

## **RECORD OF APPROVAL**

### **Burlington International Airport, South Burlington VT**

#### **14 CFR Part 150 Noise Compatibility Program**

#### **INTRODUCTION**

The Burlington International Airport sponsored an Airport Noise Compatibility Planning Study under a Federal Aviation Administration (FAA) grant, in compliance with Federal Aviation Regulation, Part 150. Burlington produced a report entitled "Burlington International Airport, 14 CFR Part 150 Update, Noise Compatibility Program Update". The Noise Compatibility Program (NCP) was submitted to FAA for review and approval on April 6, 2020. The Noise Exposure Maps were determined to be in compliance on September 26, 2019. That determination was announced in the Federal Register on October 10, 2019.

The study focused on addressing the increased noise of the F-35 aircraft now based at BTV. The 2012 Department of Defense EIS indicated the maximum noise level generated by the F-35 aircraft (115dBA Lmax at 1,000ft AGL) is approximately 21 decibels louder than the F-16 aircraft (94dBA Lmax at 1,000ft AGL). See Table BR3.2-1, EIS dated March 2012. This considerable increase in noise will triple the number of homes located in the 65DNL noise contour, to over 2,600 homes.

To address this noise increase, the City of Burlington proposes to shift from land acquisition to sound insulation as its primary noise mitigation measure. It will also offer Purchase Assurance and Sales Assistance programs, which will help homeowners in the affected area. Sound insulation does allow the available funding to address more homes, but it does not remove the homes (and relocate the residents) from the noise-affected areas. Sound insulation is not a panacea. It is only useful when residents are indoors, with the windows closed.

After acoustical testing of homes, many of these may be eligible for sound insulation, which could be funded by the FAA. FAA grants require a local share, in this case 10% of the total cost of each grant. As a small hub airport, it will be very difficult for Burlington International Airport to generate sufficient revenue to fund a program of this size. Federal budget rules do not currently allow the Department of Defense to provide any portion of the local share for an FAA grant. Understandably, the local municipalities are resistant to funding the local share. Due to the number of homes inside the 65DNL noise contour, it could take decades for all the eligible homes to be sound insulated by the City of Burlington.

The City of Burlington and the host community South Burlington, have chosen sound insulation over acquisition as their preferred noise mitigation measure. This was done to preserve the affordable housing around the airport. This creates an unfortunate conflict between two public interests: affordable housing and compatible land use. Based on federal standards, noise levels of 65DNL are not compatible with residential land use. Installation of sound insulation technically makes the homes "compatible" with these noise levels, but it does not meet the needs of all homeowners in all situations. The FAA can assist in balancing these two interests by funding eligible noise mitigation. But this conflict can only be lessened, it cannot be eliminated. The FAA continues to recommend acquisition, as opposed to sound insulation, for noise mitigation in areas of 70DNL noise and higher.

One source of noise mitigation funding that has yet to be tapped is local aviation fuel taxes collected by South Burlington, which now total over \$180,000. We recommend South Burlington and Burlington work jointly to consider an appropriate use of this ongoing source of revenue. One possible use would be to help fund the annual operating cost of a noise monitoring system, which is now under consideration. The FAA is prohibited from funding ongoing operational costs.

The approvals listed herein include approvals of actions that the airport recommends be taken. It should be noted that these approvals indicate only that the actions would, if implemented, be consistent with the purposes of Part 150. These approvals do not constitute decisions to implement the actions. Later decisions concerning possible implementation of these actions may be subject to applicable environmental or other procedures or requirements. Approval does not constitute a commitment by the FAA to financially assist in the implementation of the program nor a determination that all measures covered by the program are eligible for grant-in-aid funding from the FAA. Eligibility for federal funding of measures that are determined in this Record of Approval to meet the approval criteria of 14 CFR Part 150 will be determined at the time the FAA receives an application for funding, using the criteria in the most current version of FAA Order 5100.38, Airport Improvement Program Handbook.

The program measures below summarize as closely as possible the airport operator's recommendations in the noise compatibility program and are cross-referenced to the program with page numbers that follow the title of each measure. The statements contained within the summarized program measures and before the indicated FAA approval, disapproval, or other determination, do not represent the opinions or decisions of the FAA.

## **EXISTING NOISE COMPATIBILITY PROGRAM**

The prior NCP was developed in the original (1987-1990) Part 150 study and revised in 2008. It includes a mix of operational, implementation, and land use elements. This NCP and Record of Approval provide a summary of the entire program to provide context. All measures previously approved remain in effect, unless specifically modified by an NCP Update and subsequently approved by a Record of Approval (ROA).

### **Airport Operations Measures**

#### **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 (2008 ROA measure #8).

#### **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).

### **Land Use Measures**

Most of the following land use measures rely on an accurate Noise Exposure Map. The 2023 NEM is the preferred map for land use planning, as it reflects a full complement of F-35 aircraft.

#### **Land Acquisition and Relocation**

Non-compatible land use includes residences within the 65 dB DNL contour in the 1997, 2006, and 2015 NEM. Eligible property owners will be paid fair market value for their property, 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 (2008 ROA measure 10).

#### **Sound Insulation**

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

#### **Easement Acquisition Related to Soundproofing**

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

#### **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).

**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).

**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).

## **RECOMMENDED NOISE COMPATIBILITY PROGRAM**

This NCP update includes new mitigation measures, and modifications to existing measures. The City of Burlington, and the City of South Burlington, prefer the local surrounding residential areas to remain a source of affordable housing. This decision results in a shift in the NCP from land acquisition to sound insulation.

The approval of the 2020 NCP update by the FAA is not a commitment to fund or implement these measures. This information is provided here as a planning tool to assist in the implementation of the NCP. Implementation of the recommended measures is at the discretion of the City of Burlington and subject to available funding from both the FAA and the City.

### **Airport Operational Measures**

#### **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).

Costs: The estimated cost for a future NEM/NCP update is \$500,000 to \$1,000,000.

Schedule: As required by existing regulations, the NEM and/or NCP documents are to be updated when necessitated by operational changes resulting in a change in noise levels. The Airport is committed with the Vermont Air National Guard to a joint NEM update 1-2 years after Full Operational Capability (FOC) of the F35A aircraft is attained. This update is anticipated to be funded in late 2021-2022.

*FAA Action: Approved.*

#### **2. Noise and Flight Track Monitoring**

This measure recommends the implementation of a system to perform noise monitoring and flight track analysis of radar data, on an ongoing basis. This was a measure contained in the 2008 ROA, Monitoring and Review Elements, measure #9. This measure has been updated to more clearly indicate it includes both noise monitoring and flight tracking. Previously, noise monitoring was included in measure #1. The system will be designed to make the information available to the general public.

Costs: The estimated cost for an extensive noise monitoring and flight tracking system is \$500,000 to \$1,000,000. A smaller system would cost less, and could be expanded over time. Annual operating costs are not eligible for FAA funding.

Schedule: The City can purchase and install the system upon approval of the measure and availability of funding.

*FAA Action: Approved, as may be limited by Part 150 and FAA funding guidance.*

## **Land Use Measures**

### **3. Land Acquisition and Relocation**

The City of Burlington, Vermont (the “City”) proposes to modify the existing Land Acquisition and Relocation Program to limit the eligibility to parcels where the majority of the non-compatible parcel is located within the 75 dB DNL contour.

As with the current NCP, this program is voluntary. Eligible property owners will be paid for their property at Fair Market Value, and provided relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the “Uniform Act”) and implementing Department of Transportation (DOT) regulation.

The City proposes to modify the existing Land Acquisition and Relocation Program to limit eligibility to parcels where the majority of the non-compatible parcel is located within the 75 dB DNL contour. This is to preserve neighborhood continuity where terrain modeling resulted in small 75 DNL “pockets”. The City recognizes that future NEM updates may shift these 75 DNL “pockets” to other areas in the neighborhood.

This will be a revision to the 2008 ROA Land Use measure #10, which included mobile homes within the 65 DNL contour and residence within the 70 DNL contour. The City, along with input from the City of South Burlington, has requested this measure be modified to apply only to the 75 DNL and higher contours.

Costs: There are 10 residential properties located within the 2023 75 DNL contour. There is an average cost of \$339,000 per unit for acquisition and relocation; the total cost to implement this measure if all units participated would be \$3,390,000.<sup>1</sup>

Schedule: This measure could be implemented upon approval and the availability of funding. It should be noted that five parcels have been included in prior phases of this program and the property owners have declined participation.

*FAA Action: Approved, with the understanding that the FAA preference would be acquisition and relocation in areas experiencing noise levels 70DNL and above.*

### **4. Sound Insulation of Residential Structures**

Qualified incompatible residential land uses within the 65 and up to the 75 dB DNL contours, and residential land use located partially within the 75 dB DNL noise contours where a majority of the parcel (and all of the structure) 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 provide a minimum reduction of 5 dB from the existing interior noise level in accordance with FAA guidelines.<sup>2</sup>

This will be a revision to the 1990 ROA Land Use measure #11. The previous NCP contains an approval for “sound proofing” for residences in the 65 DNL and 70 DNL noise contour. This measure seeks to clarify that properties which touch the 75 DNL due to AEDT modeling settings would be treated as 70 DNL. The City recognizes these parcels are not contiguous to the

---

<sup>1</sup> Estimated cost is based upon the average of the 2017 property purchases by Burlington International Airport.

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

existing acquisition area and acquisition could create an adverse impact on the surrounding neighborhood.

Costs: There are approximately 2,627 residential units that are located within the 2023 NEM 65 and 70 DNL contours. There are 878 single family units and 1,749 multi-family units. The estimated average cost to provide sound insulation is \$45,000 per unit for single family homes located in the 65 to 70 DNL and \$50,000 per unit for homes located in the 70 to 75 DNL. The estimate cost for multi-family buildings is \$25,000 per unit for located in the 65 to 70 DNL and \$30,000 per unit for homes located in the 70 to 75 DNL. The total cost to implement this measure if all units participated would be \$84,650,000.<sup>3</sup>

Schedule: This measure could be implemented upon approval and the availability of funding.

*FAA Action: Approved, with the understanding that sound insulation is more difficult and expensive at these higher noise levels.*

## **5. Sound Insulation of Noise Sensitive Buildings**

Qualified incompatible non-residential land uses (schools, hospitals, places of worship) within the 65 and up to the 75 dB DNL contours 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 provide a minimum reduction of 5 dB from the existing interior noise level in accordance with FAA guidelines. This measure was included in the 1990 ROA, Land Use measure #11.

Costs: There are approximately 24 noise sensitive buildings, including places of worship, learning centers, and care centers, located within the 65 and 70 DNL contours. Costs for these parcels have not been developed.

Schedule: This measure could be implemented upon approval and the availability of funding.

*FAA Action: Approved.*

## **6. Purchase Assurance for Single Family Parcels**

Qualified incompatible owner occupied single family parcels within the 65 DNL up to the 75 DNL contours would be included in a purchase assurance program. The City would acquire the home (with their own funds) in exchange for an avigation easement, provide sound insulation and resell the home on the open market for fair market value. Proceeds from the sale of the home would be utilized to fund further noise mitigation programs. This measure pertains to 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). An avigation easement will be required.

Costs: There are 878 single family units located within the 65 DNL up to the 75 DNL contours. The estimated average cost is \$341,000 per parcel. (This includes \$296,000 to acquire a single family home plus \$45,000 for an acoustical treatment package). The total cost to implement this measure if all units participated would be approximately \$60,000,000.<sup>4</sup>

Schedule: This measure could be implemented upon approval and the availability of funding.

*FAA Action: Approved. Income from this program would, for FAA compliance purposes, be considered "program income" and be used to offset program costs.*

<sup>3</sup> Estimated cost is based upon 2017 costs from other New England Region sound insulation programs.

<sup>4</sup> Estimated cost is based upon 2017 costs from other New England Region sound insulation program.

## **7. Sales Assistance for Single Family Parcels**

Qualified incompatible owner occupied single family parcels within the 65 DNL up to the 75 DNL contours and not eligible for sound insulation would be included in a sales assistance program. In exchange for an avigation easement, the City would provide an incentive to assure homeowners receive 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<sup>5</sup> (49 USC § 47502, as implemented by Table 1 of Appendix A in 14 CFR part 150). An avigation easement will be required.

Costs: There are 878 single family units located within the 65 and 70 DNL contours. The estimated maximum differential payment would be 5% of the average home cost for a single family home would be \$14,800<sup>6</sup>. The total cost to implement this measure if all units participated would be \$12,994,400.<sup>7</sup>

*FAA Action: Approved, with the understanding that FAA participation is intended to help offset the difference between fair market value and the sale price of noise-affected properties on the open market. This is not expected to exceed the cost of avigation easements on eligible properties.*

## **8. Purchase of Avigation Easement for Noise – Measure to be Removed**

The acquisition of an avigation easement for new development within the 65, 70 and 75 DNL contours. This was a measure contained in the 1990 ROA, Land Use measure #14.

*FAA Action: Approved for removal.*

## **9. Noise Barrier Analysis – Measure Not Recommended for Implementation**

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.

A significant constraint limiting the effectiveness of barriers at airports is the requirement to limit the height of obstacle. This limits the ability to build a barrier both high enough and close enough to the runway that is effective in blocking takeoff roll and landing roll noise. 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 a high wall built adjacent to residences, providing acoustic blockage, which may result in visual or aesthetic intrusion to these residents.

In accordance with Appendix R “Noise Compatibility Planning/Projects” of the Federal Aviation Administration (FAA) Order 5100.38D Airport Improvement Program Handbook<sup>8</sup> (AIP Handbook), a noise barrier must be able to reduce aircraft noise levels by at least 5 dB.<sup>9</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 not maintain eligibility for

---

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

<sup>6</sup> Estimated cost is based upon the average single family residence purchased by Burlington International Airport is \$296,000.

<sup>7</sup> Estimated cost is based upon 2017 costs from other New England Region sound insulation programs.

<sup>8</sup> FAA Order 5100.38D “Airport Improvement Program Handbook”, Appendix R “Noise Compatibility Planning/Projects”, effective date February 26, 2019.

<sup>9</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.”

other mitigation measures such as sound insulation or acquisition. This was a measure analyzed in the 2008 NCP Update and not recommended for implementation.

*FAA Action: Approved for removal.*

---

Julie Seltsam, Deputy Director, ANE-600  
Airports Division, New England Region