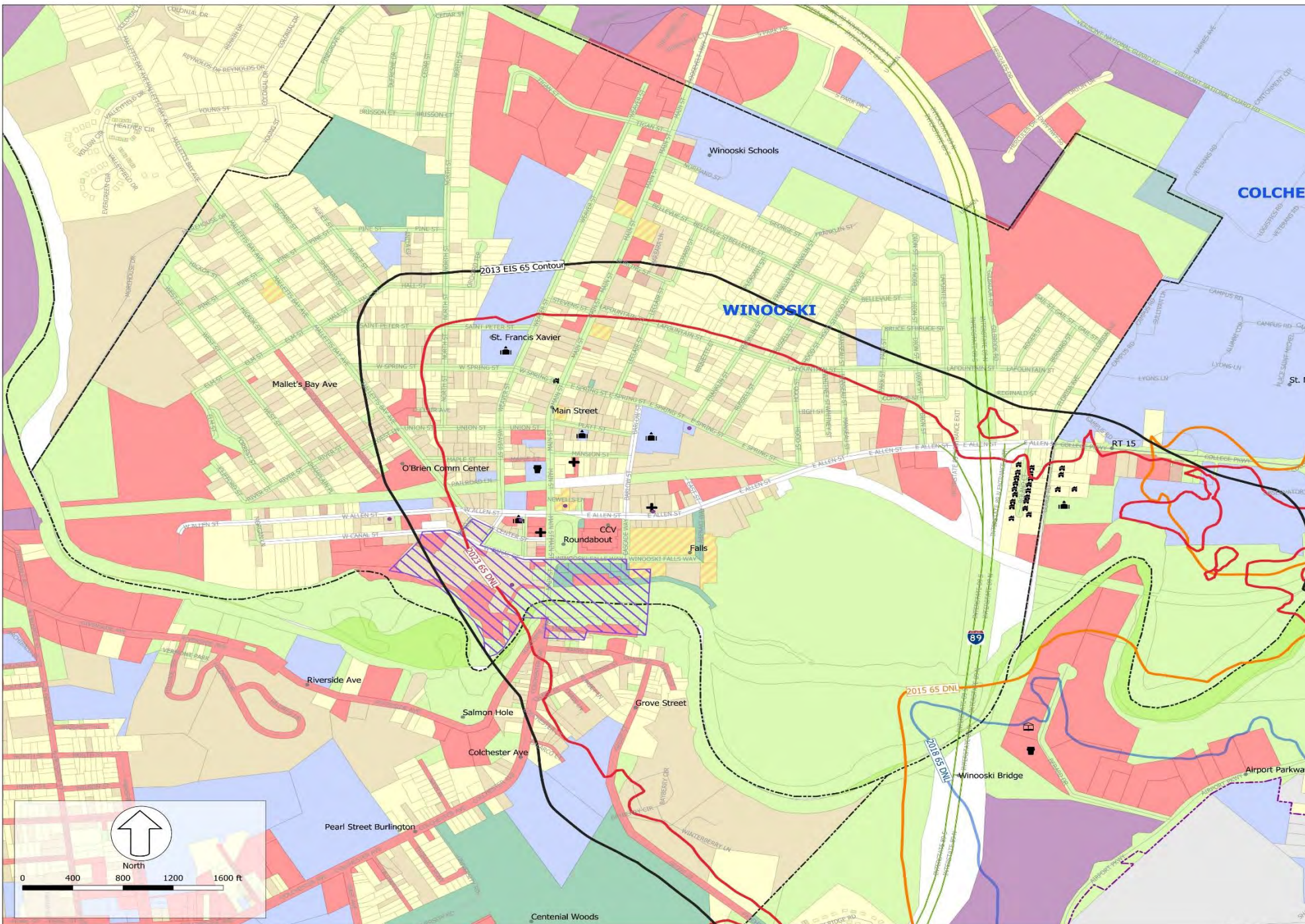


#### 2018 Land Use



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.





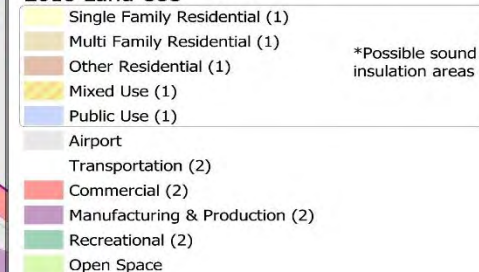


## PART 150 - NOISE EXPOSURE MAP UPDATE

### BURLINGTON Figure 15 - West Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS

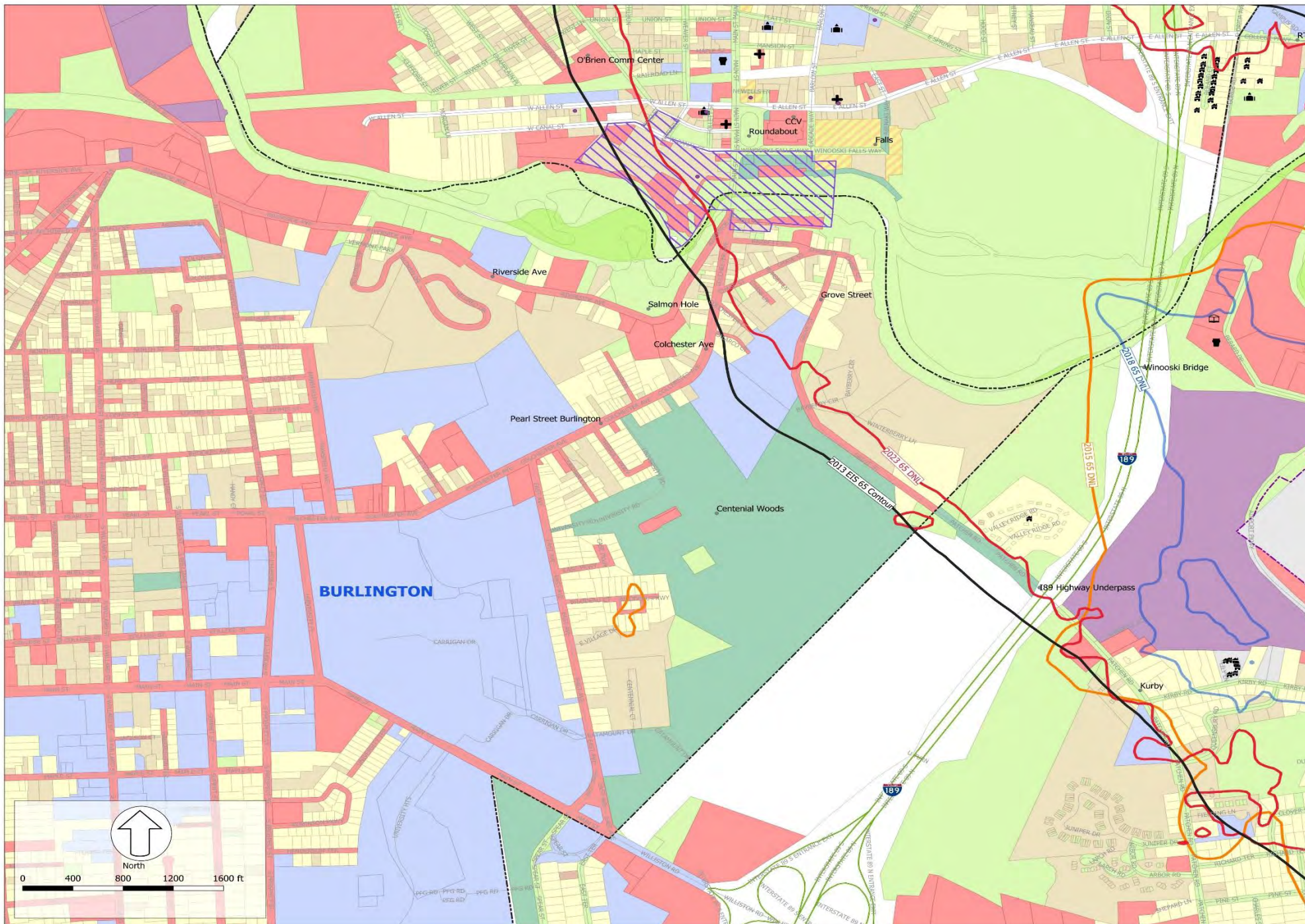


#### 2018 Land Use



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

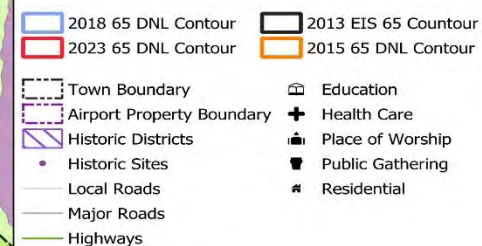






## PART 150 - NOISE EXPOSURE MAP UPDATE

### SOUTH BURLINGTON (NORTH) Figure 15 - South Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS



#### 2018 Land Use



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

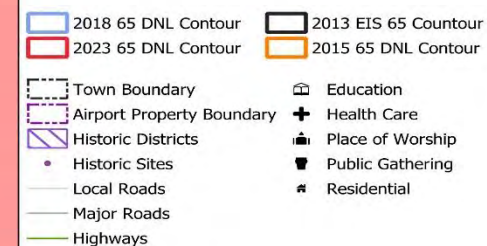




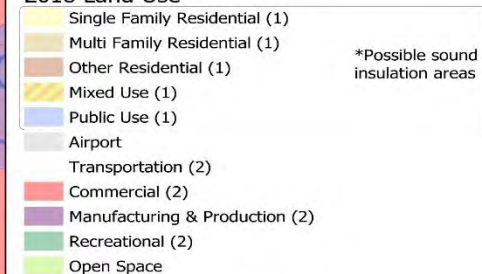


PART 150 - NOISE EXPOSURE MAP  
UPDATE

**SOUTH BURLINGTON (SOUTH)**  
**Figure 15 - East**  
**Comparison of 65 dB Day-Night**  
**Average Sound Level (DNL)**  
**Contours for 2015, 2018, 2023, and**  
**the F-35A EIS**

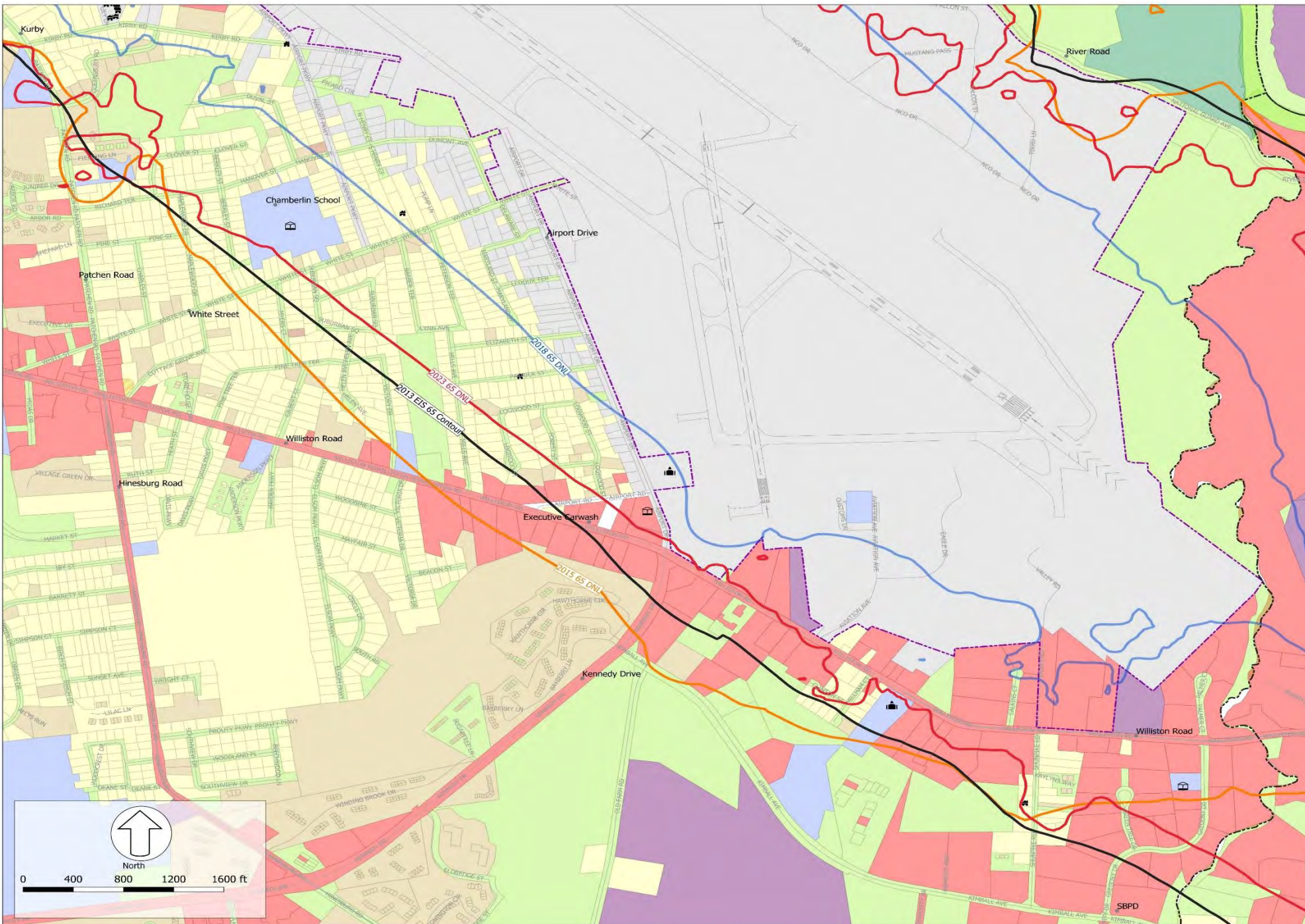


**2018 Land Use**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

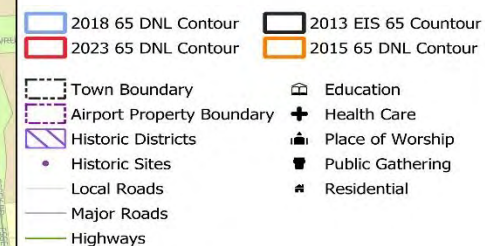




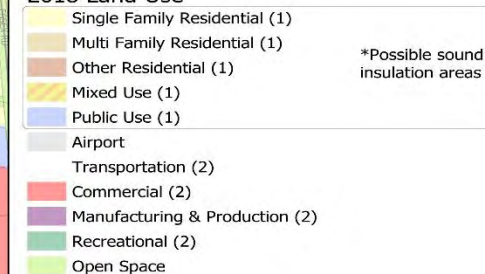


## PART 150 - NOISE EXPOSURE MAP UPDATE

### **WILLISTON** **Figure 15 - East** **Comparison of 65 dB Day-Night** **Average Sound Level (DNL)** **Contours for 2015, 2018, 2023, and** **the F-35A EIS**

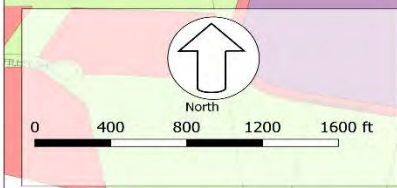
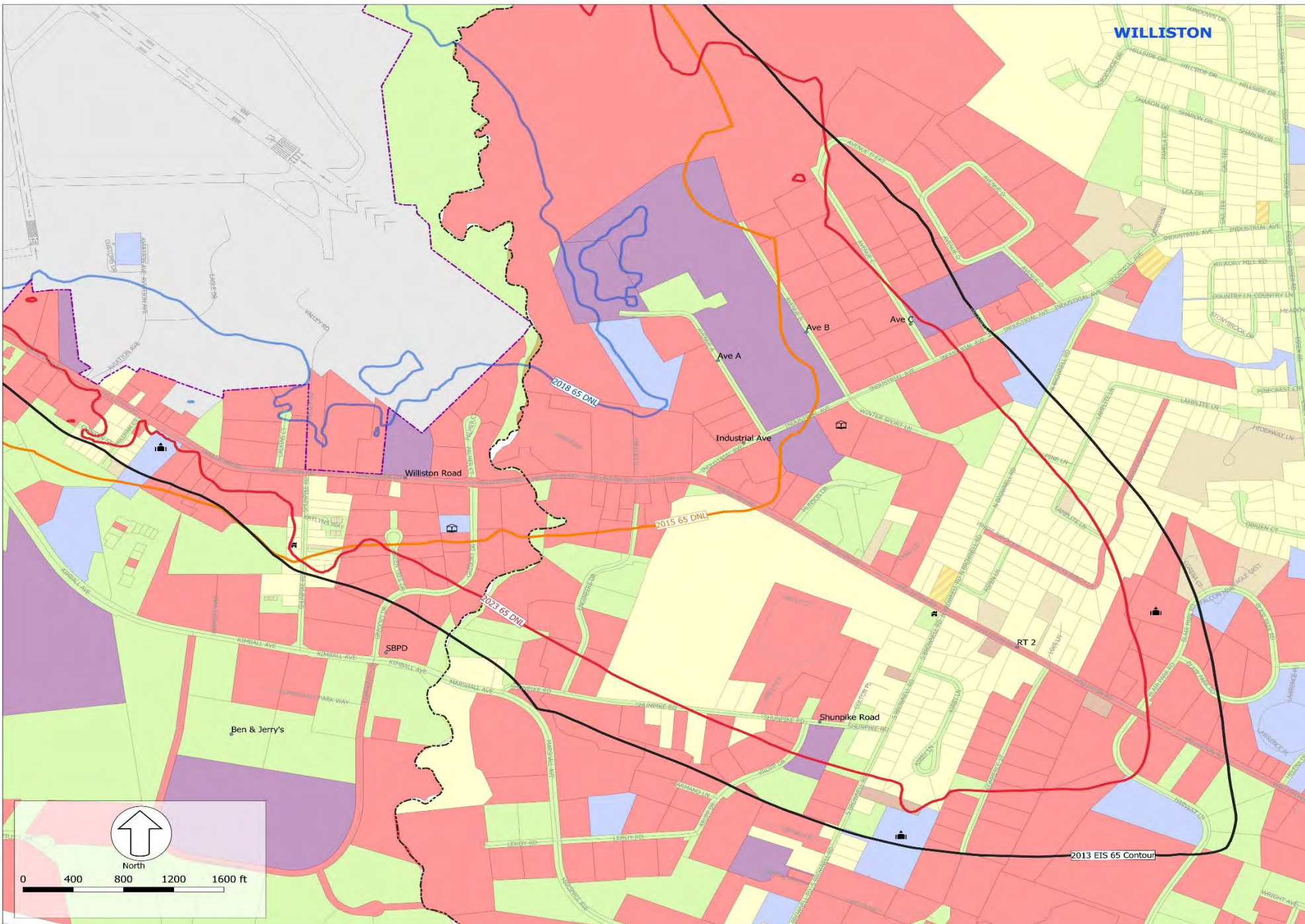


#### 2018 Land Use



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







PART 150 - NOISE EXPOSURE MAP  
UPDATE

**COLCHESTER / ESSEX**  
**Figure 15 - East**  
**Comparison of 65 dB Day-Night**  
**Average Sound Level (DNL)**  
**Contours for 2015, 2018, 2023, and**  
**the F-35A EIS**

- |                     |                      |
|---------------------|----------------------|
| 2018 65 DNL Contour | 2013 EIS 65 Countour |
| 2023 65 DNL Contour | 2015 65 DNL Contour  |

- |                           |                  |
|---------------------------|------------------|
| Town Boundary             | Education        |
| Airport Property Boundary | Health Care      |
| Historic Districts        | Place of Worship |
| Historic Sites            | Public Gathering |
| Local Roads               | Residential      |
| Major Roads               |                  |
| Highways                  |                  |

**2018 Land Use**

- |                                |                                  |
|--------------------------------|----------------------------------|
| Single Family Residential (1)  | *Possible sound insulation areas |
| Multi Family Residential (1)   |                                  |
| Other Residential (1)          |                                  |
| Mixed Use (1)                  |                                  |
| Public Use (1)                 |                                  |
| Airport                        |                                  |
| Transportation (2)             |                                  |
| Commercial (2)                 |                                  |
| Manufacturing & Production (2) |                                  |
| Recreational (2)               |                                  |
| Open Space                     |                                  |

- (1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

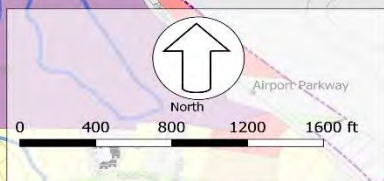
Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.



COLCHESTER

ESSEX

VTANG







## PART 150 - NOISE EXPOSURE MAP UPDATE

**Figure 17**  
**Radar Sample Departure Tracks**

### Radar Track Density

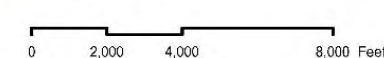


- Airport Property Boundary
- Town Boundary
- Helicopter Pad
- Highways
- Major Roads
- Local Roads
- Education
- Place of Worship
- Health Care
- Public Gathering
- Residential
- National Register Historic District
- National Register Historic Site

### Land Use

- Single Family Residential
- Multi Family Residential
- Other Residential
- Mixed Use
- Public Use
- Airport
- Transportation
- Commercial Use
- Manufacturing & Production
- Recreational
- Open Space

Data Sources:  
Chittenden County Regional Planning Commission, Vermont Center for Geographic Information, Inc. (VCGI),  
United States Census Bureau, Burlington International Airport, Campbell & Paris Engineers P.C.,  
Harris Miller Miller & Hanson Inc.







## PART 150 - NOISE EXPOSURE MAP UPDATE

**Figure 16**  
**Radar Sample Arrival Tracks**

### Radar Track Density



- Airport Property Boundary
- Town Boundary
- Helicopter Pad
- Highways
- Major Roads
- Local Roads
- Education
- Place of Worship
- Residential
- Health Care
- Public Gathering
- National Register Historic District
- National Register Historic Site

### Land Use

- Single Family Residential
- Multi Family Residential
- Other Residential
- Mixed Use
- Public Use
- Airport
- Transportation
- Commercial Use
- Manufacturing & Production
- Recreational
- Open Space

Data Sources:  
Chittenden County Regional Planning Commission, Vermont Center for Geographic Information, Inc. (VCGI),  
United States Census Bureau, Burlington International Airport, Campbell & Paris Engineers P.C.,  
Harris Miller Miller & Hanson Inc.

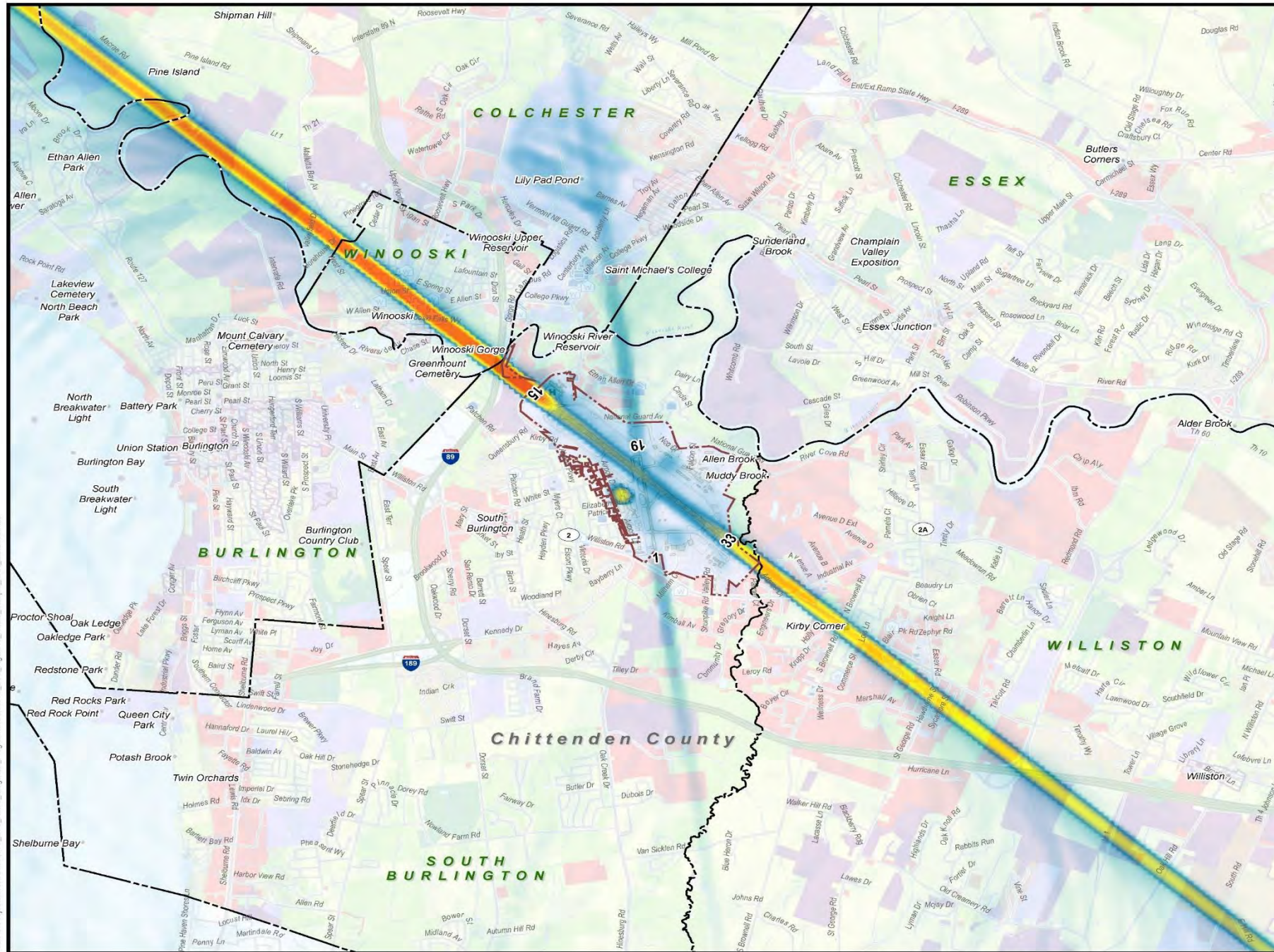
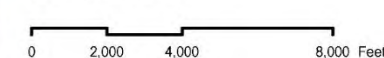




Table 2. 14 CFR Part 150 Noise / Land Use Compatibility Guidelines

Source: 14 CFR Part 150, Appendix A, Table 1

Land Use	Yearly Day-Night Average Sound Level, DNL, in Decibels (Key and notes on following page)					
	<65	65-70	70-75	75-80	80-85	>85
<b>Residential Use</b>						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
<b>Public Use</b>						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
<b>Commercial Use</b>						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade--general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
<b>Manufacturing and Production</b>						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
<b>Recreational</b>						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

## Key to Table 2

- **SLCUM:** Standard Land Use Coding Manual.
- **Y(Yes):** Land use and related structures compatible without restrictions.
- **N(No):** Land use and related structures are not compatible and should be prohibited.
- **NLR:** Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
- **25, 30, or 35:** Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

# SOUND TERMINOLOGY

- **A-weighted decibel (dBA)**
  - Reflects the manner humans hear different pitches of sound
  - All federal agencies have adopted dBA for environmental studies
- **dBA** can be used for different units of measure, like maximum and average
- **Day-Night Average Sound Level (DNL or Ldn)**
  - Cumulative sound measure
  - Equal to steady level that contains same energy as the actual time-varying sound
  - Increases sounds from 10 p.m. to 7 a.m. 10-fold
  - Used by all federal agencies that deal with aviation noise



## LAND USE COMPATIBILITY

- 14 CFR Part 150 provides guidelines (Appendix A, Table 1) for compatibility based on categories of land use:
  - Residential Use
  - Public Use
  - Commercial Use
  - Manufacturing and Production
  - Recreational
- Note: All land uses are considered compatible by Part 150 if exposed to an annual-average Day-Night Average Sound Level (DNL) of less than 65 dB

## Presentation to Winooski City Council



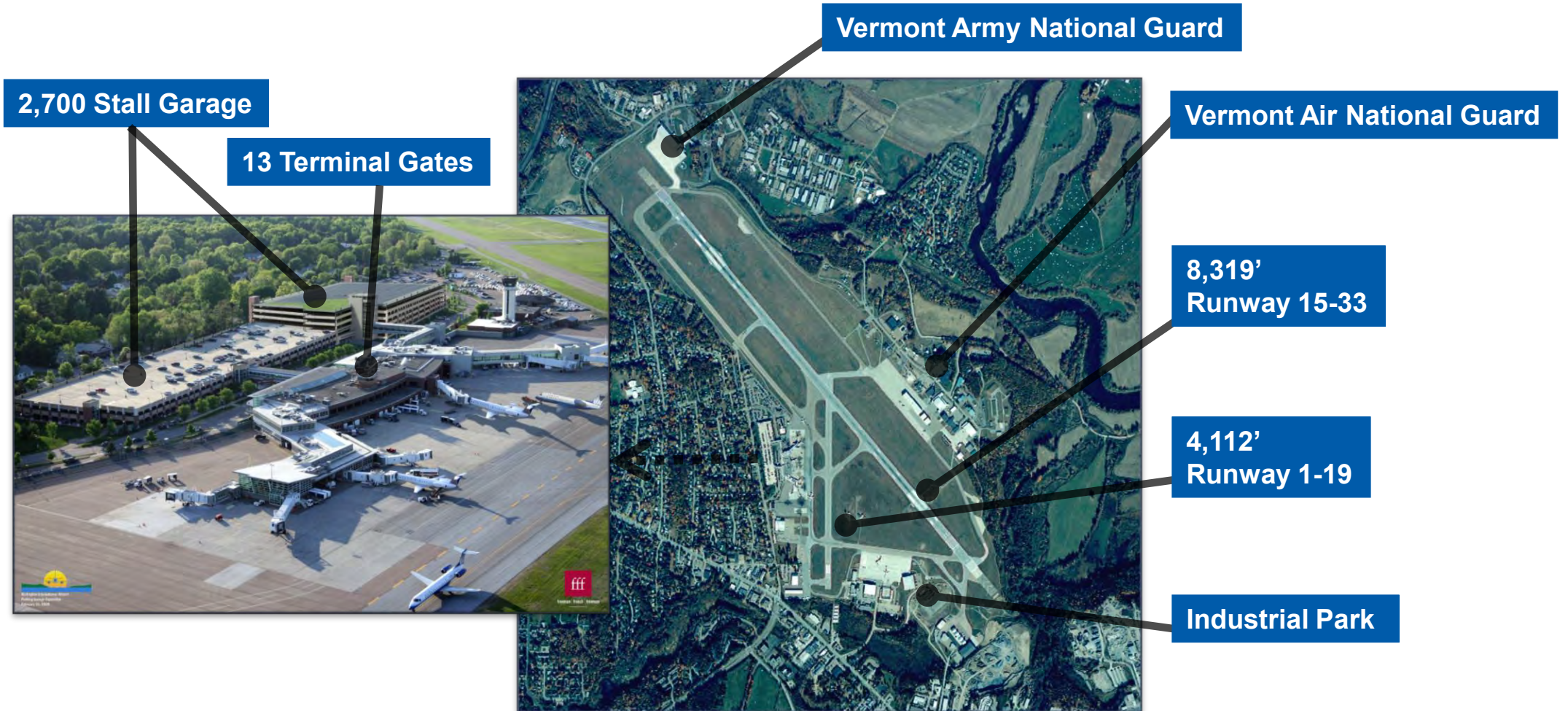
## Burlington International Airport

### Presentation to the Winooski City Council

December 16, 2019







# Airlines/Operations





- New York (JFK) – began March 2018
- Atlanta (ATL)
  - Continues to use mainline service (Boeing 737, Airbuses 320)



- Charlotte (CLT) service strong
- Chicago (ORD) – began June 2018
- Philadelphia (PHL) service strong



- Chicago (ORD) – Continues to use mainline service (Boeing 737, Airbus 320)
- Newark (EWR) – Added daily mainline service (Boeing 737, Airbus 320)



- New York (JFK) – consistently strong load factors



- Denver (DEN) – Mainline service (Airbus 320), seasonal service back in spring
- Orlando (MCO) – Seasonal service back for winter



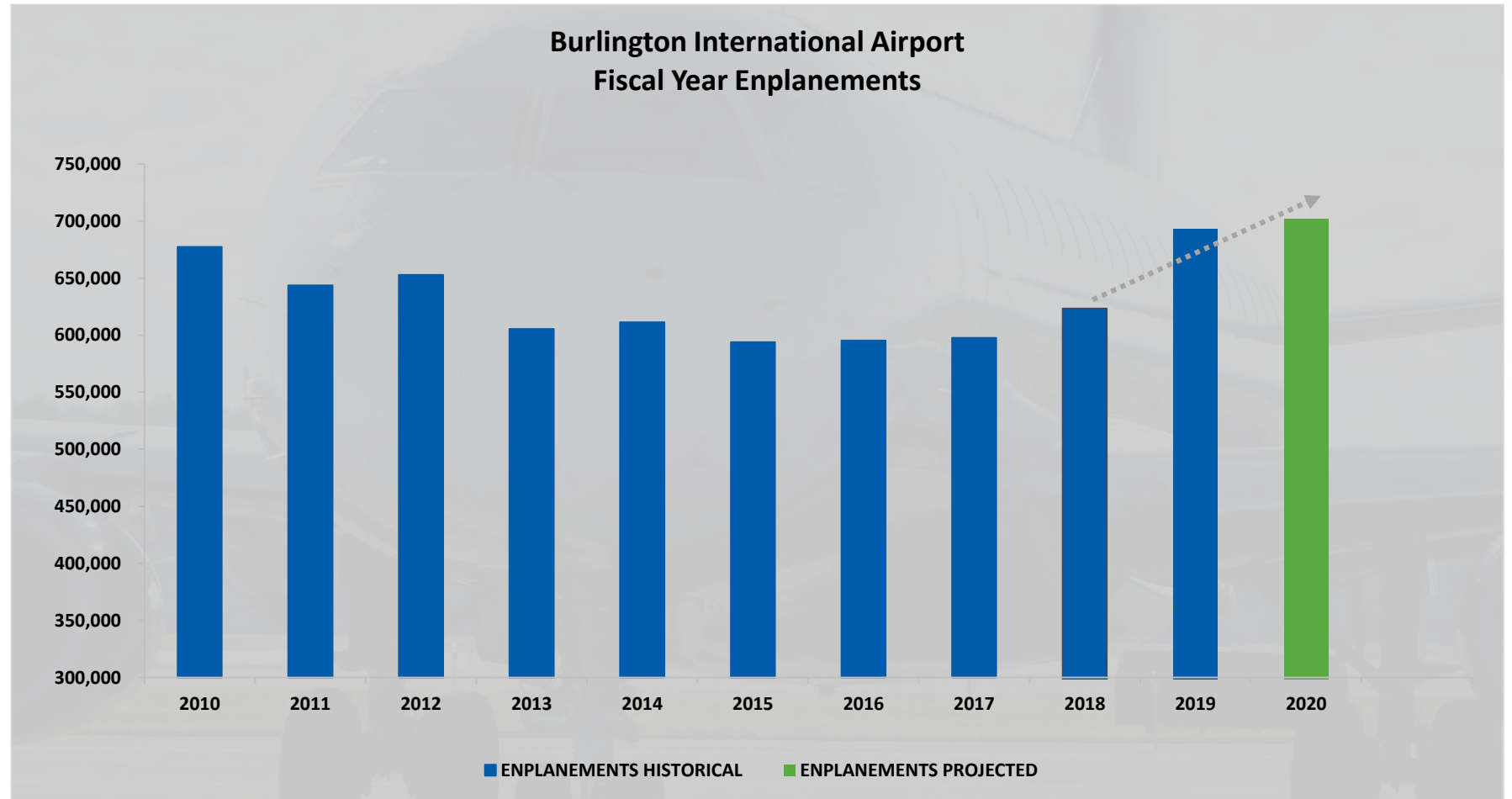
#### NON-STOP FLIGHTS TO:

Toronto | New York | Washington D.C. | Charlotte  
Orlando | Chicago | Philadelphia | Atlanta  
Detroit | Denver

# Enplanements

## Facts & Forecasts

- 693,208 enplanements in FY19, an 11.2% increase over FY18
- Long term steady growth through economic cycles
- Anticipating steady enplanements with new routes



Fiscal Year	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	Total
<b>2017</b>													
Enplanements	57,997	60,108	52,211	60,851	46,359	46,117	44,537	42,279	46,600	44,871	45,683	50,187	<b>597,800</b>
Avail. Seats	69,210	70,401	65,756	68,245	56,905	60,416	56,345	51,403	57,816	60,967	62,270	66,377	<b>746,111</b>
Load Factor	84%	85%	79%	89%	81%	76%	79%	82%	85%	74%	73%	76%	<b>80%</b>
<b>2018</b>													
Enplanements	56,956	58,215	49,995	59,378	46,781	46,076	46,684	46,371	48,526	53,285	53,367	57,855	<b>623,489</b>
Avail. Seats	68,242	69,191	69,093	68,284	55,460	55,218	58,028	54,650	57,907	67,428	67,994	75,383	<b>766,878</b>
Load Factor	83%	84%	72%	87%	84%	83%	80%	85%	84%	79%	77%	75%	<b>81%</b>
<b>2019</b>													
Enplanements	67,921	66,807	60,193	67,781	55,549	50,605	46,356	49,867	56,400	54,340	55,209	62,180	<b>693,208</b>
Avail. Seats	85,249	85,587	87,639	84,796	73,653	67,415	62,554	61,636	70,410	64,617	66,565	76,292	<b>886,413</b>
Load Factor	80%	78%	69%	80%	75%	75%	74%	81%	80%	84%	83%	82%	<b>78%</b>

**\* Approximately 16% increase in available seats from FY18 to FY19**

# Revenue Enhancements

### Car Rentals

- Approximately **\$22 Million** in Gross Sales Per Year
- Increased MAG approximately **8%** since 2017

### QTA

- New ground lease
- Fuel surcharge
- Reimbursement of facility manager



Currently served by:





## Skinny Pancake serves BTV in three locations

---

- Gross revenue exceeds **\$3.2 million dollars** a year
- **\$1,000,000** investment in facilities
- Facilities continue to make improvements to increase sales
- Successful Local Burlington Concessionaire
- Emphasis on local organic fresh produce and farm to table
- Facilities serve award winning local beer and spirits



## Hudson News serves BTV in three locations

- Exceeds **\$2.4 million** a year in gross revenue, FY2019 on target for 16% increase over FY18
- News & Gift contract expires FY2029
- Current concessionaire is Hudson News in three locations
  - Sales exceed 50% Vermont Products
  - Extensive infrastructure remodeling
- Airport is focusing on expanding news and gift options



## Airport Hotel

- Parties: BTV Hotel, LLC, controlled by the principals of DEW Corporation and Alpha Inn Management
- Flag: Hotel will be affiliated with a major brand and will be operated at a standard of not less than three (3) stars
- Lease Term: 49.5 years, building reverts back to BTV afterward
- Revenue Total Monthly Rent equal to 2% of Gross Hotel Revenue during Lease Years 1-2, then 3% of Gross Revenues during Lease Years 3-10, then 3.25% of Gross Revenues during Lease Years 11-48
- Minimum Annual Lease Guarantee: Based on 75% of Average Gross Revenues of previous two years
- Annual Capital Reserve: Hotel to review annual capital plans and expenditures with BTV



**FAIRFIELD**  
Marriott®

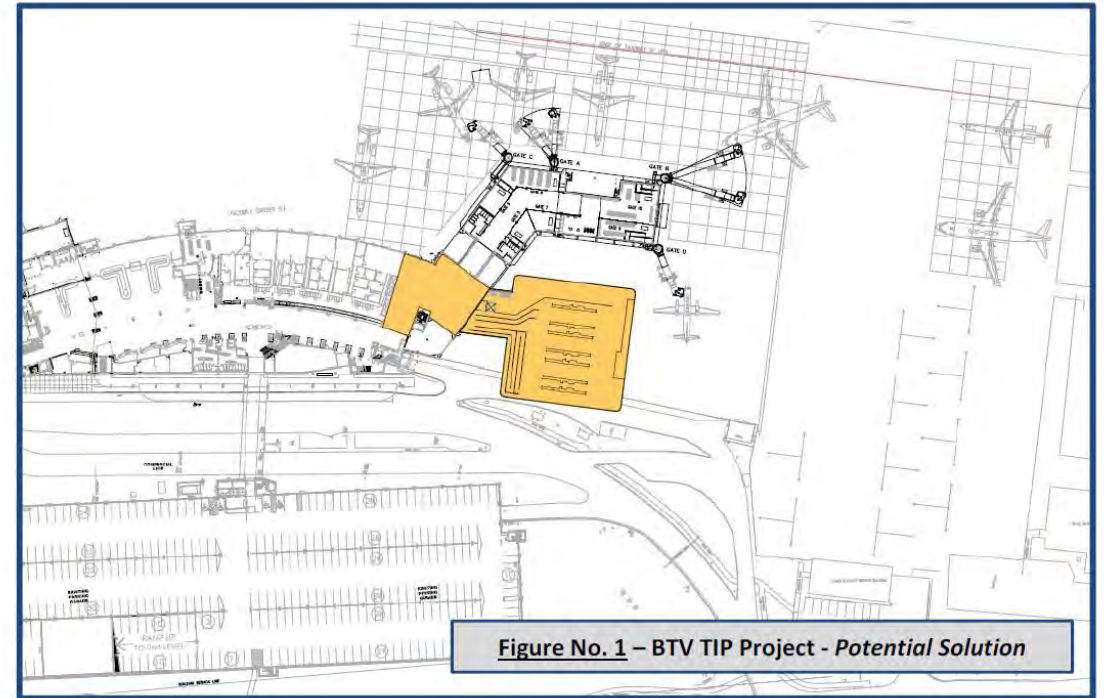


*Net ground lease revenue to BTV is forecasted to exceed \$100k annually. In addition, significant ancillary revenue will be generated from long term parking by the expected 20% of hotel guests who leave their cars while traveling*



## Terminal Integration Project

- Burlington International Airport has been appropriated \$10 Million in supplemental discretionary funding to consolidate the TSA checkpoint into a new facility, expanding the Terminal Building.
- Anticipated bidding will occur January 2020 with final grant award in Federal Fiscal Year 2020
- This consolidated TSA checkpoint will allow greater volume throughput accommodating additional passengers to travel out of BTV.







# Noise Program

# PART 150 HISTORY

## Part 150 History:

**2008** BTV's most recent NCP was completed and approved by FAA

**2013** The VT Air National Guard operations changed and a new Noise Exposure Map (NEM) update was undertaken

**2015** (December) FAA accepted the updated NEM and noise contours for 2015 and 2020

**2017** NCP update commences

**2019** BTV published the NEM update following the change in aircraft operations (including, but not limited to, F-35s)

## Estimated Residential Population within 2018 and 2023 NEM Contours

Day-Night Average Sound Level (DNL) Contour Interval	Estimated Dwelling Units and Population	Burlington		Colchester		Essex		South Burlington		Williston		Winooski		Total	
		2018	2023	2018	2023	2018	2023	2018	2023	2018	2023	2018	2023	2018	2023
		Single Family Parcels													
65-70 dB	Dwelling Units	-	51	-	9	-	-	126	356	-	105	-	260	126	781
	Population	-	118	-	21	-	-	292	826	-	244	-	603	292	1,812
70-75 dB	Dwelling Units	-	-	-	-	-	-	8	96	-	1	-	-	8	97
	Population	-	-	-	-	-	-	19	223	-	2	-	-	19	225
75 dB +	Dwelling Units	-	-	-	-	-	-	12	-	-	-	-	-	-	12
	Population	-	-	-	-	-	-	28	-	-	-	-	-	-	28
Total 65 dB +	Dwelling Units	-	51	-	9	-	-	134	464	-	106	-	260	134	890
	Population	-	118	-	21	-	-	311	1,076	-	246	-	603	311	2,065
Multi-Family & Mixed Use Parcels															
65-70 dB	Dwelling Units	-	209	-	13	-	-	30	344 <sup>1</sup>	-	4	-	993 <sup>2</sup>	30	1,563
	Population	-	485	-	30	-	-	70	798 <sup>1</sup>	-	9	-	2,304 <sup>2</sup>	70	3,626
70-75 dB	Dwelling Units	-	81 <sup>3</sup>	-	-	-	-	14	-	2	-	-	89 <sup>4,5</sup>	-	186
	Population	-	188 <sup>3</sup>	-	-	-	-	32	-	5	-	-	206 <sup>4,5</sup>	-	432
75 dB +	Dwelling Units	-	-	-	-	-	-	1	-	-	-	-	-	-	1
	Population	-	-	-	-	-	-	2	-	-	-	-	-	-	2
Total 65 dB +	Dwelling Units	-	290	-	13	-	-	30	359	-	6	-	1,082	30	1,750
	Population	-	673	-	30	-	-	70	833	-	14	-	2,510	70	4,060
Estimated Totals - All Parcel Types															
65-70 dB	Dwelling Units	-	260	-	22	-	-	156	700	-	109	-	1,253	156	2,344
	Population	-	603	-	51	-	-	362	1,624	-	253	-	2,907	362	5,438
70-75 dB	Dwelling Units	-	81	-	-	-	-	8	110	-	3	-	89	8	283
	Population	-	188	-	-	-	-	19	255	-	7	-	206	19	657
75 dB +	Dwelling Units	-	-	-	-	-	-	13	-	-	-	-	-	-	13
	Population	-	-	-	-	-	-	30	-	-	-	-	-	-	30
Total 65 dB +	Dwelling Units	-	341	-	22	-	-	164	823	-	112	-	1,342	164	2,640
	Population	-	791	-	51	-	-	380	1,909	-	260	-	3,113	380	6,125
<u>Notes:</u>															
1 Includes estimated units at: 303 Lime Kiln Rd. (18); 305 Lime Kiln Rd. (18); 325 Lime Kiln Rd. (40); 327 Lime Kiln Rd. (40); 331 Lime Kiln Rd. (40); 378 Lime Kiln Rd. (24); 380 Lime Kiln Rd. (24); 418 Lime Kiln Rd. (24)															
2 Includes estimated units at: 81 E Allen St. (2); 20 W Canal St. (96); 79 W Canal St. (24); 23 Weaver Ln. (4); 4 Weaver Ln. (2); 240 E Allen St. (0); 114 Main St. (5); 54 Leclair St. (2); 158 Main St. (6); 167 Main St. (3); 99 Weaver St. (3)															
3 No city records available for 109 Mulberry Ln. and 116 Mulberry Ln.															
4 Includes estimates for 1 Abeanki Way (26)															
5 Includes 106 E Allen St., which is a new building with an unknown unit count.															
<u>Additional:</u>															
- A single family parcel has a single dwelling on the property while a multi-family parcels has two or more dwelling units. All units are assumed to have an average population of 2.32, based on US Census data.															
- Each property considered for inclusion in the program also must meet any other eligibility requirements that the FAA may adopt. For example, consistent with FAA policy guidance set out in 14 CFR Part 150, Docket No. 28149, "Final Policy on Part 150 Approval of Noise Mitigation Measures: Effect on the Use of Federal Grants for Noise Mitigation Projects", effective October 1, 1998, new non-compatible land uses established after that date within October 1, 1998, will not be eligible for acquisition. Current FAA guidelines are probably best described in the FAA's Airport Improvement Program (AIP) Handbook, September 30, 2014. See also footnotes 26 and 27 in Section 4.3 of this document.															

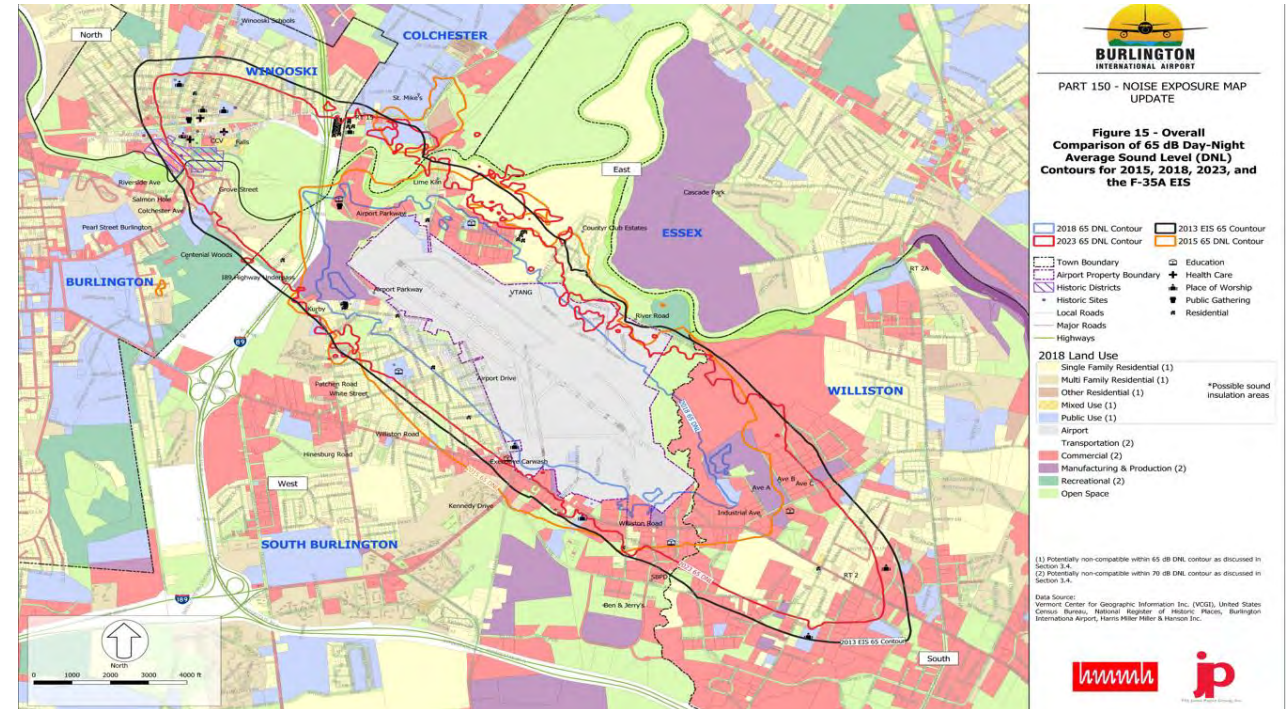
Table 5 presents the estimated residential population within the three historical contours presented in Figure 15 along with the 2018 and 2023 NEM contours. The purpose of this table is to provide a dwelling and population comparison to the historical contours presented in Figure 15, all with the same land use data and dwelling inventory methodology used in this NEM. The dwelling unit and population estimates in the middle three columns of Table 5 (labeled as "Land Use Inventoried and Depicted for this 2018/2023 NEM") were developed from the same land use data set used for this NEM update. Therefore, the numbers provided differ from the original documents, each of which used different land use data and/or methodologies. Table 5 also provides the

## WHAT IS A PART 150 NOISE STUDY?

- Title 14 of the Code of Federal Regulations Part 150 (Part 150) "Airport Noise Compatibility Planning" sets forth standards for airport operators to use in documenting noise exposure around airports and establishing programs which may be eligible for federal funding to minimize noise-related land use incompatibilities. It is a voluntary process.
- It consists of two parts:
  - Noise Exposure Map (NEM):** Detailed description of airport layout, operations, noise exposure, land uses, and noise/land use compatibility for the study year and a forecast year
  - Noise Compatibility Program (NCP):** A proposed plan to reduce noise exposure, and identify land use mitigation measures to address existing non-compatible uses and land use control measures to prevent new non-compatible uses

# WHAT IS A “NOISE EXPOSURE MAP” (NEM)?

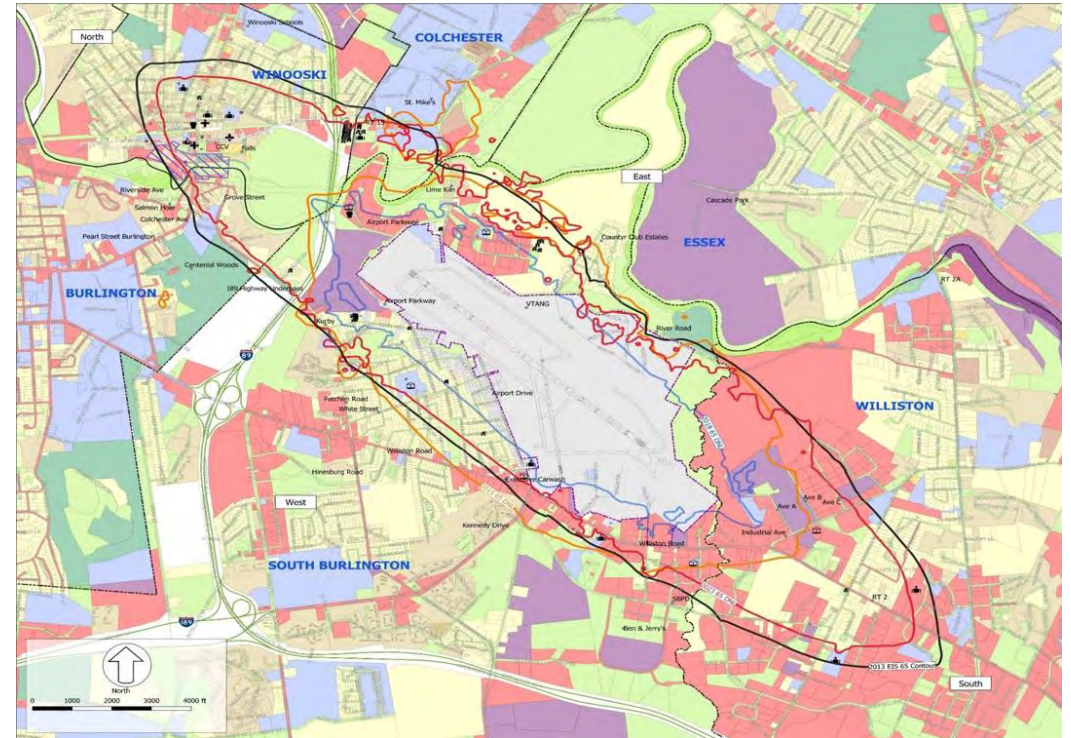
- A **noise exposure map** is a graphical presentation of the specific aircraft noise levels (noise contours) around an airport depicted over the existing land use. The noise level is expressed as Day-Night Average Sound Level (DNL). The Updated NEM depicts the noise levels for the current condition (2018) and 5 years in the future (2023).





## WHAT IS A NOISE CONTOUR?

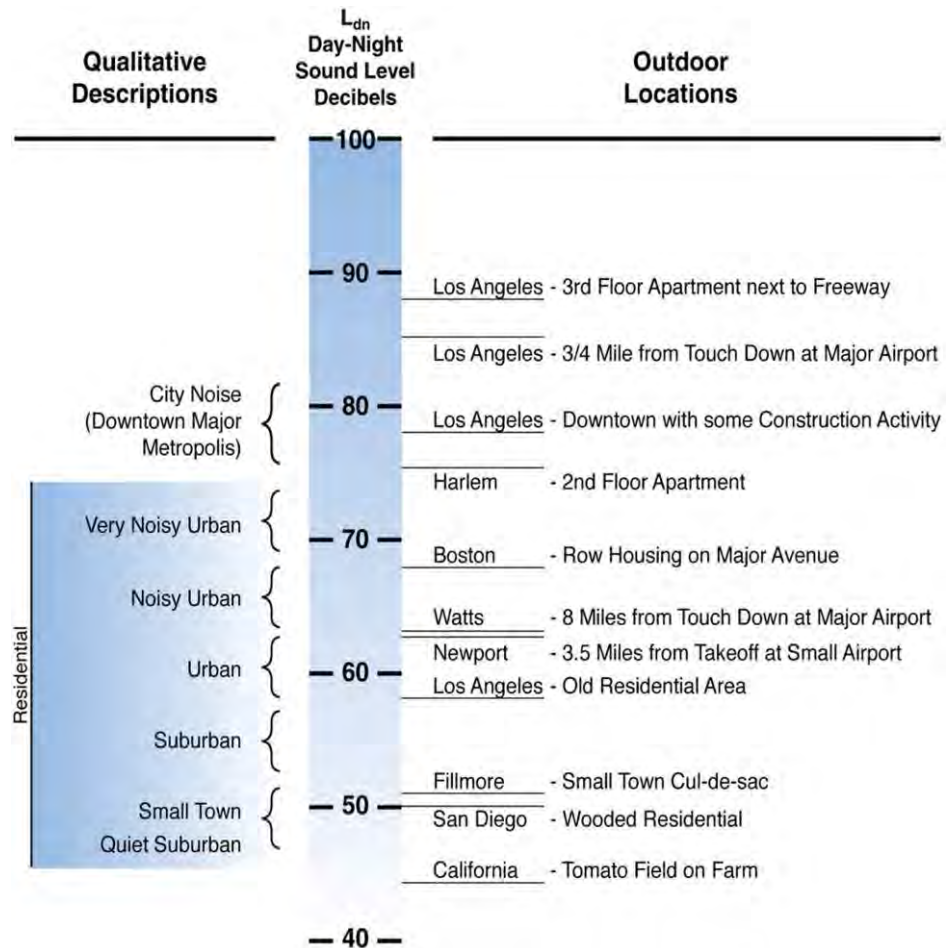
- A **noise contour** is a line on a map that depicts equal levels of noise exposure as generated by a required FAA computer model, (AEDT).
- The **Day-Night Sound Level (DNL)** is a 24 hour weighted energy average noise level based on A-weighted decibels (dBA) that adds a 10 dB penalty for aircraft noise occurring between 10 p.m. and 7 a.m. The FAA requires the use of DNL as the noise metric for the NEM.



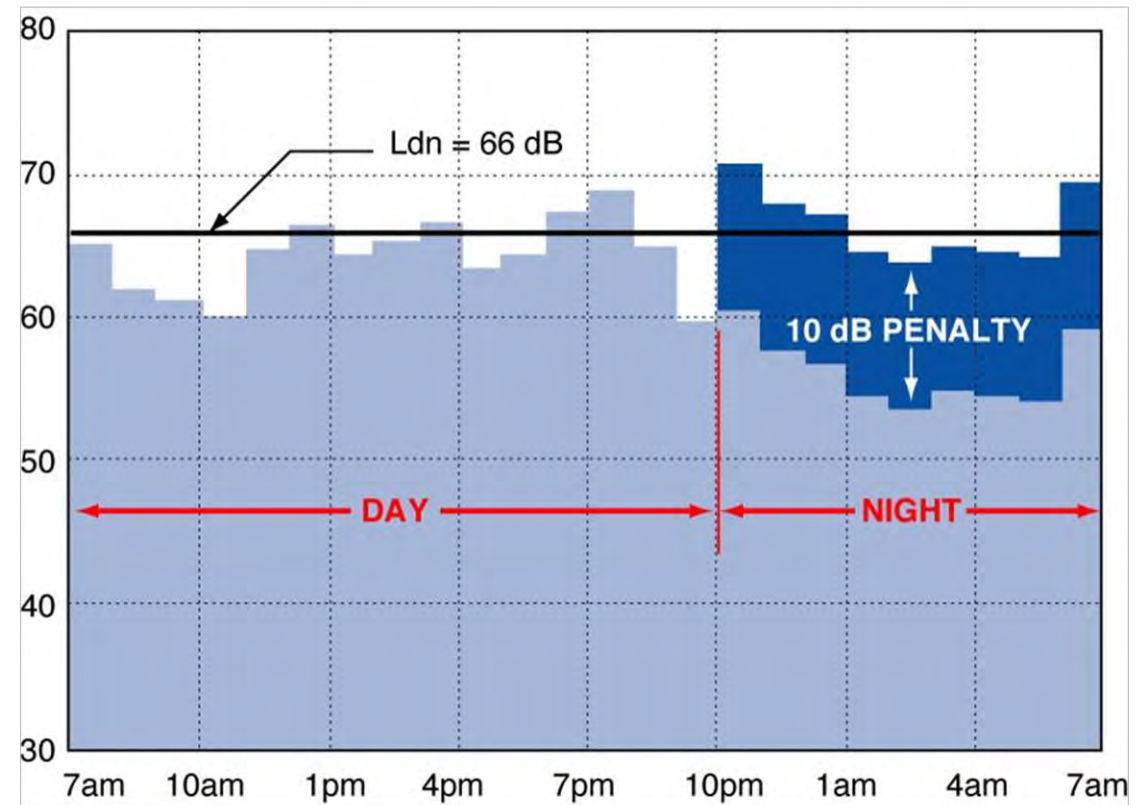


# SOUND TERMINOLOGY

## DNL Examples



## Day-Night Sound Level



## WHAT IS A NOISE COMPATIBILITY PROGRAM?

- The **Noise Compatibility Program (NCP)** is a land use planning study that recommends noise mitigation efforts and recommends future land use planning initiatives for areas located within the 65 DNL and higher noise contour.
- The **NCP** is being updated to reflect new recommendations for noise mitigation.



# NCP GOALS & OPTIONS

## Noise Compatibility Program (NCP) Update Project Focus and Goals:

- Goal is to find ways to transition from land acquisition to other land use measures
- Focus is on updating land use measures
- Recommendations will be based on the 2020 noise contour
- Study will incorporate community feedback
- Advisory committee will be formed for feedback and updates

## Mitigation Options must:

- Meet eligibility requirements for federal funding under FAA guidelines
- Provide a benefit to the local residents; especially those that are in non-compatible areas identified on the FAA accepted NEM

## Mitigation measures will be evaluated using factors such as:

- Technical feasibility
- Impacts to residents
- Cost
- Schedule



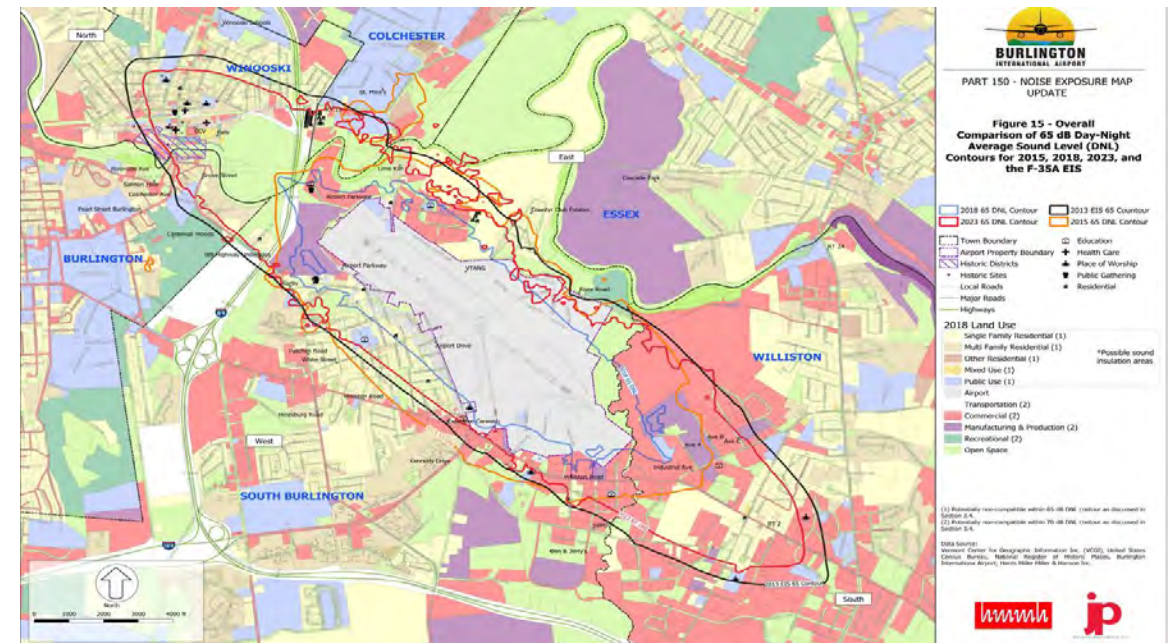
# RECOMMENDED MONITORING & REVIEW ELEMENTS

## Monitoring & Review of NEM & NCP

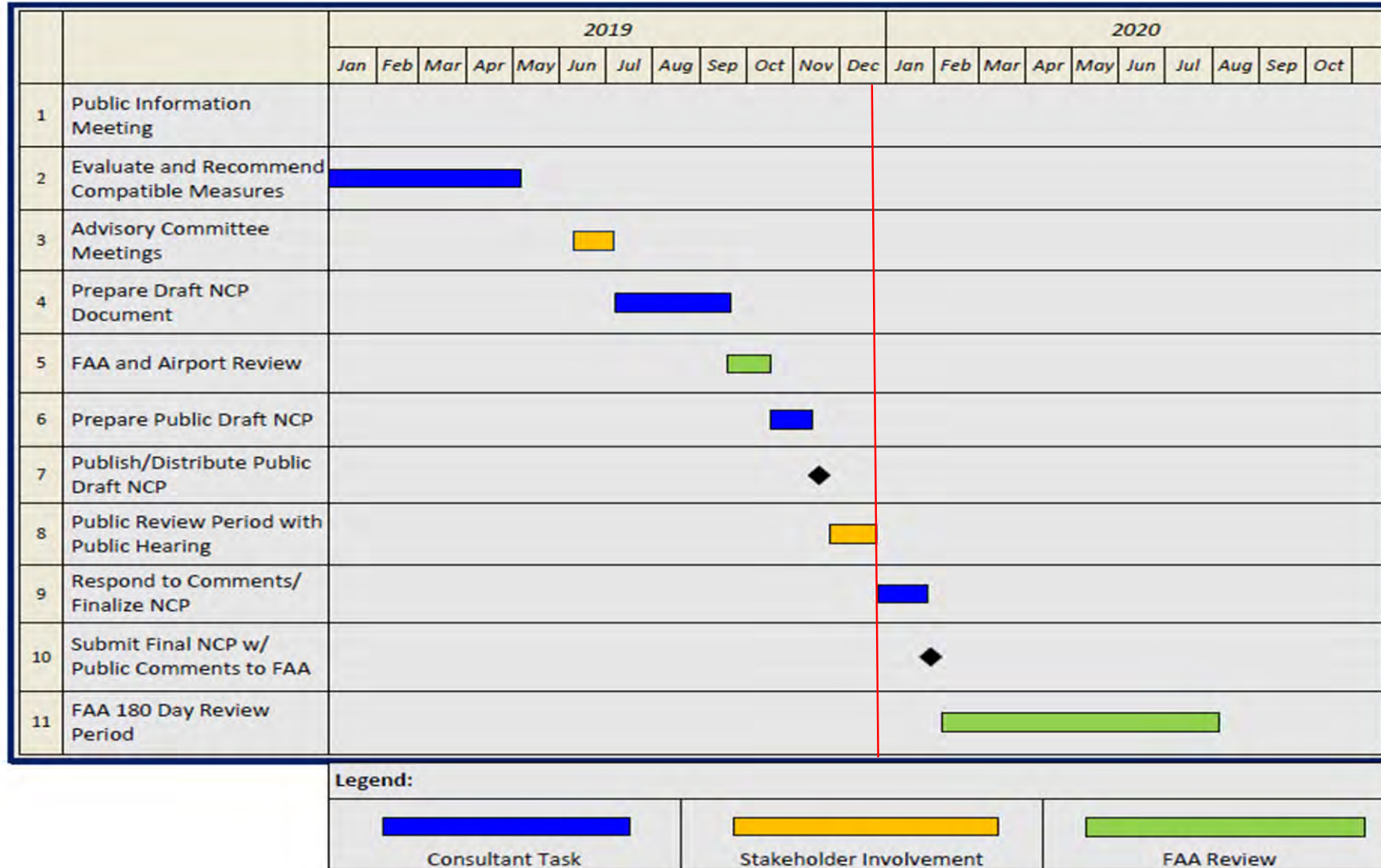
- Update of NEM one year after full operation of F35 aircraft
- Estimated funding in FFY2021

## Noise and Flight Track Monitoring

- Acquisition of a noise and flight track monitoring system



# ANTICIPATED NCP UPDATE SCHEDULE





# NCP RECOMMENDED LAND USE MEASURES

## Land Acquisition & Relocation

- Property located in the 75 DNL contour and higher
- Voluntary purchase of residential units from owner using federal guidelines
- Relocation benefits for the occupants
- Demolition of structure
- Land reuse study for compatible use of land



## Sound Insulation

- Property located between the 65-75 DNL contour
- Property located in the 75 DNL where majority of property is outside the 75 DNL
- No aviation easement

### Residential

- Installation of acoustical windows and doors in exchange for an aviation easement
- Reduce interior noise level to 45 dB DNL
- Must have existing interior noise level above 45 dB DNL to qualify
- Owner remains in home

### Community Buildings

- Eligible community buildings include schools and other noise sensitive buildings

# NCP RECOMMENDED LAND USE MEASURES

## Sales Assistance

- Property located between the 65-75 DNL contour
- Avigation easement required
- Airport assists with the sale of the home on the open market; airport does NOT take possession of property
- Homeowner enters program by signing agreement which includes:
  - Homeowner to list property at Fair Market Value (FMV)
  - Homeowner to convey Avigation Easement prior to sale of home
  - Airport guarantees they will provide a differential to assist in the sale of the property if seller receives an offer less than FMV
- Owner/Occupant does not receive relocation benefits

## Purchase Assurance

- Property located between the 65-75 DNL contour
- Avigation easement required
- Airport takes possession of property and resells it on the open market
- Homeowner enters program by signing agreement which includes:
  - Homeowner to sell property at appraised Fair Market Value (FMV)
  - Homeowner to convey Avigation Easement prior to sale of home
- Owner/Occupant does not receive relocation benefits
- Airport maintains and preserves property during the sound insulation process

## NCP NEXT STEPS

- NCP Public Hearing - Thursday, October 24<sup>th</sup>
  - Public Comments will be responded to and incorporated into final document
- Submit NCP to FAA –January 2020
- Development of Implementation Plan – concurrent with FAA's review
  - Reconvene Sound Mitigation Committee in January to develop plan
- Anticipated NCP Approval – June 2020

# BTV



Thank You

# Appendix



Day-Night Average Sound Level (DNL) Contour Interval	Estimated Dwelling Units and Population	Burlington		Colchester		Essex		South Burlington		Williston		Winooski		Total	
		2018	2023	2018	2023	2018	2023	2018	2023	2018	2023	2018	2023	2018	2023
		Single Family Parcels													
65-70 dB	Dwelling Units	-	51	-	9	-	-	126	356	-	105	-	260	126	781
	Population	-	118	-	21	-	-	292	826	-	244	-	603	292	1,812
70-75 dB	Dwelling Units	-	-	-	-	-	-	8	96	-	1	-	-	8	97
	Population	-	-	-	-	-	-	19	223	-	2	-	-	19	225
75 dB +	Dwelling Units	-	-	-	-	-	-	-	12	-	-	-	-	-	12
	Population	-	-	-	-	-	-	-	28	-	-	-	-	-	28
Total 65 dB +	Dwelling Units	-	51	-	9	-	-	134	464	-	106	-	260	134	890
	Population	-	118	-	21	-	-	311	1,076	-	246	-	603	311	2,065
Multi-Family & Mixed Use Parcels															
65-70 dB	Dwelling Units	-	209	-	13	-	-	30	344 <sup>1</sup>	-	4	-	993 <sup>2</sup>	30	1,563
	Population	-	485	-	30	-	-	70	798 <sup>1</sup>	-	9	-	2,304 <sup>2</sup>	70	3,626
70-75 dB	Dwelling Units	-	81 <sup>3</sup>	-	-	-	-	-	14	-	2	-	89 <sup>4,5</sup>	-	186
	Population	-	188 <sup>3</sup>	-	-	-	-	-	32	-	5	-	206 <sup>4,5</sup>	-	432
75 dB +	Dwelling Units	-	-	-	-	-	-	-	1	-	-	-	-	-	1
	Population	-	-	-	-	-	-	-	2	-	-	-	-	-	2
Total 65 dB +	Dwelling Units	-	290	-	13	-	-	30	359	-	6	-	1,082	30	1,750
	Population	-	673	-	30	-	-	70	833	-	14	-	2,510	70	4,060
Estimated Totals - All Parcel Types															
65-70 dB	Dwelling Units	-	260	-	22	-	-	156	700	-	109	-	1,253	156	2,344
	Population	-	603	-	51	-	-	362	1,624	-	253	-	2,907	362	5,438
70-75 dB	Dwelling Units	-	81	-	-	-	-	8	110	-	3	-	89	8	283
	Population	-	188	-	-	-	-	19	255	-	7	-	206	19	657
75 dB +	Dwelling Units	-	-	-	-	-	-	-	13	-	-	-	-	-	13
	Population	-	-	-	-	-	-	-	30	-	-	-	-	-	30
Total 65 dB +	Dwelling Units	-	341	-	22	-	-	164	823	-	112	-	1,342	164	2,640
	Population	-	791	-	51	-	-	380	1,909	-	260	-	3,113	380	6,125

## NCP RECOMMENDED LAND USE MEASURES

**Below are the estimated average cost for each program per home and the number of properties that would be eligible based upon a \$5 million grant**

<b>Program</b>	<b>Cost Per Home</b>	<b># of Homes</b>
Sound Insulation	\$ 54,000	93
Sales Assistance	\$ 35,520	141
Purchase Assurance	\$ 355,200	14
Acquisition & Relocation	\$ 407,000	12

Note: Cost per home is based upon actual costs from BTV Airport programs or the New England Region plus 20% administration costs





## PART 150 - NOISE EXPOSURE MAP UPDATE

**Figure 15 - Overall Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS**

- 2018 65 DNL Contour
- 2023 65 DNL Contour
- 2013 EIS 65 Countour
- 2015 65 DNL Contour

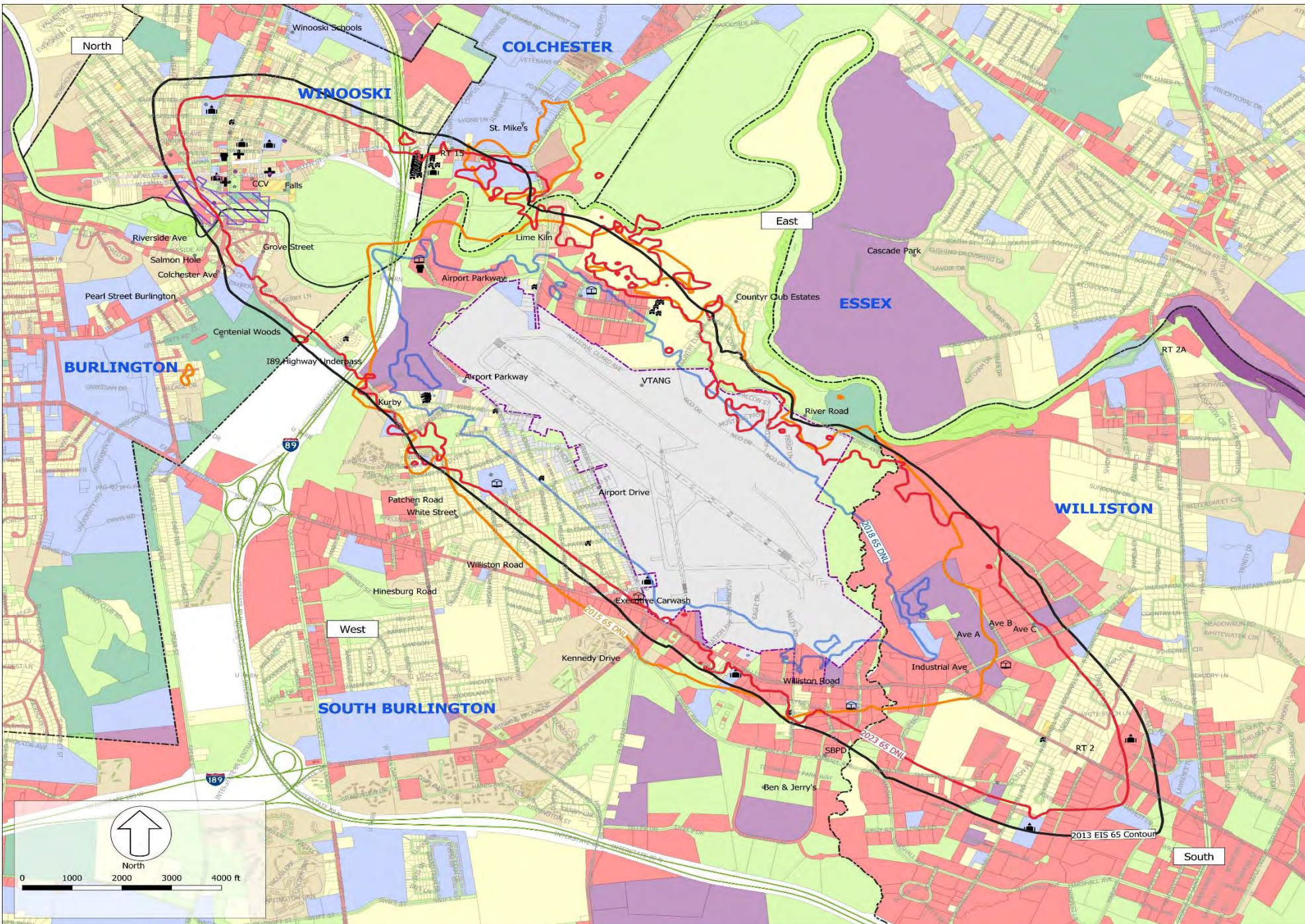
- Town Boundary
- Airport Property Boundary
- Historic Districts
- Historic Sites
- Local Roads
- Major Roads
- Highways
- Education
- Health Care
- Place of Worship
- Public Gathering
- Residential

### 2018 Land Use

- Single Family Residential (1)
  - Multi Family Residential (1)
  - Other Residential (1)
  - Mixed Use (1)
  - Public Use (1)
  - Airport
  - Transportation (2)
  - Commercial (2)
  - Manufacturing & Production (2)
  - Recreational (2)
  - Open Space
- \*Possible sound insulation areas

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







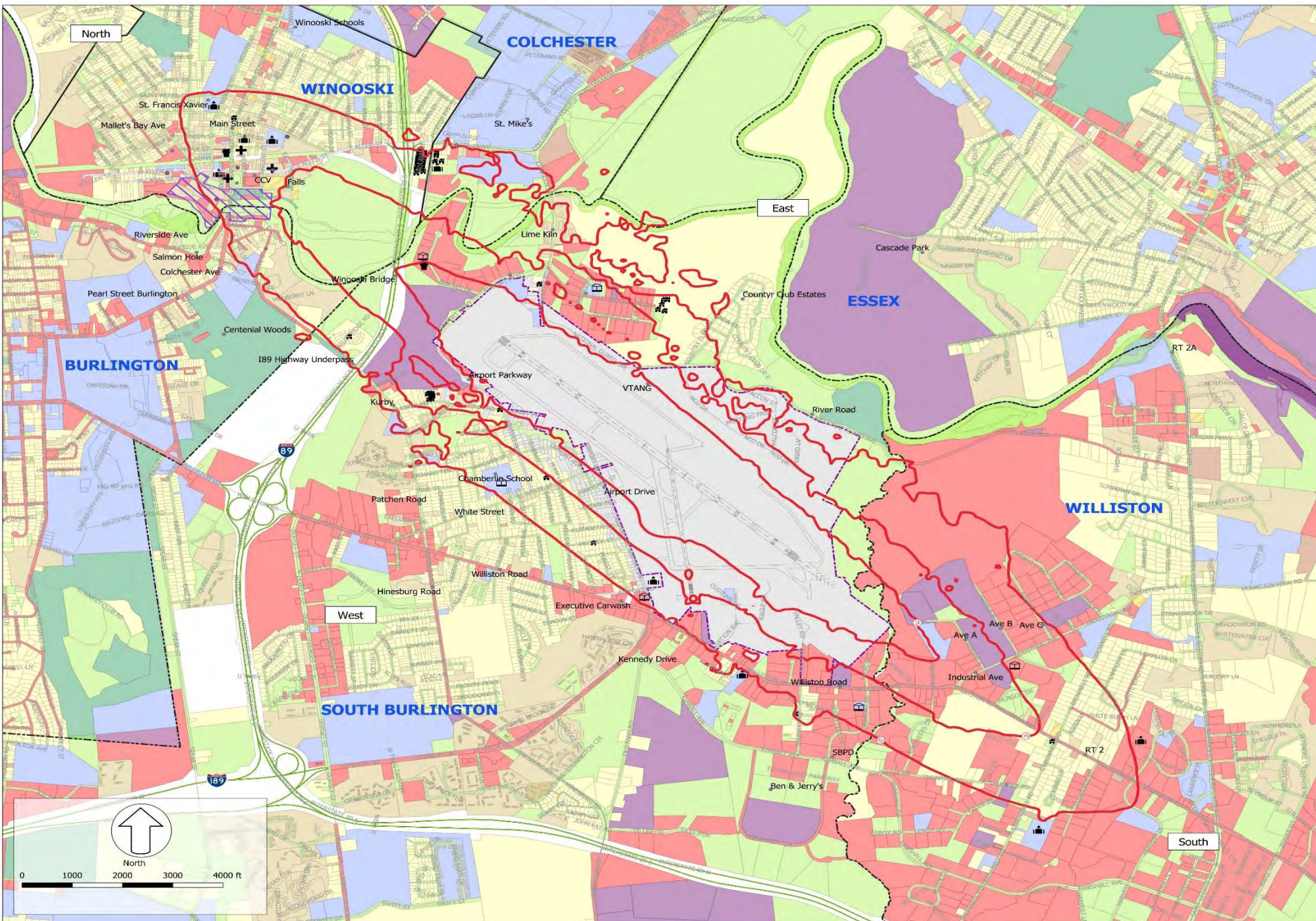
## PART 150 - NOISE EXPOSURE MAP UPDATE

**Figure 13 - Overall  
2023 Forecast Conditions Noise  
Exposure Map**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

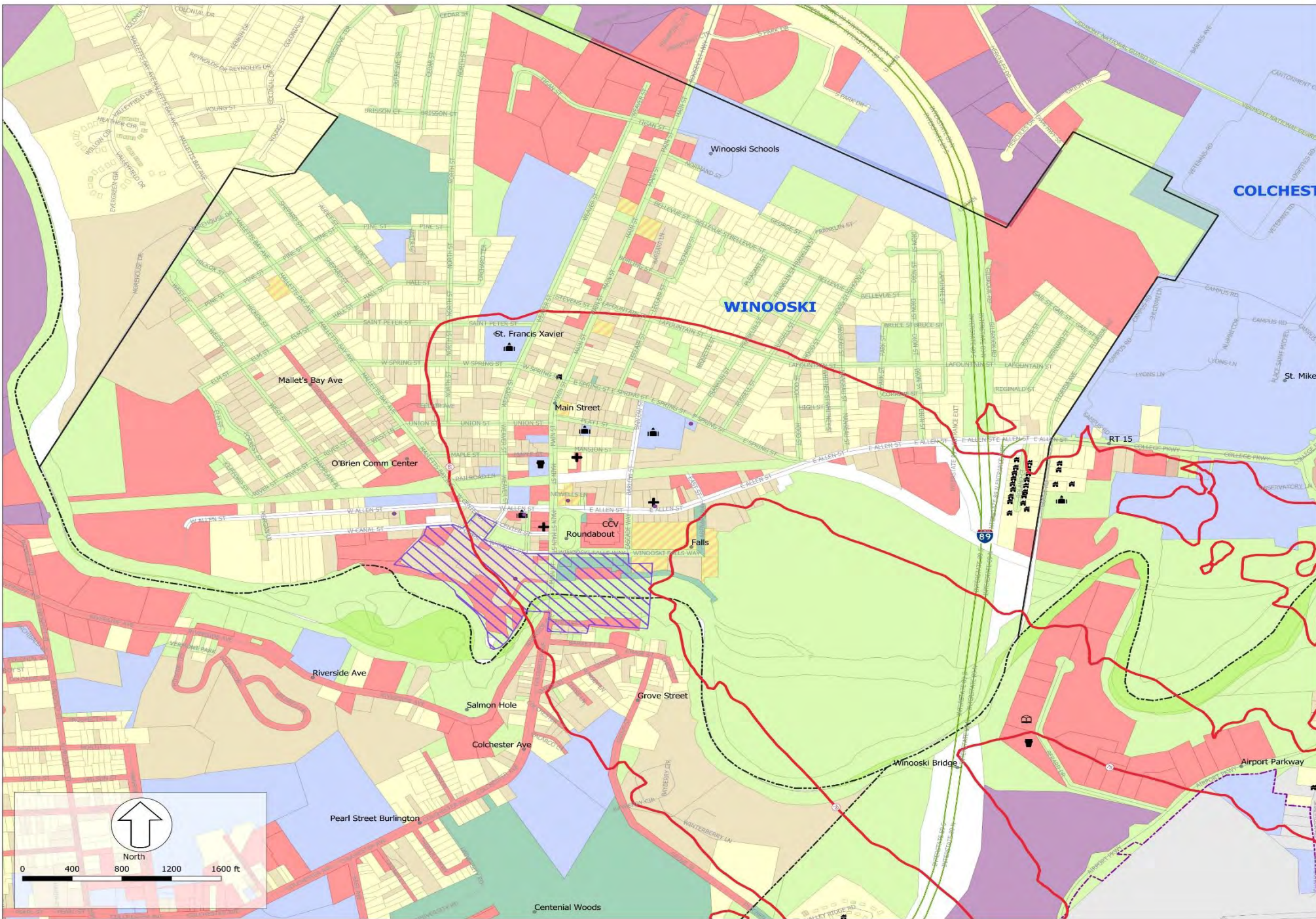






PART 150 - NOISE EXPOSURE MAP  
UPDATE

**WINOOSKI**  
**Figure 13 - North**  
**2023 Forecast Conditions Noise**  
**Exposure Map**



- 2023 DNL Contour
- Town Boundary
- Airport Property Boundary
- Historic Districts
- Historic Sites
- Local Roads
- Major Roads
- Highways
- Education
- Health Care
- Place of Worship
- Public Gathering
- Residential

- 2018 Land Use**
- Single Family Residential (1)
  - Multi Family Residential (1)
  - Other Residential (1)
  - Mixed Use (1)
  - Public Use (1)
  - Airport
  - Transportation (2)
  - Commercial (2)
  - Manufacturing & Production (2)
  - Recreational (2)
  - Open Space
- \*Possible sound insulation areas

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







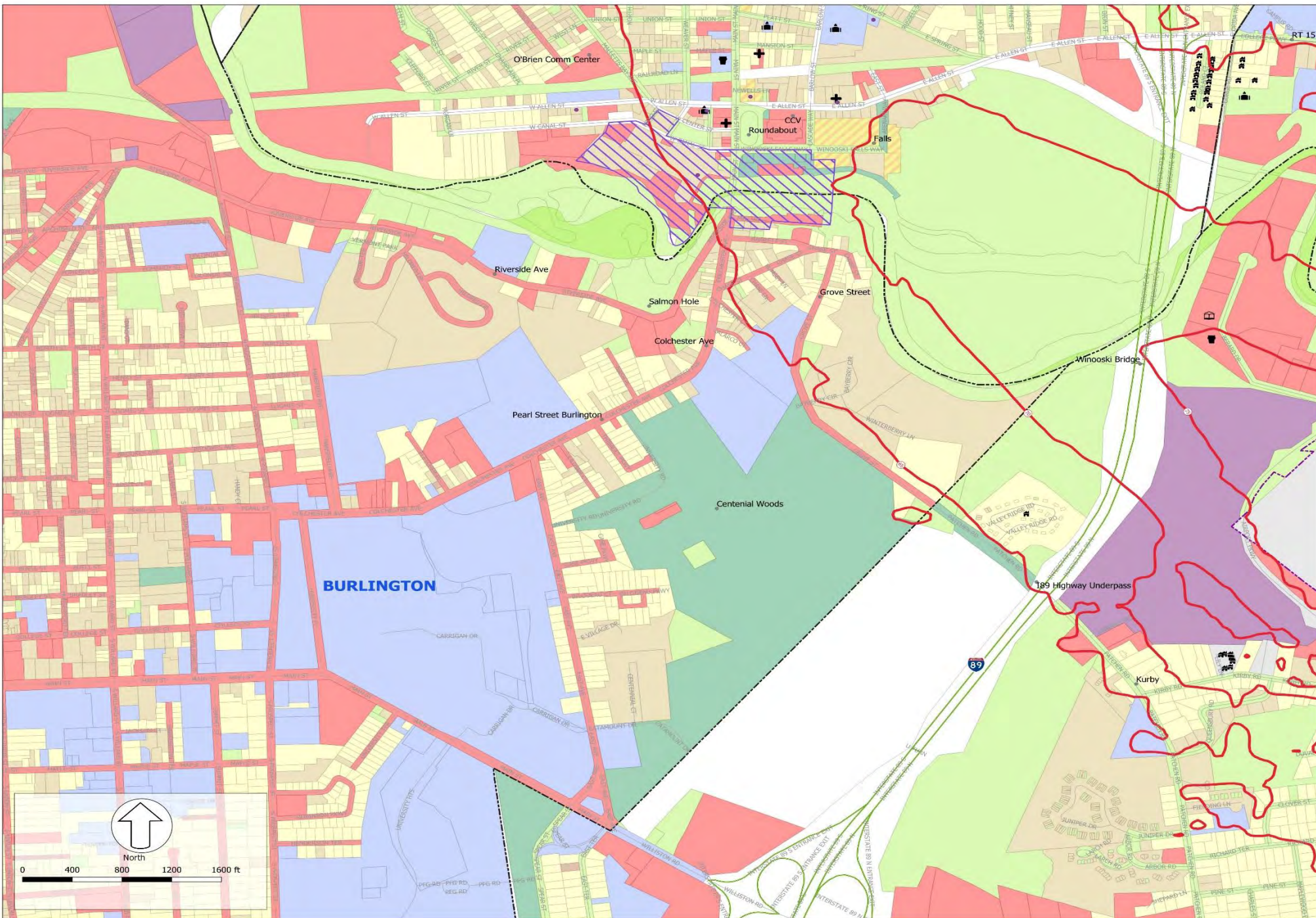
PART 150 - NOISE EXPOSURE MAP  
UPDATE

**BURLINGTON**  
**Figure 13 - North**  
**2023 Forecast Conditions Noise**  
**Exposure Map**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







PART 150 - NOISE EXPOSURE MAP  
UPDATE

**SOUTH BURLINGTON (NORTH)**  
**Figure 13 - West**  
**2023 Forecast Conditions Noise**  
**Exposure Map**

2023 DNL Contour

Town Boundary

Airport Property Boundary

Historic Districts

Historic Sites

Local Roads

Major Roads

Highways

Education

Health Care

Place of Worship

Public Gathering

Residential

**2018 Land Use**

Single Family Residential (1)

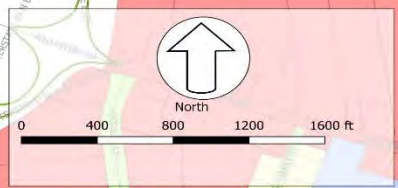
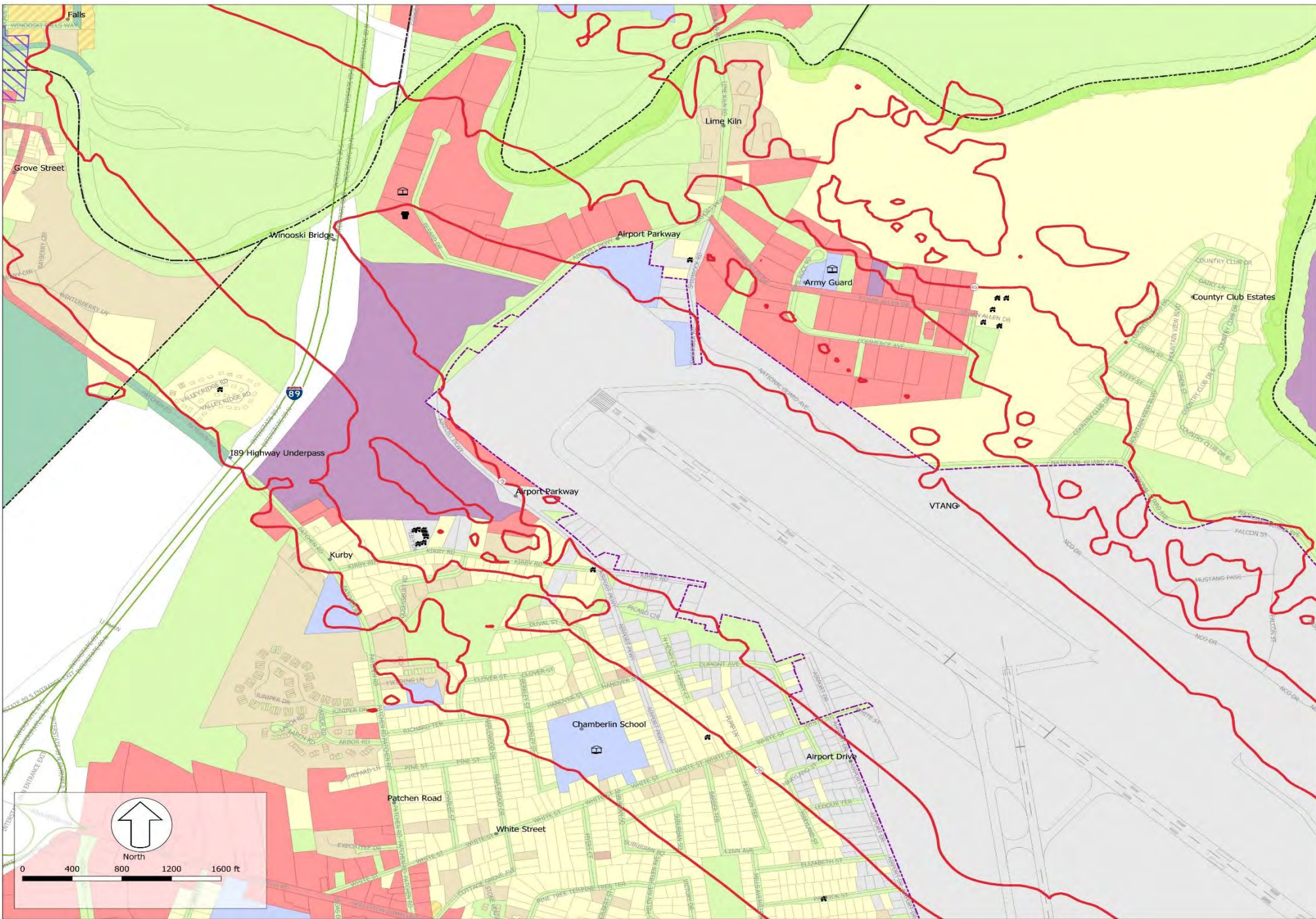
Multi Family Residential (1)

Other Residential (1)

Mixed Use (1)Transportation (2)\*Possible sound insulation areas

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







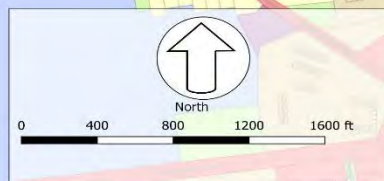
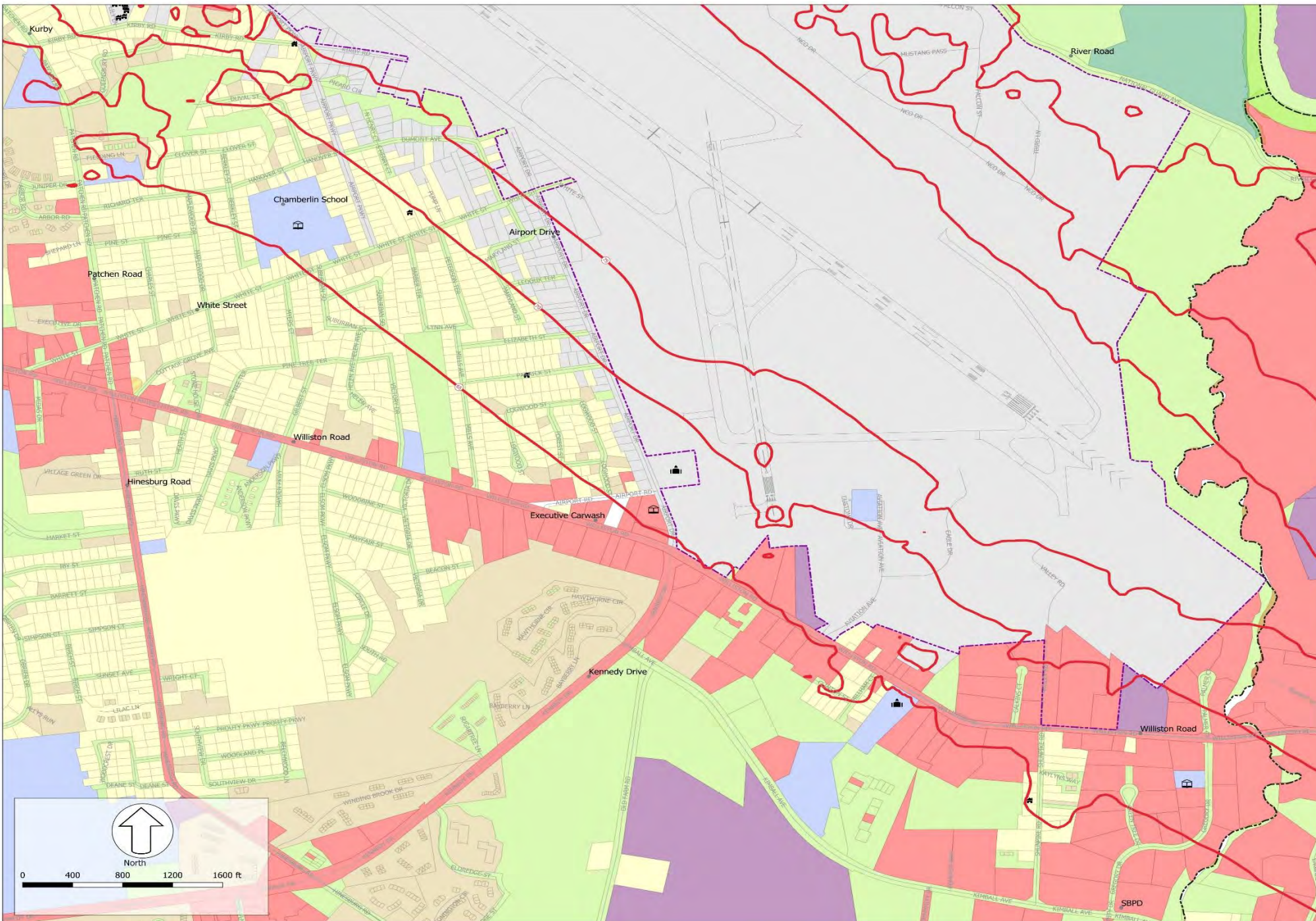
PART 150 - NOISE EXPOSURE MAP  
UPDATE

**SOUTH BURLINGTON (SOUTH)**  
**Figure 13 - West**  
**2023 Forecast Conditions Noise**  
**Exposure Map**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







PART 150 - NOISE EXPOSURE MAP  
UPDATE

**WILLISTON**  
**Figure 13 - South**  
**2023 Forecast Conditions Noise**  
**Exposure Map**

- 2023 DNL Contour

Town Boundary

Airport Property Boundary

Historic Districts

Historic Sites

Local Roads

Major Roads

Highways

Education

Health Care

Place of Worship

Public Gathering

Residential

2018 Land Use

Single Family Residential (1)

Multi Family Residential (1)

Other Residential (1)

Mixed Use (1)

Public Use (1)

Airport

Transportation (2)

Commercial (2)

Manufacturing & Production (2)

Recreational (2)

Open Space

\*Possible sound insulation areas

(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

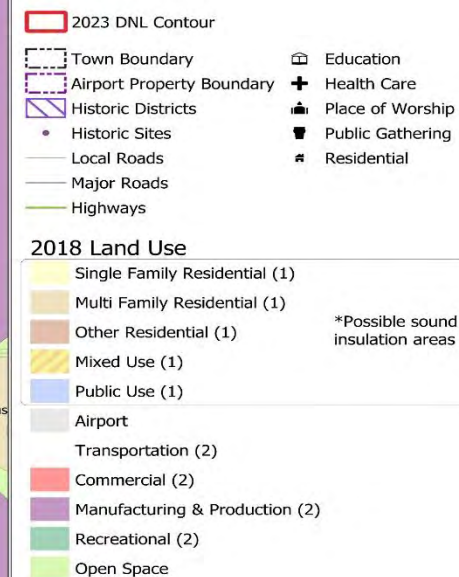
Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.





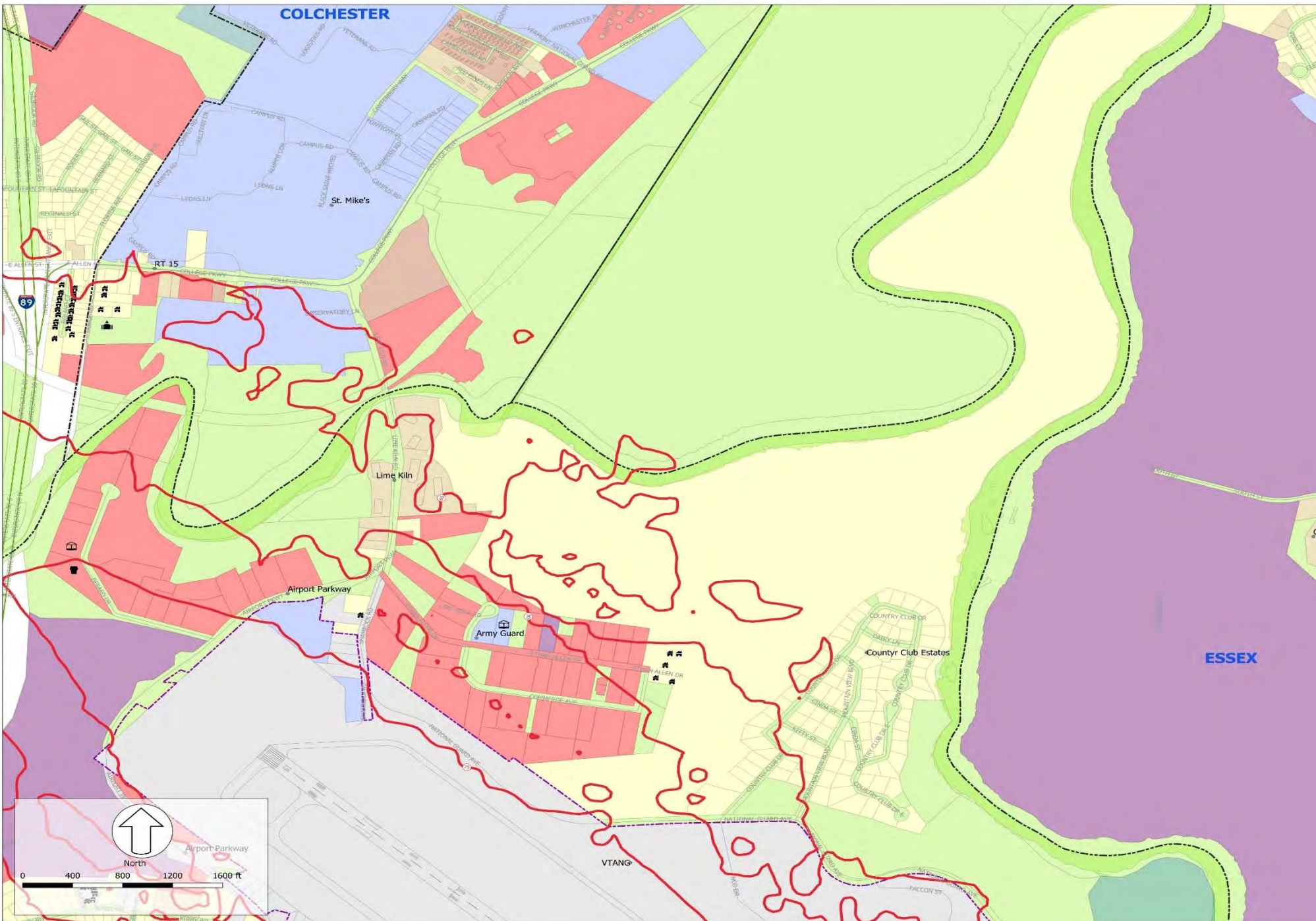
PART 150 - NOISE EXPOSURE MAP  
UPDATE

**COLCHESTER / ESSEX**  
**Figure 13 - East**  
**2023 Forecast Conditions Noise**  
**Exposure Map**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.





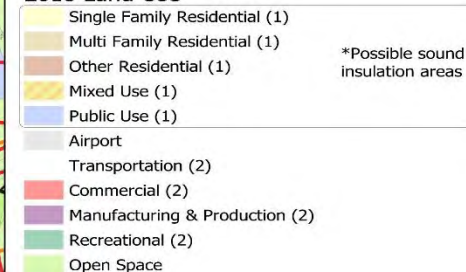


## PART 150 - NOISE EXPOSURE MAP UPDATE

### WINOOSKI Figure 15 - North Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS

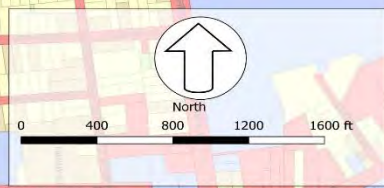
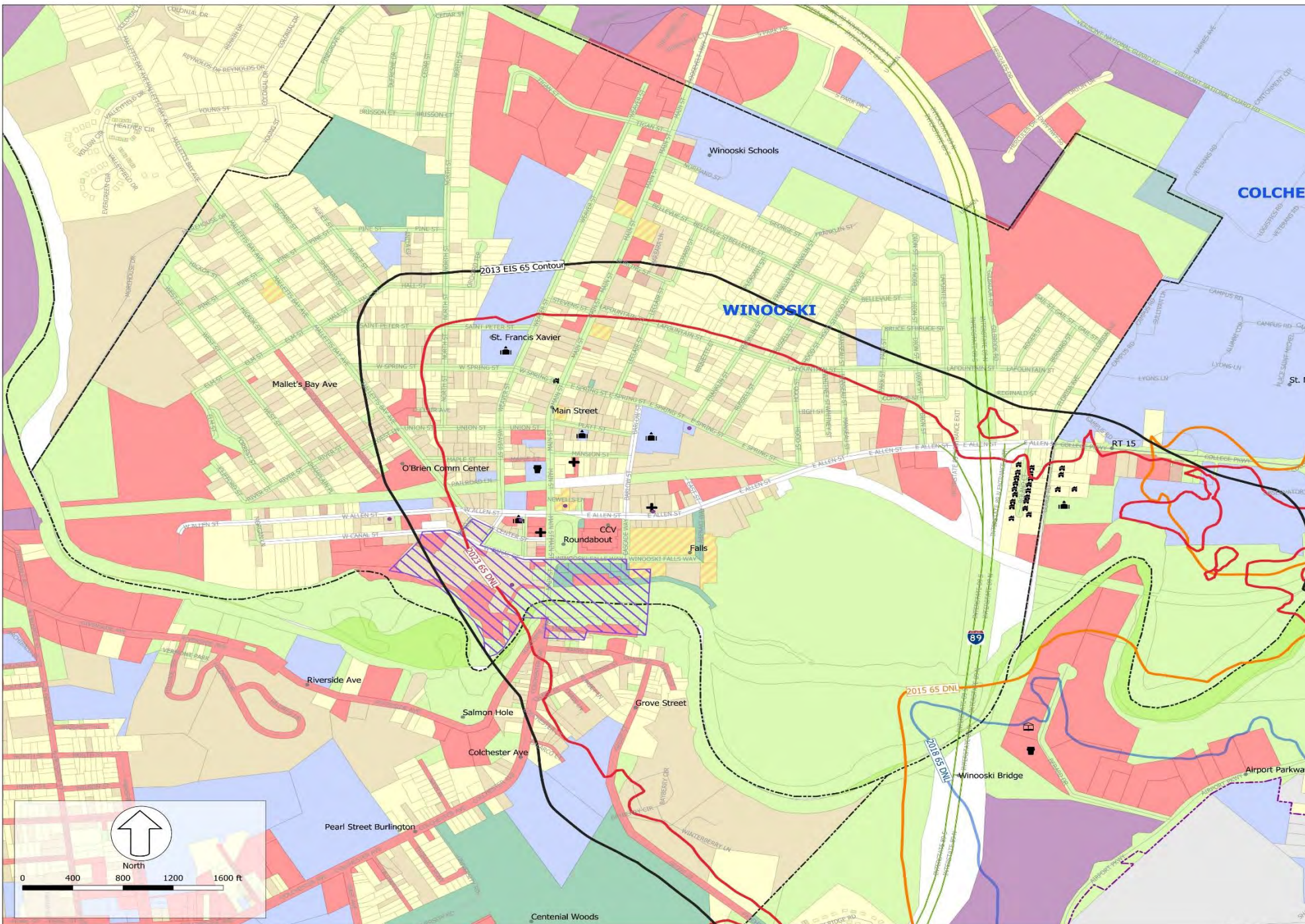


#### 2018 Land Use



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.





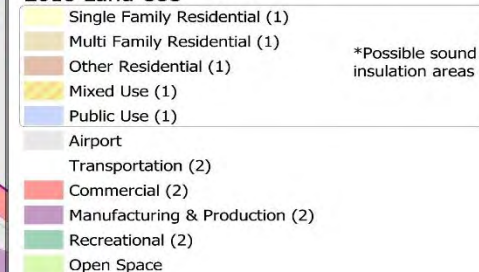


PART 150 - NOISE EXPOSURE MAP  
UPDATE

**BURLINGTON**  
**Figure 15 - West**  
**Comparison of 65 dB Day-Night**  
**Average Sound Level (DNL)**  
**Contours for 2015, 2018, 2023, and**  
**the F-35A EIS**

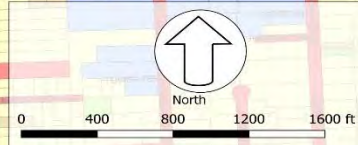
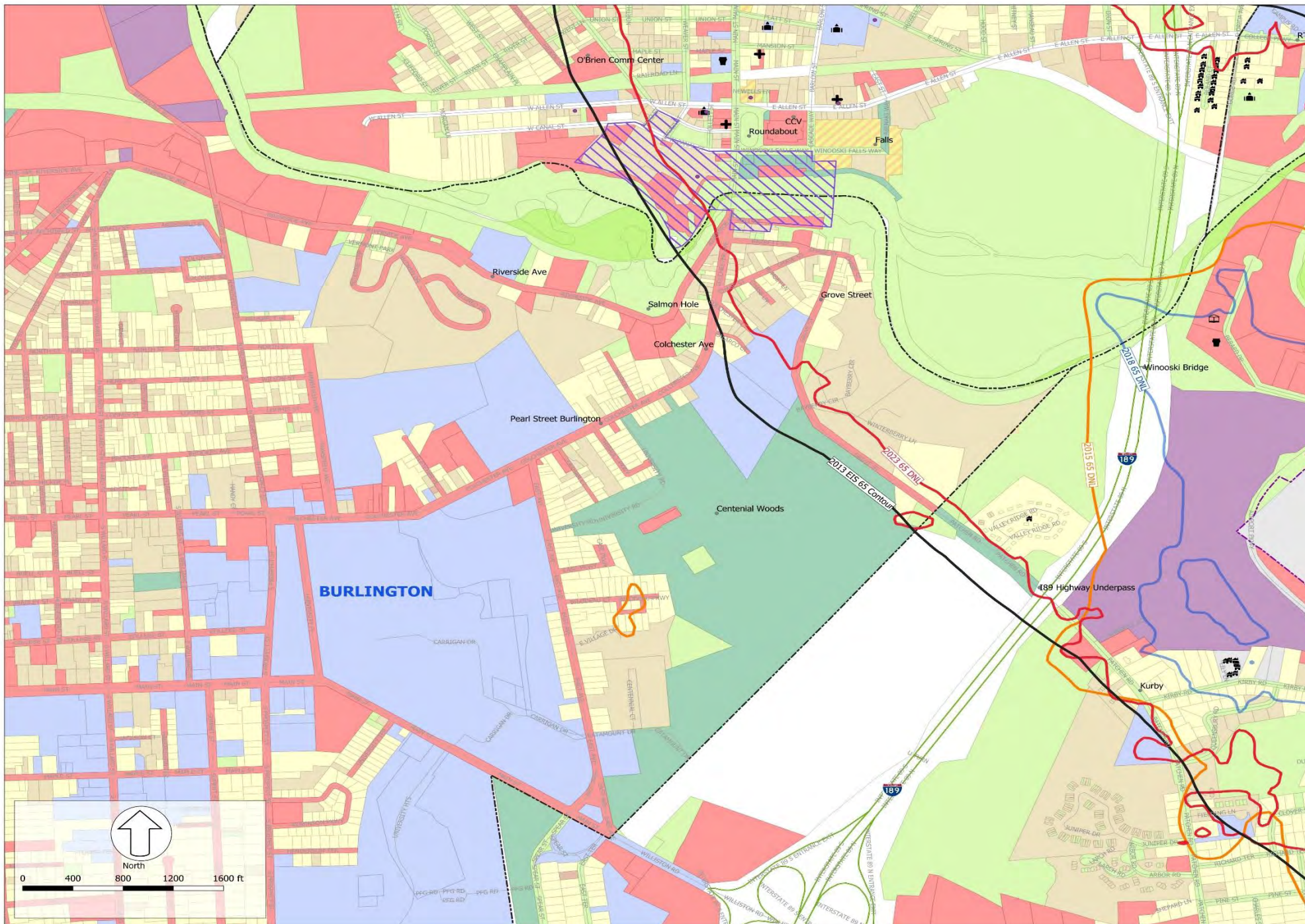


**2018 Land Use**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

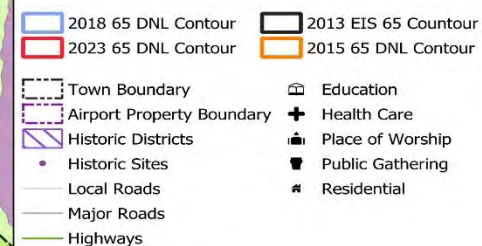






## PART 150 - NOISE EXPOSURE MAP UPDATE

### SOUTH BURLINGTON (NORTH) Figure 15 - South Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS



#### 2018 Land Use



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

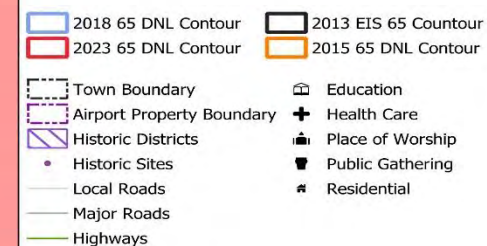




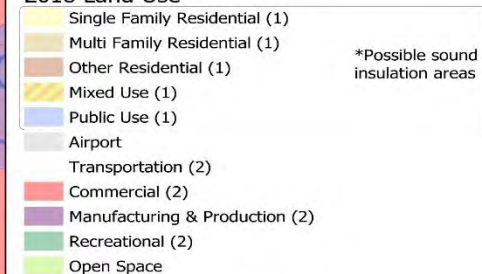


PART 150 - NOISE EXPOSURE MAP  
UPDATE

**SOUTH BURLINGTON (SOUTH)**  
**Figure 15 - East**  
**Comparison of 65 dB Day-Night**  
**Average Sound Level (DNL)**  
**Contours for 2015, 2018, 2023, and**  
**the F-35A EIS**

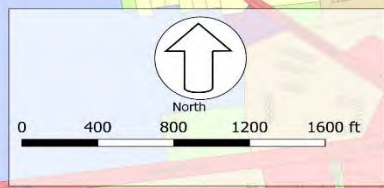
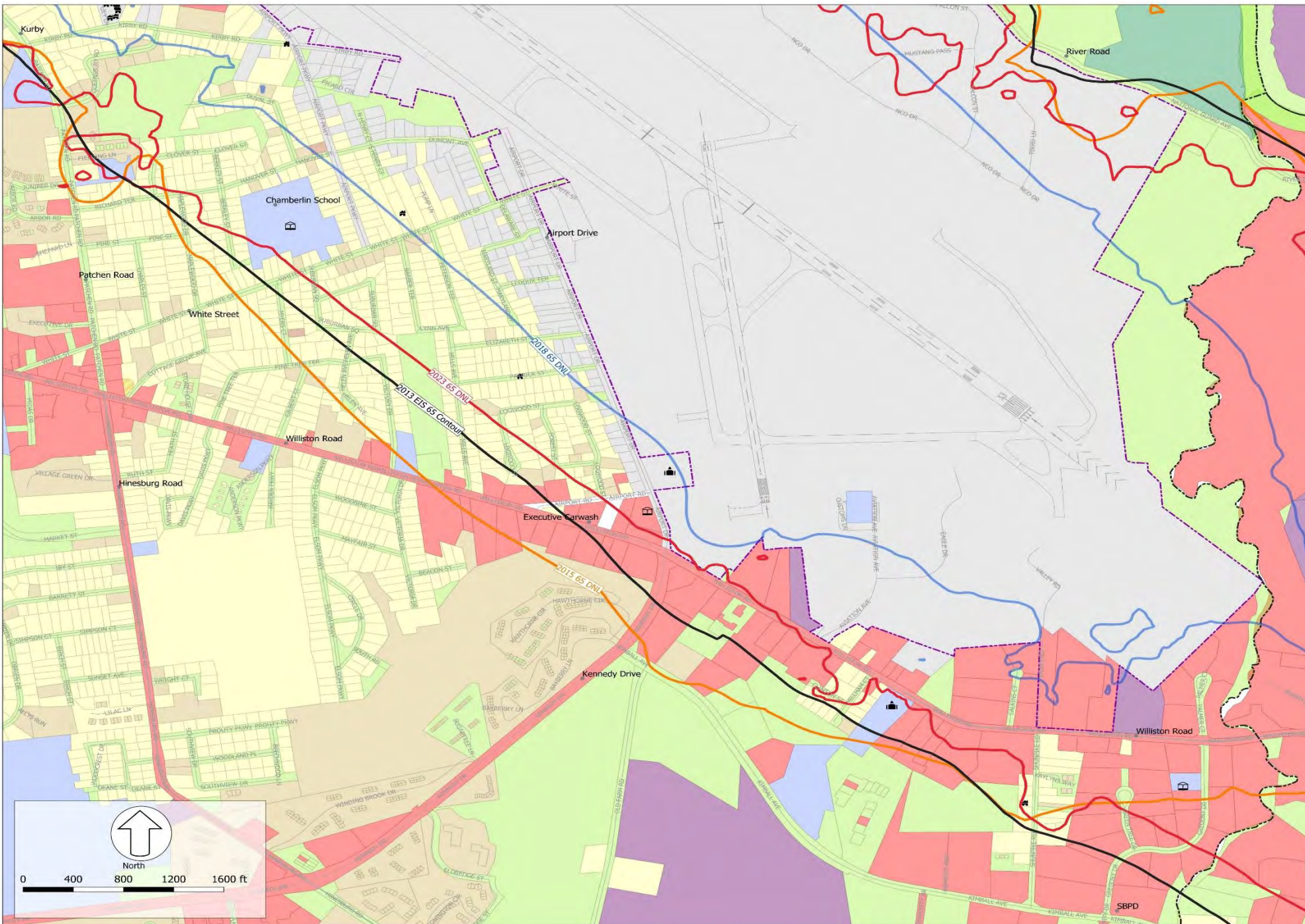


**2018 Land Use**



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.

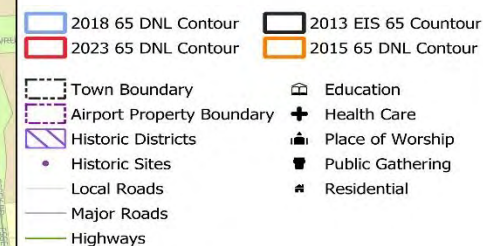




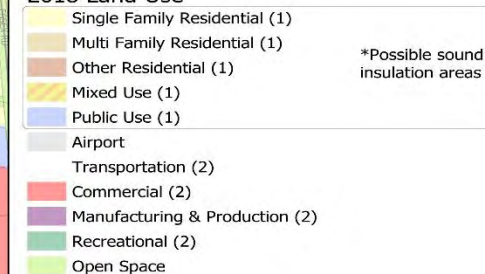


## PART 150 - NOISE EXPOSURE MAP UPDATE

### WILLISTON Figure 15 - East Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS

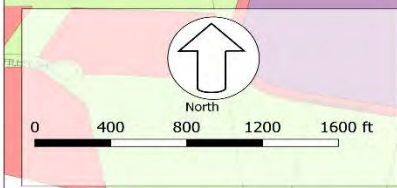
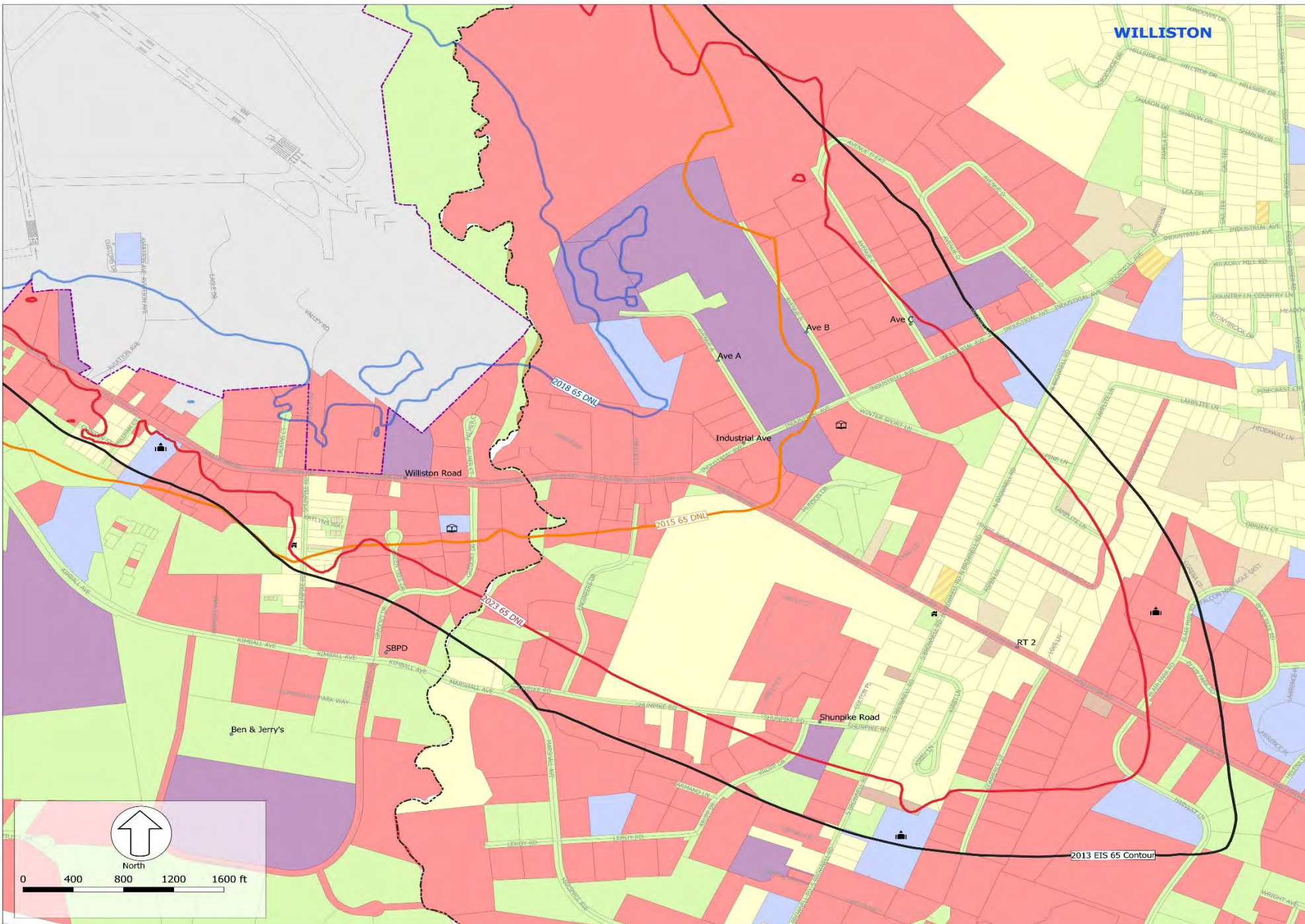


#### 2018 Land Use



(1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.  
(2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.







## PART 150 - NOISE EXPOSURE MAP UPDATE

### COLCHESTER / ESSEX Figure 15 - East Comparison of 65 dB Day-Night Average Sound Level (DNL) Contours for 2015, 2018, 2023, and the F-35A EIS

- 2018 65 DNL Contour
- 2023 65 DNL Contour
- 2013 EIS 65 Countour
- 2015 65 DNL Contour

- Town Boundary
- Airport Property Boundary
- Historic Districts
- Historic Sites
- Local Roads
- Major Roads
- Highways
- Education
- Health Care
- Place of Worship
- Public Gathering
- Residential

#### 2018 Land Use

- Single Family Residential (1)
  - Multi Family Residential (1)
  - Other Residential (1)
  - Mixed Use (1)
  - Public Use (1)
  - Airport
  - Transportation (2)
  - Commercial (2)
  - Manufacturing & Production (2)
  - Recreational (2)
  - Open Space
- \*Possible sound insulation areas

- (1) Potentially non-compatible within 65 dB DNL contour as discussed in Section 3.4.
- (2) Potentially non-compatible within 70 dB DNL contour as discussed in Section 3.4.

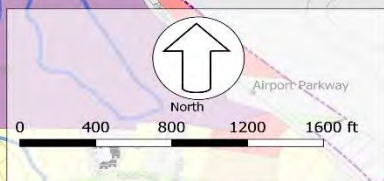
Data Source:  
Vermont Center for Geographic Information Inc. (VCGI), United States Census Bureau, National Register of Historic Places, Burlington International Airport, Harris Miller Miller & Hanson Inc.



COLCHESTER

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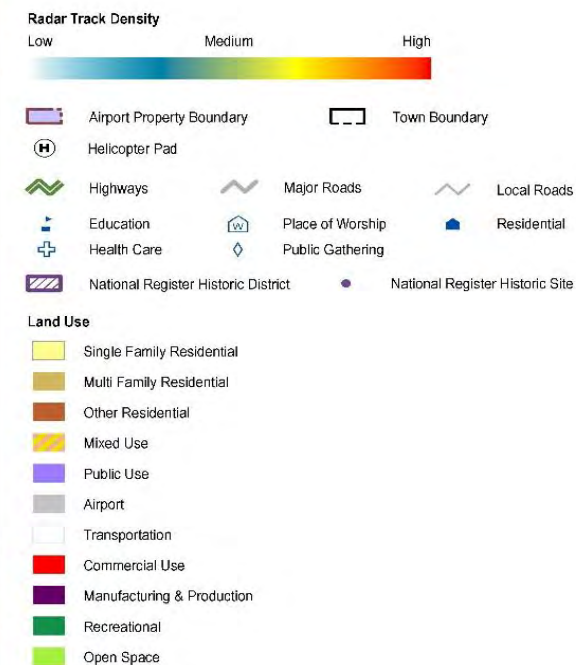






## PART 150 - NOISE EXPOSURE MAP UPDATE

**Figure 17**  
**Radar Sample Departure Tracks**



Data Sources:  
Chittenden County Regional Planning Commission, Vermont Center for Geographic Information, Inc. (VCGI),  
United States Census Bureau, Burlington International Airport, Campbell & Paris Engineers P.C.,  
Harris Miller Miller & Hanson Inc.

0 2,000 4,000 8,000 Feet







## PART 150 - NOISE EXPOSURE MAP UPDATE

**Figure 16**  
**Radar Sample Arrival Tracks**

### Radar Track Density



- Airport Property Boundary
- Town Boundary
- Helicopter Pad
- Highways
- Major Roads
- Local Roads
- Education
- Place of Worship
- Residential
- Health Care
- Public Gathering
- National Register Historic District
- National Register Historic Site

### Land Use

- Single Family Residential
- Multi Family Residential
- Other Residential
- Mixed Use
- Public Use
- Airport
- Transportation
- Commercial Use
- Manufacturing & Production
- Recreational
- Open Space

Data Sources:  
Chittenden County Regional Planning Commission, Vermont Center for Geographic Information, Inc. (VCGI),  
United States Census Bureau, Burlington International Airport, Campbell & Paris Engineers P.C.,  
Harris Miller Miller & Hanson Inc.

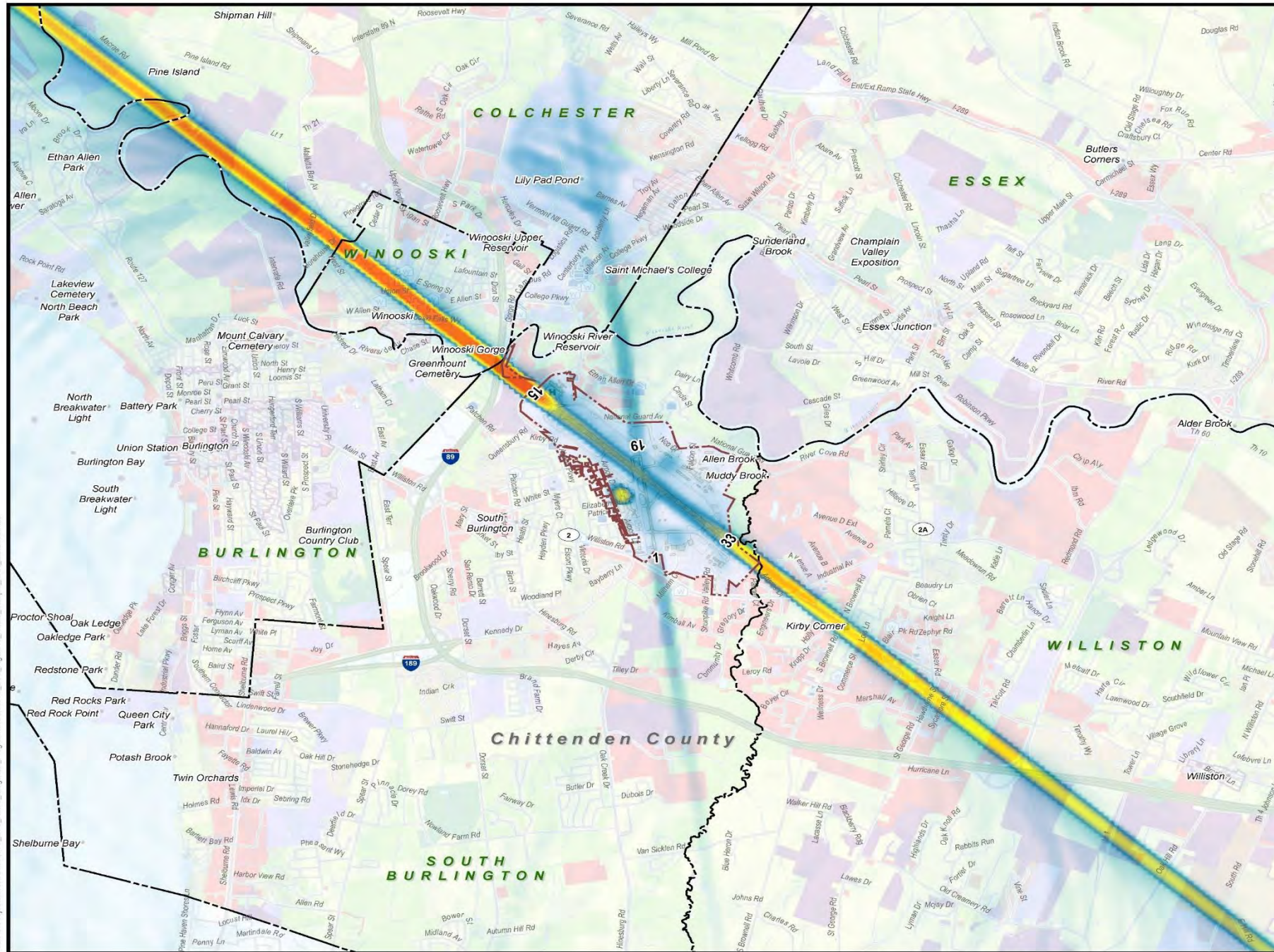
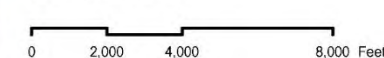




Table 2. 14 CFR Part 150 Noise / Land Use Compatibility Guidelines

Source: 14 CFR Part 150, Appendix A, Table 1

Land Use	Yearly Day-Night Average Sound Level, DNL, in Decibels (Key and notes on following page)					
	<65	65-70	70-75	75-80	80-85	>85
<b>Residential Use</b>						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
<b>Public Use</b>						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
<b>Commercial Use</b>						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade--general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
<b>Manufacturing and Production</b>						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
<b>Recreational</b>						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

## Key to Table 2

- **SLCUM:** Standard Land Use Coding Manual.
- **Y(Yes):** Land use and related structures compatible without restrictions.
- **N(No):** Land use and related structures are not compatible and should be prohibited.
- **NLR:** Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
- **25, 30, or 35:** Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.



# SOUND TERMINOLOGY

- **A-weighted decibel (dBA)**
  - Reflects the manner humans hear different pitches of sound
  - All federal agencies have adopted dBA for environmental studies
- **dBA** can be used for different units of measure, like maximum and average
- **Day-Night Average Sound Level (DNL or Ldn)**
  - Cumulative sound measure
  - Equal to steady level that contains same energy as the actual time-varying sound
  - Increases sounds from 10 p.m. to 7 a.m. 10-fold
  - Used by all federal agencies that deal with aviation noise

## LAND USE COMPATIBILITY

- 14 CFR Part 150 provides guidelines (Appendix A, Table 1) for compatibility based on categories of land use:
  - Residential Use
  - Public Use
  - Commercial Use
  - Manufacturing and Production
  - Recreational
- Note: All land uses are considered compatible by Part 150 if exposed to an annual-average Day-Night Average Sound Level (DNL) of less than 65 dB

## Public Hearing Meeting Notices





BURLINGTON INTERNATIONAL AIRPORT  
Public Hearing Screen Captures  
October 28, 2019

**hagan.**



# Front Porch Forum – Screen Captures

## Public Hearing, October 24, 5-7pm

Nic Longo, Burlington International Airport • [nlongo@btv.aero](mailto:nlongo@btv.aero) • Airport Drive, South Burlington  
Calendar

Event: Oct 24, 2019, 5:00 PM to 7:00 PM

Please join us October 24th, 5-7PM, at the Burlington International Airport for public hearing. It is a chance to speak and be informed with experts about the Federal Aviation Administration sound mitigation options for the community, our neighborhood, and your home. Those that live in neighboring communities who are affected are especially encouraged to join us! No formal presentation. All are welcome. Written comments can be submitted to [BTVsound.com](http://BTVsound.com).

[EMAIL AUTHOR](#) [REPLY TO FORUM](#)


Posted to South Burlington and Winooski communities.



# Front Porch Forum – Facebook

**BTV Burlington International Airport - BTV**  
October 24 at 9:54 AM · 🌐

Please join us tonight, 5-7pm at the Burlington International Airport for a public hearing on the Noise Compatibility Program. It is a chance to speak with and be informed by experts about the Federal Aviation Administration sound mitigation options for the community, our neighborhood, and your home. Those that live in neighboring communities who are affected are especially encouraged to join us! No formal presentation. All are welcome. Written comments can be submitted to [BTVsound.com](http://BTVsound.com).



**THU, OCT 24**  
**Public Hearing for Noise Compatibility Program**

★ Interested

**BTV** You like Burlington International Airport - BTV

**BTV Burlington International Airport - BTV**  
Sponsored · 🌐

Please join us for October 24th, 5-7pm at the Burlington International Airport for a public hearing on the Noise Compatibility Program.



**THU, OCT 24 AT 5 PM**  
**Public Hearing for Noise Compatibility Program**


★ Interested

9 people interested

Like Comment Share

**BTV Burlington International Airport - BTV**  
Sponsored · 🌐

Please join us for October 24th, 5-7pm at the Burlington International Airport for a public hearing on the Noise Compatibility Program.



**THU, OCT 24 AT 5 PM**  
**Public Hearing for Noise Compatibility Program**

INTERESTED

9 people interested

Like Comment Share

Total Impressions: 33,265  
All Clicks: 244



# Community Papers

October 24, 2019 · Williston Observer · Page 5

## NONPROFIT NEWS

### Recovery Vermont: looking for difference-makers

Recovery Vermont is now enrolling for its Dec. 2-6 Recovery Coach Academy.

The academy offers a nationally recognized recovery coach certification through the teaching of evidence-based skills, like motivational listening, that support people in recovery from substance use disorders.

The role of the Certified Recovery Coach is to assist individuals in achieving sustained recovery from the effects of substance use disorders. Recovery coaches serve in a supportive role within a community or treatment setting. They are a role model, mentor, advocate and motivator that substantially improve an individual's ability to sustain recovery and wellness.

A number of full scholarships are available for the academy, which will take place in Montpelier. Contact Melissa

Story at [Melissa@recoveryvermont.org](mailto:Melissa@recoveryvermont.org) to enroll, or visit [www.recoveryvermont.org](http://www.recoveryvermont.org).

#### Coaches sought for Girls on the Run

Girls on the Run Vermont is seeking coaches for its 10-week spring program.

The program serves girls in grades 3-8 at 176 sites across Vermont. The Williston-based nonprofit is recruiting coaches to lead groups of eight to 20 girls. Visit [gotrvt.org/coach](http://gotrvt.org/coach) for more information or to register.

Girls on the Run incorporates running to teach life skills, encourage personal development and foster team building and community service. Volunteer coaches use a curriculum to engage teams of girls in fun, interactive lessons. Teams




Observer courtesy photo

Girls on the Run groups meet twice a week for 90 minutes for a 10-week period each spring.

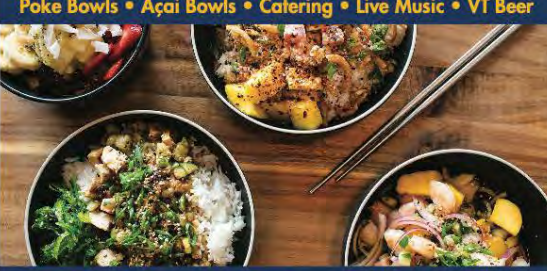
The importance of the program was highlighted by a 2018 study from Claire Shipman and Katty Kay, the authors of "Confidence for Girls," which found that from age 8 to 14, girls' self-confidence falls by 30 percent.

Almost all girls (97 percent) who participate in Girls on the Run said they learned critical life skills including managing emotions, resolving conflict, helping others or making intentional decisions — skills they are using at home, at school and with their friends. Girls who were the least active at the start of the season increased their physical activity level by 40 percent and maintained this increased level beyond season's end.



### The Scale

Poke Bowls • Açaí Bowls • Catering • Live Music • VT Beer



373 Blair Park Road #10 - Kismet Building - Williston  
Order online: [www.thescalevt.com](http://www.thescalevt.com)

### Characters Wanted.

"Mom has always been quite a character. Even with Alzheimer's, she's still irrepressible. We looked for a community that would cherish that spirit and not dampen it. We found that in Maple Ridge."



Consistent, compassionate, and purposeful memory care for seniors are the cornerstones of what we do. Visit us today and discover our unparalleled resident engagement program, delicious and nutritious meals, and spacious and sun-filled apartments.

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## EXPLORE LEARN DISCUSS

### PUBLIC HEARING

#### NAVIGATING OPTIONS

THURSDAY, OCT. 24, 5-7PM  
AT BURLINGTON  
INTERNATIONAL AIRPORT

Get informed and speak with experts about the Federal Aviation Administration sound mitigation options for the community, our neighborhood, and your home. Those that live in neighboring communities who are affected are especially encouraged to join us!  
*No formal presentation. All are welcome.*



Submit Written Comments at [BTVSOUND.COM](http://BTVSOUND.COM)

Print Ads ran on October 10<sup>th</sup>, 17<sup>th</sup>, and 24<sup>th</sup> in:

- Williston Observer
- Colchester Sun
- Other Paper

Print Ads ran on October 17<sup>th</sup> and 24<sup>th</sup> in:

- Seven Days
- Essex Reporter

**hagan** creative  
digital  
agency

Thank You

Hagan Associates LLC  
47 Park Street  
Essex Jct., VT 05452

Phone: 802-863-5956  
[info@haganmarketing.com](mailto:info@haganmarketing.com)  
[www.haganmarketing.com](http://www.haganmarketing.com)



## Public Hearing Transcript

BURLINGTON INTERNATIONAL AIRPORT

PUBLIC HEARING RE: NAVIGATING OPTIONS  
HELD AT THE BURLINGTON INTERNATIONAL AIRPORT  
OCTOBER 24, 2019  
5-7 P.M.

CAPITOL COURT REPORTERS, INC.  
P.O. BOX 329  
BURLINGTON, VERMONT 05402-0329  
(802/800) 863-6067  
E-mail: [info@capitolcourtreporters.com](mailto:info@capitolcourtreporters.com)

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Marguerite Adelman	8
Kai Forlie	8

Closing Remarks

Diane Bryant Carter	10
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1 MS. BRYANT CARTER: It is 5 p.m. on  
2 October 24, 2019. My name is Diane Bryant Carter and  
3 I'm going to open the public hearing for the 14 CFR  
4 Part 150 Noise Compatibility Program Update for the  
5 Burlington International Airport.

6 The purpose of this event is to allow  
7 the public to comment on the Draft Noise  
8 Compatibility Program Report which has been published  
9 today and has been discussed at several technical  
10 advisory committee meetings and the noise exposure  
11 map open house. Study materials are available for  
12 viewing on boards located here at the airport.

13 Comments will be accepted on the draft  
14 Noise Compatibility Program Report until Monday,  
15 November 25, 2019 at 5 p.m. Comments may be  
16 submitted in writing utilizing the comment forms  
17 provided at tonight's meeting or through the  
18 airport's web site at [www.btvsound.com](http://www.btvsound.com).

19 The public comment period is now open. We  
20 will be accepting comments tonight and responses will  
21 be provided in the final report. We request that  
22 individuals keep their comments to three minutes in  
23 duration. Thank you.

24 MS. GALLOWAY: My question is I'm very  
25 worried about the children in this community losing



1       their hearing, and that if even one child has a  
2       hearing loss who is going to take responsibility for  
3       this. Will someone pay for the children to have some  
4       -- what do I call it -- like repair to their hearing,  
5       and shouldn't there be a conscious effort right now  
6       in all of the schools to get a baseline so that we  
7       will know whether the children have been losing their  
8       hearing because I think that's going to be criminal  
9       if we don't help them.

10               Written questions. This is from the group.  
11       They are not my questions, but I think they are  
12       important questions and we would certainly like to  
13       have an answer. Economic impact questions about the  
14       F-35s. When will sound mitigation begin?

15               How many homes will be mitigated per year?

16               Does Burlington need to apply every year for  
17       this FAA grant?

18               Is funding dependent on Congress?

19               How long will it take to do 2540 homes?

20               How will homes be prioritized for sound  
21       mitigation?

22               Who will cover the 10 percent match in funds  
23       that is not covered by the federal grants?

24               Will the City of Burlington pick up this  
25       cost?

1 Will my city have to pick up this cost?

2 Will I have to pay this amount personally?

3 Will my taxes go up if the 10 percent cost  
4 for sound mitigation is not covered?

5 Will my school taxes go up if my schools  
6 needs more soundproofing?

7 What will be the economic impact on my  
8 community in terms of rentals, sales, tourism?

9 Will I be able to sell my home?

10 Who will provide sales assistance and  
11 purchase assistance?

12 Will I get the estimated property value of my  
13 home?

14 When will the memorandums of understandings  
15 with various cities be done?

16 Where and when can I see these MOUs?

17 Until sound mitigation begins, how can I  
18 protect my hearing? My children's hearing? My pets?

19 News reports suggest the value of our homes  
20 will fall 17 percent in the high noise area. Isn't  
21 this an unconstitutional taking of property by  
22 government without compensation?

23 My dog has four times more sensitive hearing  
24 than I do. If 65 to 100 db sound injures my ears --  
25 and I can wear ear protectors -- what's going to

1           happen to my dog?

2                   If the Chamberlin School is rendered  
3           inoperable due to playground and classroom noise from  
4           military aircraft, who will pay to replace that  
5           school?

6                   If property values fall in the three cities  
7           most affected by military aircraft noise, won't that  
8           mean that property assessments and, hence, tax  
9           revenues will fall?

10                  Will the Air Force make those cities whole?

11                  After a flood, property insurance becomes more  
12           expensive or even impossible to get. Should an F-35  
13           crash somewhere in the area will the government  
14           provide homeowners with property insurance?

15                  We understand that noise mitigation program  
16           may cost up to 100 million with localities on the tab  
17           for 10 percent of this. Who, in fact, will pay that  
18           local 10 percent?

19                  What about people whose lives and property are  
20           impacted, but live just outside the noise zone? Will  
21           those families also have access to resources to  
22           mitigate impacts?

23                  Why are you holding this event if you really  
24           can't answer any questions yet?

25                  Will you hold another meeting when you can

1           answer questions?

2                       MR. BEVINS: My name is Bruce Bevins. I  
3           live at 36 Duval Street, South Burlington, Chamberlin  
4           School District. Been here for over 30 years -- 34  
5           years to be exact. My only concerns I'm a veteran,  
6           Vermont Air Guard. I have nothing but the utmost  
7           respect, and their flying mission they are the best  
8           in the country. I'm sure that's why the F-35s are  
9           here. I'm just hoping that the FAA and the Air Force  
10          will do right by all the neighbors around the  
11          airport, both in South Burlington, Winooski,  
12          Williston, Essex Junction, that will be impacted by  
13          the noise, and hopefully there will be considerations  
14          met by scheduling versus times of takeoff and so  
15          forth with the local school and surrounding areas so  
16          that the noise impact can be as minimal as possible.

17                   Also I feel that the cart got before the horse  
18          on this one where knowing what the F-35s were going  
19          to be for many, many years that the mitigation for  
20          sound and sound exposure maps should have been done  
21          before the actual planes arrived. So I'm hoping that  
22          it won't be a 4 to 5 or 6-year period to get the  
23          monies into this area to make it more liveable for  
24          the people in the surrounding areas. Thank you very  
25          much.



1 MS. ADELMAN: Marguerite Adelman from  
2 Winooski. I just talked to the FAA guy and he said  
3 the airport can request some monitoring. They have  
4 done it at Logan and other airports on a regular  
5 basis. So I would like to see the airport or the  
6 City of Burlington request some monitoring as soon as  
7 possible.

8 MR. FORLIE: I am here today because I  
9 think it's terrible that the 6,000 plus folks that  
10 are directly affected by the arrival of this aircraft  
11 are not being advocated on behalf of by our elected  
12 officials. I feel like they have been forsaken, and  
13 my understanding was that when you run for office and  
14 win that you're supposed to represent everyone, in  
15 particular, the most powerless and disenfranchised in  
16 your community, and this hasn't happened with this  
17 issue or in this issue.

18 So I'm not directly affected in terms of  
19 living in the noise -- any of the noise zones, but I  
20 do live in Burlington. I have aircraft flying over  
21 the house regularly and really enjoyed the summer  
22 when we didn't have any fighter aircraft taking off.  
23 Three months or four months of peace was something  
24 special, and I think it was -- I think the stark  
25 contrast with that, or between that, and what we're

1 entering into now with the arrival of these first two  
2 aircraft and two each month hereafter until we get  
3 the full contingent sets us up for a good before and  
4 after, and I'm not pleased with the after.

5 I should point out I'm a -- what I call  
6 a reformed airline pilot. I'm a former airline  
7 pilot, and obviously I come at this issue from maybe  
8 a different perspective, but why I stopped flying was  
9 because I started seeing -- being increasingly unable  
10 to deny the negative consequences of my actions and  
11 actions of everyone I worked with, and that was just  
12 -- that was just commercial, you know, passenger  
13 travel and cargo travel. The more that I learn about  
14 the military side of things, military aviation, the  
15 more disgusted I become. The more I can't believe  
16 that in all the discussions about, for instance,  
17 Burlington being such a green place and working on --  
18 working towards net zero energy and blah blah blah  
19 that, you know, the Pentagon is the largest single  
20 source of carbon pollution in the world, and if  
21 nothing else, we should be focused on that as a city.  
22 We have direct control over the local contingent, the  
23 local manifestation of that, and the fact that has  
24 been up until now pretty much overlooked I think is a  
25 disgrace. So I'll leave it at that.

1 MS. BRYANT CARTER: The public comment  
2 period is now closed. It's 7 p.m. on October 24,  
3 2019. I'm Diane Bryant Carter. Thank you for  
4 attending this public hearing for the 14 CFR Part 150  
5 Noise Compatibility Program Update for the Burlington  
6 International Airport.

7 (Adjourned at 7 p.m.)  
8  
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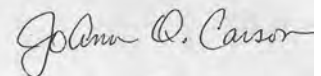
C E R T I F I C A T E

I, JoAnn Q. Carson, do hereby certify that  
I recorded by stenographic means the public hearing re:  
Navigating Options at the Burlington International  
Airport, Burlington, Vermont, on October 24, 2019,  
beginning at 5 p.m.

I further certify that the foregoing  
testimony was taken by me stenographically and thereafter  
reduced to typewriting, and the foregoing 10 pages are a  
transcript of the stenograph notes taken by me of the  
evidence and the proceedings, to the best of my ability.

I further certify that I am not related to  
any of the parties thereto or their Counsel, and I am in  
no way interested in the outcome of said cause.

Dated at Burlington, Vermont, this 25th day  
of October, 2019.



---

JoAnn Q. Carson

Registered Merit Reporter

Certified Real Time Reporter



## Public Hearing Presentation



# **WELCOME**

to the

## **NOISE COMPATIBILITY PROGRAM UPDATE PUBLIC HEARING**

**OCTOBER 24, 2019**



# COMMENTS

**Please leave your comments on the sheets provided.**



# ORAL COMMENTS

**Please feel free to provide oral comments.  
There is a 2 minute time limit.**





# 2023 Noise Exposure Map

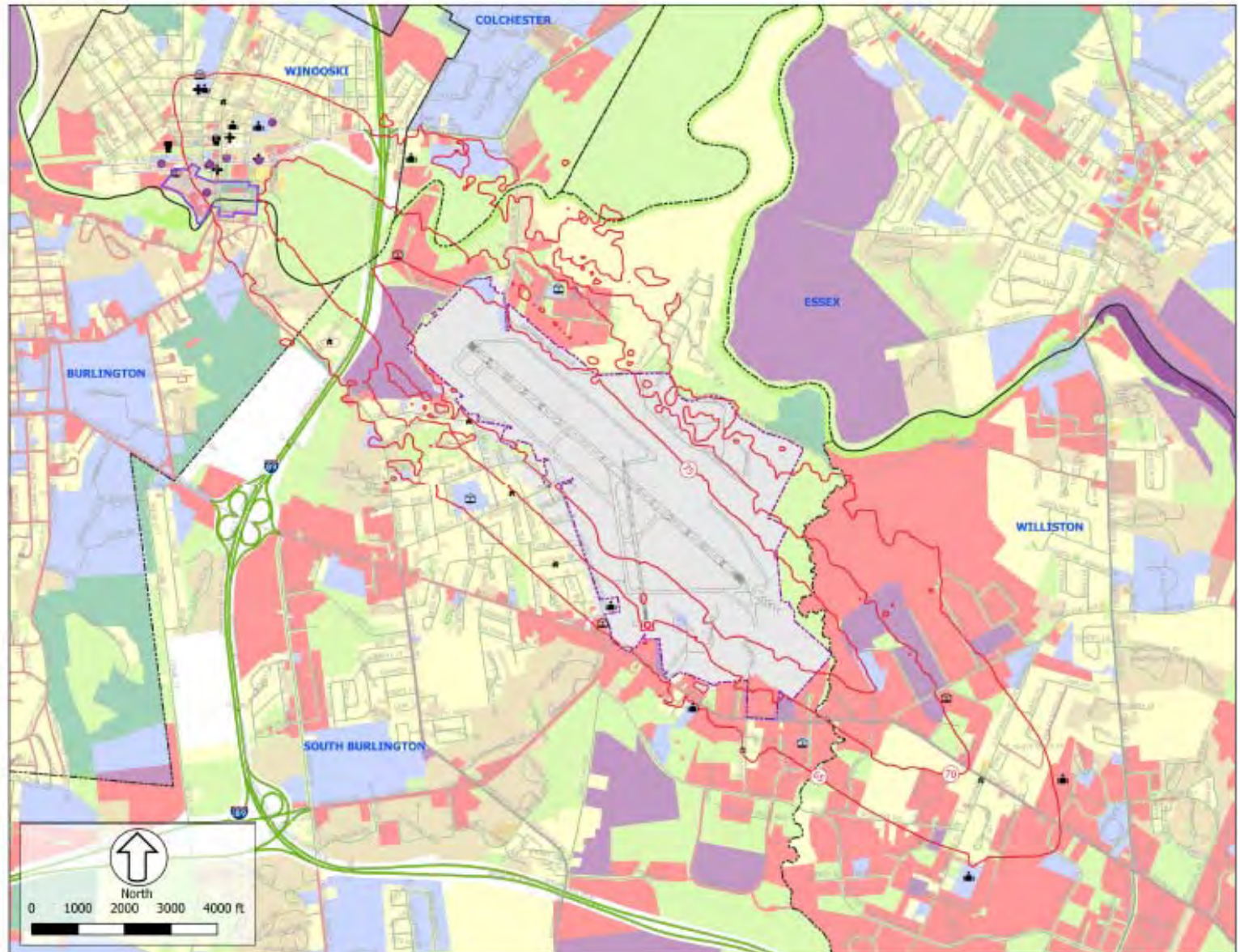
2023 DNL Contour

- Town Boundary
- Airport Property Boundary
- Historic Districts
- Historic Mills
- Local Roads
- Major Roads
- Highways
- Education
- Health Care
- Place of Worship
- Public Gathering
- Residential

## 2018 Land Use

- Single Family Residential (1)
- Multi Family Residential (1)
- Other Residential (3)
- Mixed Use (1)
- Public Use (1)
- Airport
- Transportation (2)
- Commercial (2)
- Manufacturing & Production (2)
- Recreational (2)
- Open Space

\*Possible sound insulation areas





## ESTIMATED 2023 POPULATION AND DWELLING UNITS

Day-Night Average Sound Level (DNL)	Estimated Dwelling Units and Population	Single Family Parcels	Multi- Family & Mixed Use Parcels	Estimated Total
<b>65 -70 dB Contour</b>	Dwelling Units	781	1,563	2,344
	Population	1,812	3,626	5,438
<b>70-75 dB Contour</b>	Dwelling Units	97	186	283
	Population	225	432	657
<b>75 dB+ Contour</b>	Dwelling Units	12	1	13
	Population	28	2	30
<b>Total</b>	Dwelling Units	890	1,750	2,640
	Population	2,065	4,060	6,125



## NOISE COMPATIBILITY PROGRAM GOALS & OPTIONS

### **Project Focus and Goals:**

- Goal is to find ways to transition from land acquisition to other land use measures
- Focus is on updating land use measures
- Recommendations will be based on the 2023 noise contour
- Study will incorporate community feedback

- Mitigation options must:
  - Meet eligibility requirements for federal funding under FAA guidelines
  - Provide a benefit to the local residents; especially those that are in non-compatible areas identified on the FAA accepted NEM
- Mitigation measures will be evaluated using factors such as:
  - Technical feasibility
  - Impacts to residents
  - Cost
  - Schedule





# RECOMMENDED MONITORING & REVIEW ELEMENTS

## Monitoring & Review of NEM & NCP

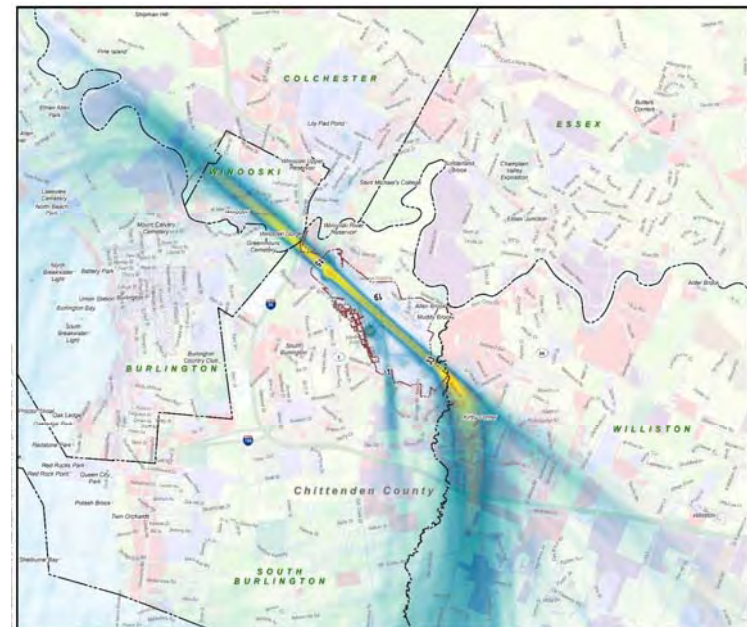
Recommendation: The City recommends the NEM and NCP documents are updated when necessitated by operational changes. The Airport is committed with the Vermont Air National Guard to a joint NEM update one year after the operation of the F35 aircraft. This update is anticipated to be funded in FFY2021.

- 



## Noise and Flight Track Monitoring

Recommendation: The City recommends the purchase of a flight tracking system.







## **VOLUNTARY LAND ACQUISITION AND RELOCATION**

**Recommendation: The City recommends land acquisition and relocation for non-compatible residential land use within the 75 dB DNL noise contour where the majority of the parcel is located within the contour. It is no longer recommending acquisition for land below 75 dB DNL.**

- Relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the "Uniform Act") and implementation of Department of Transportation (DOT) regulations. benefits for the occupants
- Demolition of structure
- Land reuse study for compatible use of land
- Est. Avg. Cost Per Home: \$407,000



## **VOLUNTARY SOUND INSULATION OF RESIDENCES AND NOISE SENSITIVE BUILDINGS**

**Recommendation:** The City is recommending sound insulation for residential and noise sensitive land within the 65 up to the 75 dB DNL noise contour. It is recommending sound insulation for residential land located in the 75 dB DNL where the majority of the parcel is not located within the 75 dB DNL contour. The City will not require an aviation easement. No aviation easement will be required.

### **RESIDENTIAL BUILDINGS**

- Installation of acoustical treatments including windows and doors
- Reduce interior noise level to 45 dB DNL
- Must meet eligibility criteria including existing interior noise level above 45 dB DNL to qualify
- Owner remains in home during process
- Est. Avg. Cost per Home: \$54,000

### **NOISE SENSITIVE BUILDINGS**

- Eligible community buildings include schools, places of worship and other noise sensitive buildings
- Est. Avg. Cost: Varies by Building



## VOLUNTARY SALES ASSISTANCE

**Recommendation: The City is recommending a sales assistance program for non-compatible land use within the 65 and up to the 75 dB DNL noise contour where properties are not eligible for sound insulation. Per FAA requirements an avigation easement will be required.**

- Airport assists with the sale of the home on the open market; airport does NOT take possession of property
- Homeowner enters program by signing agreement which includes:
- Homeowner to list property at Fair Market Value (FMV)
- Homeowner to convey Avigation Easement prior to sale of home
- Airport guarantees they will provide a differential to assist in the sale of the property if seller receives an offer of less than FMV
- Owner / Occupant does not receive relocation benefits
- Est. Avg. Cost per Home: \$35,520



## VOLUNTARY PURCHASE ASSURANCE

**Recommendation: The City is recommending a purchase assurance for non-compatible land use within the 65 and up to the 75 dB DNL noise contour. Per FAA requirements an aviation easement will be required.**

Airport purchases property from owner, sound insulates and resells on the open market

- Homeowner agrees to sell property at appraised Fair Market Value (FMV)
- Homeowner to convey Aviation Easement prior to sale of home
- Owner / Occupant does not receive relocation benefits
- Airport maintains and preserves property during the sound insulation process
- Est. Avg. Cost Per Home: \$355,000



## Response to Public Comments

## PUBLIC COMMENTS RELATED TO ECONOMIC EFFECTS

First Name	Last Name	Document Number	Comment ID	Paraphrased Comment	Response
Daniel	Albert	1	DA-1B	Our property values are being depleted without just compensation.	Economic impacts were not evaluated as part of this study.
Terrill	Bouricius	9	TB-1B	The noise disturbs health testing and work conditions. We will need to move operations to another town which will put substantial financial burden on my company.	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
Jennifer	Decker	19	JD-1B	Will the City of Burlington demand full noise remediation prior to F-35's being allowed to continue to operate at Burlington International Airport? If not, what is the plan to compensate victims during the years, or even decades, prior to full remediation? Where can victims of damaging noise go for benefits? What will be the cost of compensating victims?	F-35 operations will occur prior to full remediation, If a recommended measure, such as land acquisition, sound insulation, sales assistance or purchase assurance is approved and implemented, a program will be developed. Eligibility and participation requirements will be available to homeowners after the establishment of a program. Program representatives will contact all potentially eligible homeowners.
Patricia	Everts	20	PE-1B	I am also concerned about my property value going down because of the F-35s.	Economic impacts were not evaluated as part of this study.
Jean	Hopkins	31	JHO-1C	Money for F-35s could have gone to building homes instead of weapons.	Thank you for your comment.
Annie	Jordan	36	AJ-1A	Low income citizens will be the ones most negatively impacted by these jets.	Economic impacts were not evaluated as part of this study.
Melinda	Lee	49	ML-1B	I am also concerned about the effect on property values and quality of life. I already know one couple who moved due to the F-35s and their noise & nuclear capability.	Economic impacts were not evaluated as part of this study.

**PUBLIC COMMENTS RELATED TO ECONOMIC EFFECTS**

First Name	Last Name	Document Number	Comment ID	Paraphrased Comment	Response
N/A	N/A	82	CC-4B	These plans continue to prey on the poor.	Economic impacts were not evaluated as part of this study.

## PUBLIC COMMENTS RELATED TO F-35A OPERATIONS

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Zack	Flaherty	22	ZF-1	Do municipalities have to pay 10% to match grants?	The Airport, owned by the City of Burlington is required to provide 10% of each FAA's Airport Improvement Program grant. Other municipalities are not required to provide funding.
Robin	Lloyd	51	RL-1	To resolve the question about the impact of F35 noise upon takeoff and landing, I request that the airport immediately apply for FAA noise monitoring and tracking grants to measure F-35 noise on airport grounds and throughout the residential areas identified by the Air Force and the Noise Compatibility Program.	The use of an operations and flight tracking system is included as a recommended measure of the NCP. Additionally, the Airport has committed with the Vermont National Guard to conduct a joint NEM update one year after the operation of the F-35 (estimated 2021).
Tony	Redington	65	TR-1	I strongly request that the airport immediately apply for FAA noise monitoring and tracking grants to measure F-35 noise on airport grounds and throughout the residential areas identified by the Air Force and the Noise Compatibility Program.	The use of an operations and flight tracking system is included as a recommended measure of the NCP. Additionally, the Airport has committed with the Vermont National Guard to conduct a joint NEM update one year after the operation of the F-35 (estimated 2021).



## PUBLIC COMMENTS RELATED TO HEALTH CONCERNS

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Daniel	Albert	1	DA-1C	As borne out by peer-reviewed research, the noise level of the F-35s is dangerous to children's hearing and brain development.	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
Daniel	Albert	1	DA-1D	An F-35 accident is too abhorrent to contemplate, yet it must be in the interest of the health & safety in our community. Please count me and my wife as strongly opposed to the F-35 basing in Burlington.	Health and safety effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health and safety effects.
Jennifer	Decker	19	JD-1D	How can parents and guardians of children in local daycares, schools and homes be taught to look for signs of hearing loss and other developmental impacts in children who are preverbal? What are the results of pre-testing for vulnerable populations on these health measures: stress-related disease, hearing, learning, development, and mental health measures. Which valid measures have been used for pre-testing scores? Where the results of those studies that will help determine levels of harm among residents?	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.

## PUBLIC COMMENTS RELATED TO HEALTH CONCERNS

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Patricia	Everts	20	PE-1A	I am concerned about health issues from the F-35s.	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
Mary	Fillmore	21	MF-1C	How can we expect to keep windows closed year round? How will we protect students, adults, and airport visitors & employees from the F-35s when outdoors?	There is currently no mitigation measures planned which would affect outdoor noise levels.
Ann	Goering	26	AG-1A	Noise is not a nuisance. It is a health issue. As a family physician working and living in the fight path I am aware of the impact on my health as well as others. I was on my porch when the F-35s flew over and my ears rang & hurt for two hours.	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
Anya	Hunter	32	AH-1	The experience of the plane was terrifying. How will this impact children, teens, the elderly, refugees, veterans, anyone with anxiety or depression?	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.

## PUBLIC COMMENTS RELATED TO HEALTH CONCERNS

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Genevieve	Jacobs	33	GJ-1	I've lived in Burlington the past 30 years and moving away is not an option I would willingly consider. However, I have a heart condition triggered by stressors, and the F-35s may compromise my ability to live and work. I urge you to reconsider the negative impacts of basing these planes here.	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
Annie	Jordan	36	AJ-1B	I am apprehensive that exposure to F-35 low frequency high decibel noise is life threatening hazard for many people with various health concerns in the area. I urge you to take immediate preventative action.	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
James	Leas	42	JL-2A	How will the modification of the NCP protect children playing outside, residents gardening or walking dogs, or residents who are inside when there is hot weather & their windows are open? If these people cannot be protected, should the airport apply for a FAA grant to purchase all 2,600 homes that will be damaged by the F35s?	There is currently no mitigation measures planned which would affect outdoor noise levels.
James	Leas	45	JL-5	The NCP failed to mention learning impairment of children. What is the City of Burlington & BTV's response to the World Health Organization's report "Burden of disease from environmental noise"? Will the NCP be modified to add/address these considerations?	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.

## PUBLIC COMMENTS RELATED TO HEALTH CONCERNS

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
James	Leas	46	JL-6	The NCP failed to mention learning impairment of children. What is the City of Burlington & BTV's response to the United State Air Forces' F-35 Environmental Impact Statement? Will the NCP be modified to add/address these considerations?	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
James	Leas	47	JL-7	The 2019 draft NCP does not mention hearing loss. What measures will the City take to prevent hearing loss? Will the City continue to put forth an NCP that omits mention of the hearing loss problem and simply allow the hearing of Vermont children and adults to be injured?	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
James	Leas	48	JL-8	In view of the Veterans Administration's facts on hearing loss, what will the City of Burlington do to protect airport passengers and nearby residents from the hearing loss they can get from the repeated exposure to F-35 jet noise?	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
Melinda	Lee	49	ML-1A	The F-35s are very disturbing. It is difficult to hear; I am wondering if I will have to purchase soundproofing ear phones in order to walk safely. I am concerned about the effect on children's hearing; I fear for the health of the children who go to Chamberlin School.	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.



## PUBLIC COMMENTS RELATED TO HEALTH CONCERNS

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Joanna	Rankin	63	JR-2D	Exposure to intense sound energy is dangerous to health and civil society. Any number of references attests to this. The theoretical noise models behind the NEMs are flawed and inadequate. A single exposure to F-35 can cause permanent damage.	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
Wiley	Reading	64	WR-1A	The planes are incredibly loud. I have hearing loss and am concerned that they will make it worse.	Thank you for your comment.
Nancy	Rice	67	NR-1B	What are the noise effects on the children at Chamberlin School, the people of Winooski and S. Burlington, as well as passengers at the airport? Especially once all the F-35s are based there?	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
N/A	N/A	82	CC-4A	The noise is poisoning children. We cannot measure the exposure or reverse it. Think of lead exposure. With sound mitigation our children will need to be locked inside - the antithesis to a healthy childhood.	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.

## PUBLIC COMMENTS RELATED TO HEALTH CONCERNS

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Judy	Galloway	Transcript	TR-1	I am concerned about children and hearing loss. How can I protect my hearing and that of my children and family?	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.

## PUBLIC COMMENTS RELATED TO LAND USE

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Jennifer	Decker	19	JD-1A	Does the City of Burlington think that the Federal Aviation Administration is wrong in stating that homes in the noise impact zone are now unfit for human habitation? If so, please share sources. If not, please detail the plan for demolishing homes, schools and businesses and helping those relocate to similar, suitable habitations. What is the timeline for such plans?	The FAA has determined residences, schools, churches, auditoriums; concert halls, hospitals, and nursing homes located within the 65 dB DNL and 70 dB DNL are considered compatible with adequate interior-to-exterior noise-level reduction (NLR). Accordingly, these structures that do not have the adequate NLR are eligible for sound insulation. Businesses are considered compatible and are not eligible for noise mitigation measures. The schedule for the implementation of recommended measures within the 65 dB DNL contour has not been established to date.
Janet	Kahn	37	JK-1B	How was it concluded that homes are sufficiently soundproofed when it only works if people never open their windows or go outside? How is this still considered affordable housing when we must assume reasonable people would not buy a home that renders their children captive? Can you show us real estate assessments based on experience rather than computer modeling that show home value being comparable to pre-noise endangerment levels?	Economic impacts were not evaluated as part of this study.

## PUBLIC COMMENTS RELATED TO LAND USE

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
James	Leas	42	JL-2B	What is the danger to the public and the cost of each of the following alternatives to the proposed NCP modification: 1. Building a new runway away from where people live 2. Using an existing runway in a less populated area 3. Canceling the basing of the F-35s in Burlington	The purpose of this update was to assess noise mitigation measures in addition to land acquisition. This study was not intended to re-assess the basing of the F-35A at the airport.
Judy	Galloway	Transcript	TR-6	News reports suggest the value of our homes will fall 17%. Isn't this unconstitutional take of property by the government without compensation? If property values fall doesn't that mean the property assessments and tax revenues will fall? Will the Air Force make those cities whole?	Economic impacts were not evaluated as part of this study.



## PUBLIC COMMENTS RELATED TO PUBLIC HEARING

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
N/A	N/A	79	CC-1	Thank you for this info session. Thanks for not tearing down anymore homes.	Thank you for your comment.
N/A	N/A	83	CC-6	Too bad that none of the airport officials came to the part of the meeting that actually had questions for you. Not a democratic meeting at all.	Airport officials were present at the Public Hearing.

## PUBLIC COMMENTS RELATED TO NOISE MODELING

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Ron	Bomer	8	RB-1	The new jets have a completely different sound profile with multiple frequencies with a physical rumbling sound wave. Their pathways should be pushed out further. A published training schedule would help us be prepared.	Thank you for your comment. The approach and departure pathways flown by the F-35 are the same as those flown by the F-16 aircraft. The VTANG typically operates on a regular predictable schedule consisting of...
Kristie	Carr	10	KC-1	I live in Colchester on Renkin Dr. I don't see that area as being in the noise map. However, I am in the direct flight path of the airport and the jets and planes fly directly over my house. Why is that area not on the map?	The FAA does not provide funds for noise mitigation outside the 65 dB DNL contour. The NEM only shows the 65 DNL contour and those areas directly adjacent to it.
Mary	Fillmore	21	MF-1A	The entire process is flawed because it is focused on average noise levels rather than intensive incidents, such as the F-35 takeoffs and landings. How will the airport reduce noise averages without restricting the commercial flights which have made the airport to be so successful?	The Day-Night Average Sound Level (DNL) metric is used for the BTV NEM per Part 150 regulations. Maximum sound levels have not been determined as part of this study. There are no plans to address noise through a reduction in commercial flight operations.
Ann	Goering	26	AG-1B	We need studies that show the true impact of noise. Actual decibels, not averaged decibels. I am asking for the current plan to be considered flawed and not accepted.	The Day-Night Average Sound Level (DNL) metric is used for the BTV NEM per Part 150 regulations. Maximum sound levels have not been determined as part of this study.
Lois	Price	60	LP-1	Using a day/night average to measure F-35 sound levels is misleading. The sound level when the planes are operating is what should be measured, as this is what can cause damage to people's hearing.	The Day-Night Average Sound Level (DNL) metric is used for the BTV NEM per Part 150 regulations. Maximum sound levels have not been determined as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
Stefani	Us	75	SU-2	Block 3F software	Thank you for your comment.

## PUBLIC COMMENTS RELATED TO NOISE MODELING

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Gregory	Epler Wood	76	GW-1	Part 150 of the Federal Aviation Regulations uses outdated, outmoded and harmful metrics. Another analysis should be done that takes into account low frequency & infrasound, how sounds are perceived by humans of all ages, and what effects those sounds have.	Thank you for your comment.
Terry	Zigmund	78	TZ-1A	I do not believe that the airport has done a thorough study to determine the impacts of the F-35 on the neighboring communities. The document clearly states that the study is based on noise from the F-16. While I understand that computer models were used, I do not feel that this is sufficient.	This is incorrect. The NEM study utilizes distinct F-16 and F-35A noise data for modeling operation from each of those aircraft types.

## PUBLIC COMMENTS RELATED TO NEM DOCUMENTATION

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
James	Leas	43	JL-3	The NCP fails to recount reasons that individual measures were accepted and rejected, such as noise monitoring, flight track monitoring, and real estate disclosure. Please revise the 2019 NCP to provide the missing information and explanations in full.	The purpose of this update was to assess noise mitigation measures in addition to land acquisition. This study was not intended to re-assess the basing of the F-35A at the airport.
James	Leas	44	JL-4	The 2019 draft NCP is fundamentally flawed and should be rejected by the FAA.	Thank you for your comment.
Karl	Novak	58	KN-1B	The 2019 Draft NCP does not address the daily airport passengers. The NCP should address F-35 noise on the airport grounds.	Flight operations data is included in the 2015 and 2020 Noise Exposure Maps report. A copy can be viewed at <a href="https://www.btv.aero/documents/BTV_FINAL_NEM_Report_20151221_web.pdf">https://www.btv.aero/documents/BTV_FINAL_NEM_Report_20151221_web.pdf</a>
Karl	Novak	58	KN-1C	The NCP should include a request for a more compatible location for the F-35s.	Thank you for your comment.
Joanna	Rankin	63	JR-2B	The draft NCP is shocking in its discussion of at-most partially effective and painfully late-coming measures. The programs would only be band aids. Residences can be insulated, but this does nothing for being outside. What of children, BTV passengers, bicycle traffic?	There is currently no mitigation measures planned which would affect outdoor noise levels.
Joanna	Rankin	63	JR-2E	I strongly object to the current deadline for submitting comments on the current NCP. We know the F-35s are terrible but we have not yet experienced how terrible. Only a small part of the fleet has arrived, and they have not used afterburners.	Thank you for your comment.



## PUBLIC COMMENTS RELATED TO GENERAL NOISE ISSUES

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Terrill	Bouricius	9	TB-1A	Average day and night levels mask the true problem. The issue is peak noise, which will obviously impact people far beyond the 65 decibel area on the map.	The Day-Night Average Sound Level (DNL) metric is used for the BTV NEM as per Part 150 regulations. US Congress provided legislation to FAA that all airports need to be represented in the same way to access funding.
Jim	Carrier	11	JC-1	I would like to ask all planes, but especially the F35s, to follow the IFR takeoff and landing flight path, straight in, and out, which is roughly over the Winooski River. Even in VFR conditions. This would vastly reduce the noise, and complaints.	Thank you for your comment.
Maureen	Labenski	39	ML-1	I live in downtown Burlington and have not experienced any untoward affects from the new jets. When I'm inside my house I hear them, but the sound is not objectionable. When I'm walking on the waterfront or the downtown shopping area the noise from the jets is loud, but not problematic. It is of short duration and I recognize the sound as part of what comes with maintaining a capable protective force.	Thank you for your comment.
Andrea	Nicoletta	57	AN-1	The F-35s are much louder than the F-16s. The walls shook and the sound penetrated my home even with all windows and doors closed. These machines should not be in populated areas.	Thank you for your comment.
Daniel	Shearer	70	DS-1	You cannot ignore the F-35 noise. It is unnerving and unsettling and I want it to stop.	Thank you for your comment.
N/A	N/A	84	E-1	I think the F-35 noise is non-existent and the people that are whining about it are anti-military.	Thank you for your comment.

## PUBLIC COMMENTS RELATED TO NOISE MITIGATION

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Daniel	Albert	1	DA-1A	We are outside the noise contour but the F-35 noise directly compromises our quiet enjoyment of our property.	The FAA does not provide funds for noise mitigation outside the 65 dB DNL contour.
Callie	Chambers	14	CCH-1	None of the programs address the effect of planes on outdoor life. How about a subsidy for noise cancelling headphones?	The distribution of noise cancelling headphones is not an FAA approved noise mitigation measure.
Tina	Daly	18	TD-1	Who would you contact for information regarding property buyout?	If a recommended measure, such as land acquisition, sound insulation, sales assistance or purchase assurance is approved and implemented, a program will be developed which will include homeowner outreach. Program representatives will contact all potentially eligible homeowners.
Mary	Fillmore	21	MF-1D	Purchasing, refurbishing, and selling homes in the 65-75 DNL range is calculated to create an underclass in our community. No one pretends that "soundproofing" will be effective. The NCP will offer too little too late.	Economic impacts were not evaluated as part of this study.
Roger	Forcier	23	RF-1	I am writing on behalf of my mother-in-law whose home is in the 70 DNL area. Would BTV be interested in purchasing her home when funding becomes available? If not, what options are open to her?	If a recommended measure, such as land acquisition, sound insulation, sales assistance or purchase assurance is approved and implemented, a program will be developed. Eligibility and participation requirements will be available to homeowners after the establishment of a program. Program representatives will contact all potentially eligible homeowners.
Robert	Herendeen	29	RH-1B	It is unfair to offer sound-proofing instead of mitigating or removing the F-35s. The program is expensive and forces people indoors.	Thank you for your comment.

## PUBLIC COMMENTS RELATED TO NOISE MITIGATION

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Semir	Mahmutovic	54	SM-1	I live at 504 Brownell Rd Williston. The F-35s go over my house and scare my daughter; it wasn't like this with the old planes. How do we get the house sound proofed?	If a recommended measure, such as land acquisition, sound insulation, sales assistance or purchase assurance is approved and implemented, a program will be developed. Eligibility and participation requirements will be available to homeowners after the establishment of a program. Program representatives will contact all potentially eligible homeowners.
Cara	Montague	56	CMO-1A	I have great concern that the Noise Mitigation Program will not provide adequate protection to children, grown-ups or animals that live in the 65 dB zone and higher. The time frame for grant applications and awards leaves many hundreds of people vulnerable for years while they are waiting for work to be done.	Thank you for your comment.
Sheila	Quenneville	61	SQ-1	Concerned about noise impact on children. How to mitigate noise while outdoors?	There is currently no mitigation measures planned which would affect outdoor noise levels.
Peter	Schubart	69	PS-1A	The noise mitigation plan in place is totally insufficient with regard to the military jet noise. The noise will affect civilians by next year but the grant-based process will take many years to be fully-implemented.	Thank you for your comment.
Ian	Stokes	71	IS-1	I urge the City of Burlington and The Jones Payne Group to examine all aspects of noise compatibility at BTV, including the implications and impact of noise levels on people walking or traveling on bikes on roads near the runway.	This study evaluated the noise impact on residential properties and special use facilities (e.g. schools) surrounding the airport.

## PUBLIC COMMENTS RELATED TO NOISE MITIGATION

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Joan	Swan	73	JS-2	Where do I find the eligibility requirements for the Sound Insulation program?	If the sound insulation measure is approved, funded and implemented, a program will be developed. Eligibility and participation requirements will be provided to homeowners after the establishment of a program. Program representatives will contact all potentially eligible homeowners.
Judith	Yarnall	77	JY-1B	I am also concerned with failure to implement stated; desired changes to better sound insulate homes.	Thank you for your comment.
Terry	Zigmund	78	TZ-1B	My home is excluded from the sound mitigation program based on its location but I will still be subjected to the noise from the military jets. Additionally, sound proofing my home does nothing to help me when I am outside.	The FAA does not provide funds for noise mitigation outside the 65 dB DNL contour. Sound insulation is only effective at mitigating aircraft noise when indoors.
N/A	N/A	80	CC-2	I'd like more information pertaining to timeline of selling my home & information on how the FMV is assessed & if the airport will work with realtors.	If a recommended measure, such as sound insulation, sales assistance or purchase assurance is approved and implemented, a program will be developed. Information on eligibility requirements and the participation process will be provided to homeowners after the establishment of a program. Program representatives will contact all potentially eligible homeowners.



## PUBLIC COMMENTS RELATED TO NOISE MITIGATION

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
N/A	N/A	81	CC-3	Please provide a sign-up for information/news to be sent via email. Include status updates, how to sign-up for sound mitigation, etc.	If a recommended measure, such as land acquisition, sound insulation, sales assistance or purchase assurance is approved and implemented, a program will be developed which will include homeowner outreach. Program representatives will contact all potentially eligible homeowners.
Judy	Galloway	Transcript	TR-2	Please provide a description of the noise mitigation plan. When will it begin? How will the programs work? How long will it take to complete? Can I sell my home? How do the grants work? Who will provide sales assistance and purchase assistance. Will I get the estimated property value of my home?	Upon approval of the NCP by the FAA, the City will apply for grant funds to begin noise mitigation program. The City will be developing a noise mitigation plan that outline the program's schedule, funding and priorities. This plan is estimated to be completed in the next 6 months. If a recommended measure, such as land acquisition, sound insulation, sales assistance or purchase assurance is approved and implemented, a program will be developed which will include homeowner outreach. Program representatives will contact all potentially eligible homeowners.
Bruce	Bevins	Transcript	TR-7	I hope the FAA and the Air Force will do right by all the neighbors around the airport. I think the cart got before the horse on this one since it will be many years of mitigation with the F-35's here.	Thank you for your comment.

## PUBLIC COMMENTS RELATED TO NOISE MONITORING

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
John	Ames	3	JA-1	I understand that the FAA granted funds to Logan and Bradley Airports for noise monitoring, and that the 2008 NCP included such a recommendation but the airport did not apply for a grant. I strongly request that the airport immediately apply for FAA noise monitoring & tracking grants to measure F-35 noise on airport grounds and throughout the residential areas identified by the Air Force and the NCP.	Part 150 is a voluntary program. Implementation is based upon the availability of the Airport staff to oversee projects as well as having the ability to provide the 10% project cost needed to secure an FAA Airport Improvement Program grant. Given the limited resources of the Airport, not all projects could be funded. The current recommendation is to purchase an integrated flight track and noise monitoring system which will provide constant noise and flight tracking data that is correlated to each other. It should be noted that radar data for military aircraft is not publicly releasable. As such, any publicly accessible flight tracking system would omit flight path data for most military aircraft operations.
Eileen	Andreoli	4	EA-1B	We know that the FAA will provide grants for permanent noise monitoring systems. What is the Airport's responsibility to provide these systems? How can the Airport repeatedly qualify for FAA funds when it does not fulfill the recommendations approved by the FAA to provide clear information to prospective homebuyers about the noise impact zones?	Part 150 is a voluntary program. Implementation is based upon the availability of the Airport staff to oversee projects as well as having the ability to provide the 10% project cost needed to secure an FAA Airport Improvement Program grant. Given the limited resources of the Airport, not all projects could be funded. The current recommendation is to purchase an integrated flight track and noise monitoring system which will provide constant noise and flight tracking data that is correlated to each other. It should be noted that radar data for military aircraft is not publicly releasable. As such, any publicly accessible flight tracking system would omit flight path data for most military aircraft operations.

## PUBLIC COMMENTS RELATED TO NOISE MONITORING

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Doris	Bedinger	7	DB-2B	What aren't we learning from not having noise monitoring at BTV?	Part 150 is a voluntary program. Implementation is based upon the availability of the Airport staff to oversee projects as well as having the ability to provide the 10% project cost needed to secure an FAA Airport Improvement Program grant. Given the limited resources of the Airport, not all projects could be funded. The current recommendation is to purchase an integrated flight track and noise monitoring system which will provide constant noise and flight tracking data that is correlated to each other. It should be noted that radar data for military aircraft is not publicly releasable. As such, any publicly accessible flight tracking system would omit flight path data for most military aircraft operations.
Jennifer	Decker	19	JD-1C	Has the City of Burlington been negligent in not following Health Department recommendations around noise monitoring? Who is responsible for the negligence? When will sound monitoring be implemented? How can residents at various locations be assured of the accuracy of sound monitoring?	Part 150 is a voluntary program. Implementation is based upon the availability of the Airport staff to oversee projects as well as having the ability to provide the 10% project cost needed to secure an FAA Airport Improvement Program grant. Given the limited resources of the Airport, not all projects could be funded. The current recommendation is to purchase an integrated flight track and noise monitoring system which will provide constant noise and flight tracking data that is correlated to each other. It should be noted that radar data for military aircraft is not publicly releasable. As such, any publicly accessible flight tracking system would omit flight path data for most military aircraft operations.

## PUBLIC COMMENTS RELATED TO NOISE MONITORING

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Kai	Mikkel Forlie	24	KF-1	I urge you and your staff to immediately apply for FAA noise monitoring and tracking grants in order to measure F-35 noise on airport grounds and throughout the residential areas identified by the Air Force and the Noise Compatibility Program.	Part 150 is a voluntary program. Implementation is based upon the availability of the Airport staff to oversee projects as well as having the ability to provide the 10% project cost needed to secure an FAA Airport Improvement Program grant. Given the limited resources of the Airport, not all projects could be funded. The current recommendation is to purchase an integrated flight track and noise monitoring system which will provide constant noise and flight tracking data that is correlated to each other. It should be noted that radar data for military aircraft is not publicly releasable. As such, any publicly accessible flight tracking system would omit flight path data for most military aircraft operations.
Kai	Mikkel Forlie	25	KF-2	The 2019 NCP does not do enough to protect residents. Low-income neighborhoods are threatened with unsafe noise levels and declining property values. The possible hearing loss needs to be analyzed.	Health, economic and safety effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health, economic and safety effects.



## PUBLIC COMMENTS RELATED TO NOISE MONITORING

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
James	Leas	41	JL-1	Why did the Airport not apply for an FAA grant when it was recommended in the 2008 NCP? Will the airport director commit to applying for the available FAA grant for monitoring and tracking the F-35 noise?	Part 150 is a voluntary program. Implementation is based upon the availability of the Airport staff to oversee projects as well as having the ability to provide the 10% project cost needed to secure an FAA Airport Improvement Program grant. Given the limited resources of the Airport, not all projects could be funded. The current recommendation is to purchase an integrated flight track and noise monitoring system which will provide constant noise and flight tracking data that is correlated to each other. It should be noted that radar data for military aircraft is not publicly releasable. As such, any publicly accessible flight tracking system would omit flight path data for most military aircraft operations.
Cara	Montague	56	CMO-1C	I would also like there to be continued on-site monitoring of the sound levels of the planes, especially at the Chamberlin School in South Burlington and the Winooski School in Winooski.	Part 150 is a voluntary program. Implementation is based upon the availability of the Airport staff to oversee projects as well as having the ability to provide the 10% project cost needed to secure an FAA Airport Improvement Program grant. Given the limited resources of the Airport, not all projects could be funded. The current recommendation is to purchase an integrated flight track and noise monitoring system which will provide constant noise and flight tracking data that is correlated to each other. It should be noted that radar data for military aircraft is not publicly releasable. As such, any publicly accessible flight tracking system would omit flight path data for most military aircraft operations.

## PUBLIC COMMENTS RELATED TO NOISE MONITORING

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Karl	Novak	58	KN-1A	2019 Draft NCP omits the Technical Advisory Committee's recommendation to purchase a noise monitoring system.	Part 150 is a voluntary program. Implementation is based upon the availability of the Airport staff to oversee projects as well as having the ability to provide the 10% project cost needed to secure an FAA Airport Improvement Program grant. Given the limited resources of the Airport, not all projects could be funded. The current recommendation is to purchase an integrated flight track and noise monitoring system which will provide constant noise and flight tracking data that is correlated to each other. It should be noted that radar data for military aircraft is not publicly releasable. As such, any publicly accessible flight tracking system would omit flight path data for most military aircraft operations.
Joanna	Rankin	62	JR-1	I demand that the City of Burlington take immediate steps to install a noise monitoring system, and that this installation not wait for FAA funding.	Part 150 is a voluntary program. Implementation is based upon the availability of the Airport staff to oversee projects as well as having the ability to provide the 10% project cost needed to secure an FAA Airport Improvement Program grant. Given the limited resources of the Airport, not all projects could be funded. The current recommendation is to purchase an integrated flight track and noise monitoring system which will provide constant noise and flight tracking data that is correlated to each other. It should be noted that radar data for military aircraft is not publicly releasable. As such, any publicly accessible flight tracking system would omit flight path data for most military aircraft operations.

## PUBLIC COMMENTS RELATED TO NOISE MONITORING

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Joanna	Rankin	63	JR-2C	Noise monitoring is the only means by which we can know the full health effects of the F-35. It is relatively cheap and was recommended both in earlier draft NCPs and the 2012 VT Dept of Health Study. No action has been taken despite potential FAA grants.	Part 150 is a voluntary program. Implementation is based upon the availability of the Airport staff to oversee projects as well as having the ability to provide the 10% project cost needed to secure an FAA Airport Improvement Program grant. Given the limited resources of the Airport, not all projects could be funded. The current recommendation is to purchase an integrated flight track and noise monitoring system which will provide constant noise and flight tracking data that is correlated to each other. It should be noted that radar data for military aircraft is not publicly releasable. As such, any publicly accessible flight tracking system would omit flight path data for most military aircraft operations.
Marguerite	Adelman	Transcript	TR-8	I would like the airport to request some noise monitoring as soon as possible	Part 150 is a voluntary program. Implementation is based upon the availability of the Airport staff to oversee projects as well as having the ability to provide the 10% project cost needed to secure an FAA Airport Improvement Program grant. Given the limited resources of the Airport, not all projects could be funded. The current recommendation is to purchase an integrated flight track and noise monitoring system which will provide constant noise and flight tracking data that is correlated to each other. It should be noted that radar data for military aircraft is not publicly releasable. As such, any publicly accessible flight tracking system would omit flight path data for most military aircraft operations.

## PUBLIC COMMENTS RELATED TO OTHER TOPICS

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Eileen	Andreoli	4	EA-1A	The Airport has refused to develop a real estate noise disclosure form. It is a conflict of interest for the Airport and Airport Director not to warn people prior to purchasing homes. What liabilities does the Airport have in this matter, and what is the process to hold the Airport accountable for decades of fraudulent home purchases?	The Northwest Vermont Board of Realtors encourages its realtors to execute an Airport Noise Disclosure for the Burlington, Vermont International Airport for sales near Burlington International Airport.
Doris	Bedinger	7	DB-2A	Public comments are happening during cold weather, with only 2 planes at the airport, before people have had first hand experience of the afterburner. This is suspicious & negligent.	The Airport has committed with the Vermont National Guard to conduct a joint NEM update one year after the operation of the F-35 (estimated 2021).
Mary	Fillmore	21	MF-1B	The current NCP has only accomplished one of its 15 goals - how can citizens be confident this plan will have better results?	The Airport has conducted the Part 150 Update as part of its commitment to address noise impacts on the surrounding community. While the Airport's previous mitigation measures focused primarily on land acquisition due to limited funding, the Airport is committed to implement additional recommended measures such as sound insulation. All projects will be dependent upon availability of FAA grant funding and the Airport's 10% contribution.
Jane	Hendley	28	JH-1C	There is not enough oversight of the military because of the money involved.	Thank you for your comment.
Peter	Schubart	69	PS-1C	The City of Burlington is violating the rights of the its citizens by supporting the F-35s.	Thank you for your comment.
Mr.	Forlie	Transcript	TR-9	I think our elected officials should represent all of us. I am concerned about the level of noise when all the F-35s are here.	Thank you for your comment.



## PUBLIC COMMENTS RELATED TO NOISE MONITORING

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Joan	Swan	72	JS-1	I own property inside the 2023 70 db DNL zone. Please send me notifications of all future public meetings & presentations. And information on how to submit application to the various voluntary programs, ie, Sound Insulation.	If a recommended measure, such as land acquisition, sound insulation, sales assistance or purchase assurance is approved and implemented, a program will be developed which will include homeowner outreach. Program representatives will contact all potentially eligible homeowners.
Judy	Galloway	Transcript	TR-5	When wil the memorandums of understanding with the various cities be done? Where and when can I see these MOUs?	The City of Burlington is working with City of South Burlington and the City of Winooski to develop a memorandum of understanding.

## PUBLIC COMMENTS RELATED TONOISE MITIGATION FOR SCHOOLS

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Nancy	Hellen	27	NH-1A	Children who are deregulated by loud noise are definitely affected and take time to get back to a baseline. The learning of all children needs to be at the forefront of the F-35 debate, with focus on noise intrusion and long term consequences.	Health effects were not evaluated as part of this study. Please refer to the USAF F-35A Operational Basing EIS ( <a href="https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html">https://www.documentcloud.org/documents/799815-f-35-final-eis-volume-1.html</a> ) for available information on health effects.
Nancy	Hellen	27	NH-1B	The communities most impacted are mostly marginalized communities. The government, including our legislators, is overlooking the inequities of basing the f-35s in Burlington. Vermont needs to support a healthy environment for all families and schools.	Economic impacts were not evaluated as part of this study.
Judy	Galloway	Transcript	TR-3	Will my taxes go up if my schools need more soundproofing?	The City is working with the local towns to determine who will provide the grant matching funds for the sound insulation of schools.

## PUBLIC COMMENTS RELATED TO GRANT FUNDING

First Name	Last Name	Appendix Document Number	Comment ID	Paraphrased Comment	Response
Zack	Flaherty	22	ZF-1	Do municipalities have to pay 10% to match grants?	The Airport, owned by the City of Burlington is required to provide 10% of each FAA's Airport Improvement Program grant. Other municipalities are not required to provide funding.
Robin	Lloyd	51	RL-1	To resolve the question about the impact of F35 noise upon takeoff and landing, I request that the airport immediately apply for FAA noise monitoring and tracking grants to measure F-35 noise on airport grounds and throughout the residential areas identified by the Air Force and the Noise Compatibility Program.	The use of an operations and flight tracking system is included as a recommended measure of the NCP. Additionally, the Airport has committed with the Vermont National Guard to conduct a joint NEM update one year after the operation of the F-35 (estimated 2021).
Tony	Redington	65	TR-1	I strongly request that the airport immediately apply for FAA noise monitoring and tracking grants to measure F-35 noise on airport grounds and throughout the residential areas identified by the Air Force and the Noise Compatibility Program.	The use of an operations and flight tracking system is included as a recommended measure of the NCP. Additionally, the Airport has committed with the Vermont National Guard to conduct a joint NEM update one year after the operation of the F-35 (estimated 2021).
Judy	Galloway	Transcript	TR-4	Does Burlington need to apply for a grant every year? Is the funding dependent upon Congress?	Yes, the Airport applies for grants on an annual basis. Fund is contingent upon Congress authorizing the Department of Transportation budget.