4 Noise Compatibility Program

The culmination of the Title 14 Code of Federal Regulations (14 CFR) Part 150 Study planning process is the development of a set of measures designed to enhance the compatibility between an airport and its surrounding environs. This chapter presents new measures that are being recommended for implementation. Recommended measures for Duluth International Airport (DLH) may also include previous measures being continued with modification. Collectively, these measures are referred to as the 2021 Noise Compatibility Program (NCP). These measures include mitigation and program management measures designed to reduce or mitigate the impact of aircraft noise upon the surrounding community and enhance the administration of the overall program. The measures recommended for implementation at DLH have resulted from the planning process described throughout this document.

Appendix E, *Noise Abatement Alternatives* and **Appendix F, *Land Use Alternatives***, includes a list of all alternatives assessed for potential inclusion in this NCP update. **Appendix G, *Public Involvement*** contains a discussion of the public consultation process that was conducted for this 2021 NCP update.

The NCP for DLH was originally developed in 1997. The 1997 NCP included five (5) abatement measures. Of those five (5) abatement measures that were recommended for implementation in 1997, only three (3) were considered to be implemented. Two (2) of the measures (A-1 & A-2) are actually program management measures and will be discussed in a separate section. Two (2) of the measures were implemented but would only benefit areas outsides the 65 DNL and are not considered further. A further eight (8) measures were analyzed, however no measures are recommended to move forward in the 2021 NCP.

The previous NCP included two (2) mitigation measures. One (1) measure was not implemented and is recommended to be continued with modification in this NCP. The other measure was assumed to be implemented as part of the DLH Airport Land Use Plan and is not considered further. In total, eleven (11) measures were analyzed and ten (10) are recommended to move forward in the 2021 NCP.

The 1997 NCP included two (2) program management measures that were actually included under the 1997 NCP abatement measures. These two (2) measures are recommended to move forward with modifications. Two (2) new additional measures were analyzed and one (1) measure was recommended to move forward in the 2021 NCP update for a total of three (3) recommended program management measures.

In total for this 2021 NCP update, there are zero (0) abatement measures, ten (10) mitigation measures, and three (3) program management measures that were recommended for inclusion in the DLH 2021 NCP.

4.1 Noise Compatibility Program Map

Through the previous Part 150 Study, DLH has developed and implemented several abatement measures that minimize noise impacts as much as possible without placing undue restrictions on operations at the airport. This Part 150 Study update reviewed these abatement measures and determined the currently implemented measures reduce noise to the fullest extent possible. In addition, potential new abatement measures were assessed.

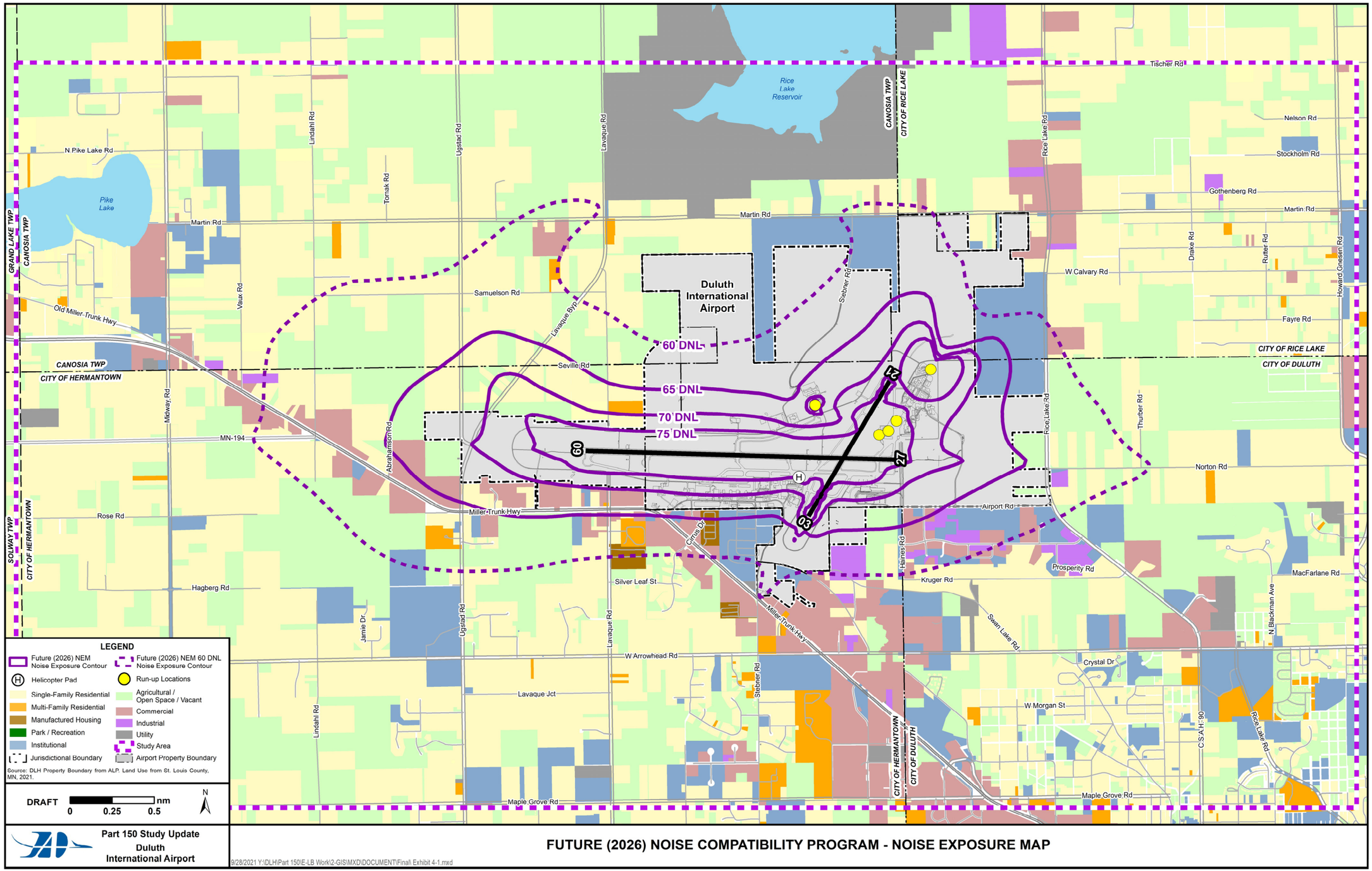
Following careful analysis, no new or modified abatement measures are recommended. The full noise abatement analysis is included in **Appendix E, *Noise Abatement Alternatives.*** As a result, the Future (2026) Noise Exposure Map (NEM) noise contour is the same as the Future (2026) Baseline noise exposure contours.

Since there are no new or modified abatement measures that would affect the operating conditions at DLH, implementation of the recommended NCP measures would not have any effect on the 65 DNL noise exposure contour compared to the Future (2026) Baseline noise exposure contour. **Exhibit 4-1, *Future (2026) Noise Compatibility Program – Noise Exposure Map,*** constitutes the noise contours shown on the official NEM for the year 2026.

Table 4-1, *Future (2026) NEM Land Use Incompatibilities*, presents the noise impacts for the Future (2026) NEM. There are 150 total housing units and an estimated 290 residents located within the 65+ DNL (NMPA #1) of the Future (2026) NEM noise contour. Of those 150 housing units, 45 units are single-family units, 2 are multi-family units, and 103 are manufactured housing (mobile homes) including 102 in the Birchwood Mobile Estates. The 47 single- and multi-family housing units are potentially eligible for either sound-insulation (within 65+ DNL) or land acquisition (within 70+ DNL only) in this 2021 NCP update. If any of the single- or multi-family residences decline sound-insulation or acquisition, avigation easements will be offered. One (1) mobile home is eligible for land acquisition. If they decline, an avigation easement will be offered. The 102 units in the Birchwood Mobile Estates would be eligible for land acquisition only.

There are no schools, places of worship, hospitals, nursing homes or any other noise-sensitive public facilities located within the 65+ DNL of the Future (2026) NEM.

Exhibit 4-1 Future (2026) Noise Compatibility Program – Noise Exposure Map



Source: Landrum & Brown analysis, 2021.

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Table 4-1 Future (2026) NEM Land Use Incompatibilities

Jurisdiction	60 - 65 DNL	65 - 70 DNL	70 - 75 DNL	75+ DNL	65+ DNL
Housing Units					
Duluth	11	0	0	0	0
Hermantown	316	64	7	0	71
Rice Lake	5	0	0	0	0
Canosia	71	9	0	0	9
Total Housing Units	403	73	7	0	80
Population					
Duluth	25	0	0	0	0
Hermantown	583	123	14	0	137
Rice Lake	12	0	0	0	0
Canosia	169	22	0	0	22
Total Population	789	145	14	0	159
Noise-Sensitive Facilities					
Churches/Places of Worship	2	0	0	0	0
Schools/Educational Facilities	0	0	0	0	0
Libraries	0	0	0	0	0
Hospitals	0	0	0	0	0
Nursing Homes	0	0	0	0	0

Notes: *In accordance with 14 CFR Part 150 Land Use Compatibility Guidelines, all land uses are compatible with noise levels below 65 DNL. The counts of land uses within the 60-65 DNL noise contour are shown for informational purposes only.
*Noise contours were generated using the FAA's AEDT, Version 3b computer model.
*Housing counts are based on field verification and Saint Louis County Assessors data: https://www.stlouiscountymn.gov/departments-a-z/assessor/property-information
*Population numbers are estimated based on the housing counts multiplied by the average household size from the 2000 Census.
Source: Landrum & Brown analysis, 2021.

4.2 Noise Compatibility Program Measures

The NCP measures recommend for implementation for DLH have resulted from the planning process described throughout this document. **Appendix E, *Noise Abatement Alternatives*** and **Appendix F, *Land Use Alternatives***, includes a list of all alternatives assessed for this NCP update. **Appendix G, *Public Involvement*** contains meeting materials and summaries of the Public Advisory Committee (PAC) meetings, public information meetings and focus group meetings with each jurisdiction that included discussion of NCP measures.

The NCP measures are presented as a series of "plates" that summarize pertinent information required about each of the measures by 14 CFR Part 150 guidance. This information includes:

- A description and the background and intent of the measure;
- The relationship to the previous (1997) NCP;
- The anticipated effect on land use compatibility;
- The party (or parties) responsible for implementation;
- The steps necessary for implementation, its anticipated cost, and the projected timing for implementation; and
- The effects, if any, to other planning programs and other measures.

Where helpful for clarification, an exhibit associated with the measure is provided. **Table 4-2, *Summary of 2021 Noise Compatibility Program Recommendations*,** summarizes the measures recommended for this 2021 NCP update. To minimize confusion the numbering of the measures are changed from the previously-approved measures from the 1997 NCP. Abatement measures are designated with an "A", mitigation measures with an "M" and program management measures with an "P". Measures within each category are designated as "A", "B", "C", etc., instead of "1", "2", "3", etc. as they were referenced in the 1997 NCP.

Previously-approved measures that are recommended to be continued will require Federal Aviation Administration (FAA) re-approval and are included in the baseline condition. Measures that are recommended to not be carried forward in this NCP update require no further FAA action. More detailed information regarding each measure is included in the pages following **Table 4-2**. Measures that are complete, or not being carried forward, are identified in **Appendix E** and **Appendix F**, and are not included in this section.

Following the plates for individual program measures is an exhibit showing the NCP map which incorporates each of the recommended program measures, as well as a description of the population, housing, and noise-sensitive land use impacts associated with its full implementation by the year 2026 (see **Exhibit 4-1, *Future (2026) Noise Compatibility Program - Noise Exposure Map***). As discussed previously, the approval of the 2021 NCP by the FAA does not commit the FAA or the Duluth Airport Authority (DAA) to the costs or the implementation schedule listed in this document. This information is provided here as a planning tool to assist the implementation of the NCP.

Implementation of the corrective land use, and program management measures is at the discretion of the DAA and subject to available funding from both the FAA and DAA. Implementation of the preventive land use measures is solely at the discretion of local governments and other local agencies. All information provided in this document will be made available to the local jurisdictions to include in any future land use planning initiatives at their discretion.

Table 4-2 Summary of 2021 Noise Compatibility Program Recommendations

MEASURE	RESPONSIBLE PARTY	COST TO AIRPORT	COST TO LOCAL GOVERNMENTS	COST TO USERS	IMPLEMENTATION STATUS
RECOMMENDED ABATEMENT MEASURES					
(formerly 1997 NCP Measure A-1) Refer to Program Management Measure P-A: Continue Logging of Noise Complaints	Refer to Program Management Measure P-A				

Table 4-2 Summary of 2021 Noise Compatibility Program Recommendations, (continued)

MEASURE	RESPONSIBLE PARTY	COST TO AIRPORT	COST TO LOCAL GOVERNMENTS	COST TO USERS	IMPLEMENTATION STATUS
RECOMMENDED MITIGATION MEASURES					
(formerly 1997 NCP Measure M-1) Measure M-A: Offer Residential Sound-insulation Program to Single- and Multi-Family Homes (47 units) within the 65+ DNL Noise Contour. Offer Residential Sound-insulation Program to Single-Family Homes (17 units) within the Block Rounding Area Outside of the 65 DNL Noise Contour	DAA	It is estimated 47 homes are located within the 65+ DNL noise contour plus an additional 17 homes in the block rounding area outside the 65 DNL. If 100% of all homes are eligible and participated the cost to insulate all homes is estimated at $4,000,000 which includes all hard costs (construction) and soft costs (administrative) Federal AIP funding likely available (80% FAA share/20% local airport share) *Department of Defense (DOD) mitigation funding potentially available to assist with 20% local share	None	None	This is a measure that was never implemented from the 1997 NCP and should be continued with modification to include all properties identified within the Future (2026) NEM 65+ DNL and the properties identified in the block rounding area outside the Future (2026) NEM 65 DNL. Properties undergoing sound-insulation would have an avigation easement placed on the property and attached to the deed.
Measure M-B: Offer Land Acquisition Program to Single-Family Homes (7 homes) within the 70+ DNL Noise Contour	DAA	It is estimated at $2,450,000 if 100% of homes participated. Federal AIP funding likely available (80% FAA share/20% local airport share) *Department of Defense (DOD) mitigation funding potentially available to assist with 20% local share	Loss of tax base	None	This is a new measure. Property owners that decline acquisition would still be offered sound-insulation. If a property declines both land acquisition and sound-insulation, an avigation easement would be offered on the property and attached to the deed.

Table 4-2 Summary of 2021 Noise Compatibility Program Recommendations, (continued)

MEASURE	RESPONSIBLE PARTY	COST TO AIRPORT	COST TO LOCAL GOVERNMENTS	COST TO USERS	IMPLEMENTATION STATUS
RECOMMENDED MITIGATION MEASURES					
Measure M-C: Offer Land Acquisition Program to Mobile Homes within NMPA #1 (103 mobile homes).	DAA	It is estimated at $11,568,000 depending upon the level of participation. It includes the cost of the 102 mobile homes and loss of income for owner of the mobile home park (cost of mobiles homes and mobile home park), and 1 mobile home property located to the east of Lavaque Bypass Road with in the 65 DNL contour (cost of single mobile home and property). Federal AIP funding likely available (80% FAA share/20% local airport share) *Department of Defense (DOD) mitigation funding potentially available to assist with 20% local share	Loss of tax base	None	This is a new measure. If the single mobile home property east of Lavaque Bypass Road declines land acquisition, an avigation easement would be offered on the property, if the property is owner occupied, and attached to the deed.
Measure M-D: Offer Avigation Easements to Owner-Occupied Single- and Multi-Family Homes within NMPA#1 and NMPA #2 if Acquisition and/or Sound-insulation is Declined.	DAA	The estimated cost of each avigation easement is up to $3,000 per home. Since the final cost of the measure is dependent on the number of property owners that decline acquisition and/or sound-insulation, an estimated overall total was not calculated. Federal AIP funding likely available (80% FAA share/20% local airport share) *Department of Defense (DOD) mitigation funding potentially available to assist with 20% local share	None	None	This is a new measure

*Funding source based on Consolidated Appropriations Act, Division C - Department of Defense Appropriations Act 2021, Title VIII *General Provisions*, Section 8136

Table 4-2 Summary of 2021 Noise Compatibility Program Recommendations, (continued)

MEASURE	RESPONSIBLE PARTY	COST TO AIRPORT	COST TO LOCAL GOVERNMENTS	COST TO USERS	IMPLEMENTATION STATUS
RECOMMENDED MITIGATION MEASURES					
Measure M-E: Offer Avigation Easement to 1 owner-occupied Mobile Home within NMPA #1 if Acquisition is Declined.	DAA	The estimated cost of each avigation easement is up to $3,000 per home. Federal AIP funding likely available (80% FAA share/20% local airport share) *Department of Defense (DOD) mitigation funding potentially available to assist with 20% local share	None	None	This is a new measure
Measure M-F: Offer Avigation Easements to 2 Owner-Occupied Mobile Homes within NMPA #2.	DAA	The estimated cost of the avigation easements is up to $6,000 ($3,000 per each mobile home). Federal AIP funding likely available (80% FAA share/20% local airport share)	None	None	This is a new measure
(formerly 1997 NCP Measure M-1) Measure M-G: Develop an Airport Land Use Management District (ALUMD)	DAA, Cities of Duluth, Hermantown, Rice Lake, Saint Louis County	Minimal costs of up to $50,000	None	None	This is a new measure
Measure M-H: Adopt Updated Subdivision Regulations	DAA, Cities of Duluth, Hermantown, Rice Lake, Saint Louis County	Minimal costs of up to $50,000	Loss of tax base	None	This is a new measure
Measure M-I: Adopt Improved Building Codes	DAA, Cities of Duluth, Hermantown, Rice Lake, Saint Louis County	Minimal costs of up to $50,000	Minimal administrative costs	None	This is a new measure

MEASURE	RESPONSIBLE PARTY	COST TO AIRPORT	COST TO LOCAL GOVERNMENTS	COST TO USERS	IMPLEMENTATION STATUS
Measure M-J: Develop a Voluntary Fair Disclosure Program	Duluth Board of Realtors, Lake Superior Area Realtors, Cities of Duluth, Hermantown, Rice Lake, Saint Louis County	Minimal costs of up to $50,000	Minimal administrative costs	None	This is a new measure

Table 4-2 Summary of 2021 Noise Compatibility Program Recommendations, (continued)

MEASURE	RESPONSIBLE PARTY	COST TO AIRPORT	COST TO LOCAL GOVERNMENTS	COST TO USERS	IMPLEMENTATION STATUS
RECOMMENDED PROGRAM MANAGEMENT MEASURES					
(formerly 1997 NCP Measure A-1) Measure P-A: Continue Logging of Noise Complaints	DAA and Minnesota Air National Guard (MnANG)	Minimal administrative costs to answer telephones and to log noise complaints	None	None	This is a continuation of the existing process with a slight modification to be undertaken by the DAA and MnANG
(formerly 1997 NCP Measure A-2) Measure P-B: Initiate Community Roundtable or Noise Abatement Committee	DAA	Minimal administrative costs to participate on a regular basis	Minimal administrative costs to participate on a regular basis	None	This is considered a new measure since it was never implemented in the previous NCP.
Measure P-C: Perform regular updates to the NEMs and review of NCP	DAA	NEM Update: $350,000 to $400,000 NEM/NCP Update: $650,000 to $750,000 Federal AIP funding likely available (80% FAA share/20% local airport share)	Minimal administrative costs to participate in study	None	This is a new measure

Source: Landrum & Brown analysis, 2021.

NOISE COMPATIBILITY PROGRAM MEASURE: M-A (formerly Measure M-1)

Description: Offer Residential Sound-insulation Program to Single- and Multi-Family Homes (47 units) within the 65+ DNL Noise Contours. Offer Residential Sound-insulation Program to Single-Family Homes (17 units) within the Block Rounding Area Outside the 65 DNL Noise Contour.

Background and Intent: This measure includes sound-insulation for eligible single- and multi-family residences within the Noise Mitigation Program Area (NMPA) #1 and #2. The NMPA #1 and #2 were established as part of the 2020 NCP. Completion of the single-family sound-insulation program from the 1997 NCP was never implemented. Since that time, noise exposure has decreased at DLH due to ongoing noise abatement efforts, the phase-out of older, louder aircraft. As a result, the noise exposure contours developed for this Part 150 Study update are smaller than the noise exposure contours developed for the 1997 Part 150 Study NCP. The NMPA #1 will include 47 single- and multi-family units located within the 65+ DNL. NMPA #2 will include 17 single-family properties located with the block rounding area, as defined, outside of the 65 DNL. The NMPAs were designed based on the Future (2026) NEM/NCP noise exposure contour developed for this 2020 Part 150 Study update and local geographical features such as property boundaries, jurisdictional boundaries and roadways (see **Section 1.2.1** and **Exhibit 4-2**).

Relationship to 1997 NCP: This measure was included in the 1997 NCP but only for properties within the 75 DNL. This measure was never implemented and should be modified to include all properties within the 65+ DNL (NMPA #1) and within the block rounding area (NMPA #2).

Land Use Compatibility Improvement: This measure converts incompatible land uses to uses that are compatible with aircraft noise levels.

Responsible Implementing Parties: Duluth Airport Authority

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA funding will be requested to implement this program.

Steps: This measure should continue for eligible housing units within the recommended NMPA #1 and #2 (see **Section 1.2.1** and **Exhibit 4-1**)

Costs: Estimated construction cost to sound insulate units is approximately $50,000 per unit with an additional 25% ($12,500 per unit) for administrative costs. These costs will vary significantly depending on construction, age, and condition of individual residences. Approximately 47 eligible units inside proposed NMPA #1 have not been insulated despite approval in the 1997 NCP. An additional 17 properties are located within the proposed NMPA #2. Total cost (assuming 100% participation) is approximately $4,000,000, but will vary depending on the number of participating properties. It is likely some property owners will decline participation, some will not meet interior eligibility criteria, and others will not be eligible due to the age of the property. Specific review of each unit has not been undertaken.

Schedule: This measure can continue uninterrupted based on the availability of FAA funding.

Effects on Other Programs/Measures: This measure is not expected to impact other measures or existing programs. However, some homeowners located within the 70+ DNL noise contour may have an option to select this measure or Measure M-B explained below. In addition, properties undergoing sound-insulation would have an avigation easement placed on the property and attached to the deed.

NOISE COMPATIBILITY PROGRAM MEASURE: M-B

Description: Offer Land Acquisition Program to Single-Family Homes (7 units) within the 70+ DNL Noise Contour

Background and Intent: This measure has the potential to convert residential housing units into to compatible uses. Acquired properties could potentially be utilized in future airport development. Property owners would be offered sound-insulation (Measure M-A) if they decline land acquisition (M-B).

Relationship to 1997 NCP: This is a new measure and was not included in the 1997 NCP.

Land Use Compatibility Improvement: This measure converts incompatible land uses to uses that are compatible with aircraft noise levels.

Responsible Implementing Parties: Duluth Airport Authority

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA approval of new measure and funding will be requested to implement this program.

Steps: This measure should continue for eligible housing units within the 70 DNL (see **Section 1.2.1** and **Exhibit 4-2**).

Costs: Total cost would depend on the number of units that choose to participate and the overall fair Market Value (FMV) of each property and the additional expenses. For the 7 single-family homes, about ⅔ seem to be owner-occupied and ⅓ are tenant-occupied. Total costs for all 7 properties is estimated to be $2,450,000 or around $350,000 per property. Total costs would include the FMV for each property, relocation expenses, moving expense, remediation and/or demolition expenses, legal expenses, and program management expenses.

Schedule: This measure can continue uninterrupted based on the availability of funding.

Effects on Other Programs/Measures: This measure is not expected to impact other measures or existing programs. However, homeowners may have an option to select this measure or Measure M-A explained above. If a property owner declines both land acquisition and sound-insulation, they would be offered an avigation easement that would be placed on the property and attached to the deed.

NOISE COMPATIBILITY PROGRAM MEASURE: M-C

Description: Offer Land Acquisition Program to Birchwood Mobile Estates (102 Mobile Homes) within the NMPA #1 boundary and 1 additional mobile home property located to the northwest of the airport within the 65+ DNL noise contour.

Background and Intent: This measure will offer acquisition to the owner of the Birchwood Mobile Estates within the boundary of NMPA #1. It should be noted that 33 of the 102 mobile homes are properties located within the 65 DNL.

Relationship to 1997 NCP: This is a new measure and was not included in the 1997 NCP.

Land Use Compatibility Improvement: This measure has the potential to convert single-family mobile housing units into compatible uses.

Responsible Implementing Parties: Duluth Airport Authority

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA approval of new measure and funding will be requested to implement this program.

Steps: This measure should continue for eligible housing units within the 65 DNL (see **Section 1.2.1** and **Exhibit 4-2**).

Costs: Total costs would be dependent on the number of units that choose to participate and the Fair Market Value (FMV) for each unit, among other expenses.

For the 102 mobile homes in the Birchwood Mobile Estates, the costs are slightly more complicated as the assumption is that the land is owned by the mobile home park and the mobile homes are mostly owner-occupied. For the 102 mobile homes the total costs are estimated at around $8,017,200 or around $78,600 per unit and would include the FMV for each property, relocation expenses, moving expense, remediation and/or demolition expenses, legal expenses, and program management expenses. In addition, it is estimated that the resulting buy-out of the mobile home park would be around $3,420,000 include FMV for the property and loss of rental income over the years, legal expenses, and program management expenses. Overall, land acquisition costs for the mobile home park could be $11,437,200.

For the single mobile home the acquisition cost is estimated at $130,800.

Total acquisition costs could total $11,568,000 if all units participated.

Schedule: This measure could be implemented following receipt of the FAA Record of Approval based on the availability of funding.

Effects on Other Programs/Measures: This measure is not expected to impact other programs or measures. However, the owner of the single mobile home declines land acquisition, they would be offered an avigation easement that would be placed on the property and attached to the deed.

NOISE COMPATIBILITY PROGRAM MEASURE: M-D

Description: Offer Avigation Easements to owner-occupied single-family homes within NMPA #1 and NMPA #2 if acquisition (within 70 DNL noise contour only) and/or sound-insulation is declined.

Background and Intent: This measure will offer a cash payment in exchange for the avigation easement in case owners decline acquisition and/or sound-insulation. The avigation easement would be placed on the property and would be attached to the deed for all future owners. It ultimately deems the property compatible land use.

Relationship to 1997 NCP: This is a new measure and was not included in the 1997 NCP.

Land Use Compatibility Improvement: This measure has the potential to convert single- and multi-family housing units into compatible uses.

Responsible Implementing Parties: Duluth Airport Authority

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA approval of new measure and funding will be requested to implement this program.

Steps: This measure should continue for eligible housing units within the 65 DNL (see **Section 1.2.1** and **Exhibit 4-2**).

Costs: Total costs would be dependent on the number of units that choose to participate and the Fair Market Value (FMV) for each unit, among other expenses.

The cost of the avigation easement is set based on a percentage of the FMV for each unit. The easement almost always does not exceed $3,000 per unit.

For the single- and multi-family homes the avigation easement cost is estimated at $192,000. However, that cost is based on all 64 residential units participating as they would have to decline sound-insulation or acquisition (within 70 DNL noise contour only).

Schedule: This measure could be implemented following receipt of the FAA Record of Approval based on the availability of funding.

Effects on Other Programs/Measures: This measure is not expected to impact other programs or measures. However, the owners of the single- or multi-family residential units would have to decline sound-insulation or land acquisition (within 70 DNL only). They would be offered an avigation easement that would be placed on the property and attached to the deed.

NOISE COMPATIBILITY PROGRAM MEASURE: M-E

Description: Offer Avigation Easements to one (1) mobile home within NMPA #1 if acquisition is declined.

Background and Intent: This measure will offer a cash payment in exchange for the avigation easement in case owners decline acquisition. The avigation easement would be placed on the property and would be attached to the deed for all future owners. It ultimately deems the property compatible land use.

Relationship to 1997 NCP: This is a new measure and was not included in the 1997 NCP.

Land Use Compatibility Improvement: This measure has the potential to convert a single mobile home property into compatible use.

Responsible Implementing Parties: Duluth Airport Authority

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA approval of new measure and funding will be requested to implement this program.

Steps: This measure should continue for the eligible mobile home within the 65 DNL (see **Section 1.2.1** and **Exhibit 4-2**).

Costs: Total costs would be dependent if the unit chose to participate and the Fair Market Value (FMV) for each unit, among other expenses.

The cost of the avigation easement is set based on a percentage of the FMV for each unit, this cost will be determined once the program is implemented. The easement almost always does not exceed $3,000 per unit.

For the single mobile home the avigation easement cost is estimated at no more than $3,000. However, that cost is based on the mobile home declining acquisition.

Schedule: This measure could be implemented following receipt of the FAA Record of Approval based on the availability of funding.

Effects on Other Programs/Measures: This measure is not expected to impact other programs or measures. However, the owners of the mobile home property would have to decline land acquisition. They would be offered an avigation easement that would be placed on the property and attached to the deed.

NOISE COMPATIBILITY PROGRAM MEASURE: M-F

Description: Offer Avigation Easements to two (2) mobile homes within NMPA #2.

Background and Intent: This measure will offer a cash payment in exchange for an avigation easement. The avigation easement would be placed on the property and would be attached to the deed for all future owners. It ultimately deems the property compatible land use.

Relationship to 1997 NCP: This is a new measure and was not included in the 1997 NCP.

Land Use Compatibility Improvement: This measure has the potential to convert two (2) mobile home properties into compatible use.

Responsible Implementing Parties: Duluth Airport Authority

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA approval of new measure and funding will be requested to implement this program.

Steps: This measure should continue for the two (2) eligible mobile home within NMPA #2 (see **Section 1.2.1** and **Exhibit 4-2**).

Costs: Total costs would be dependent if the unit chose to participate and the Fair Market Value (FMV) for each unit, among other expenses.

The cost of the avigation easement is set based on a percentage of the FMV for each unit, this cost will be determined once the program is implemented. The easement almost always does not exceed $3,000 per unit.

For the two (2) mobile homes the avigation easement cost is estimated at no more than $6,000. However, that cost is based on the participation of the mobile homes.

Schedule: This measure could be implemented following receipt of the FAA Record of Approval based on the availability of funding.

Effects on Other Programs/Measures: This measure is not expected to impact other programs or measures. However, the owners of the mobile home property would be offered an avigation easement that would be placed on the property and attached to the deed.

NOISE COMPATIBILITY PROGRAM MEASURE: M-G

Description: Develop an Airport Land Use Management District (ALUMD).

Background and Intent: This measure would develop a fixed boundary within which land use controls will be recommended. These controls will include updates to subdivision regulations, updates to building codes, and a voluntary fair disclosure program. It is recommended to make the ALUMD a fixed boundary slightly larger than the Future (2026) NEM 60 DNL, so that changes in the noise contours over time do not require revisiting the boundaries. While previous recommendations will offer mitigation to residential property owners within the 65 DNL and out to the 60 DNL through the designated NMPB areas, these recommendations allow people in the area that they may experience direct overflights, that an airport is nearby and that, at times, they may experience disruptive noise levels.

Relationship to 1997 NCP: This is a new measure and was not included in the 1997 NCP.

Land Use Compatibility Improvement: This measure has the potential to mitigate residential use impacts by improving building codes, updating subdivision regulation, and disclosure.

Responsible Implementing Parties: Duluth Airport Authority, Cities of Duluth, Hermantown, and Rice Lake, Canosia Township, and Saint Louis County.

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA approval of new measure and funding will be requested to implement this program.

Steps:

- Secure FAA funding and DAA budget approval.

- Contract with the Duluth-Superior Metropolitan Interstate Council (DSMIC), or other like agency, to assist with the boundary definitions and to develop initial contacts with the jurisdictions.

- Identify the final boundaries of the ALUMD (see **Section 1.2.2** and **Exhibit 4-2**).

- Request that all local jurisdictions incorporate the boundaries of the ALUMD into their current land use planning documents.

Costs: The total cost of implementation would include contracting with the DSMIC or other agency to assist with the final boundary definitions and the coordination with local jurisdictions. While the DAA and the local jurisdictions will have some minor administrative costs, most of the cost would be for the determination of the final boundary. Total cost is estimated at approximately $50,000.

Schedule: This measure could be implemented following receipt of the FAA Record of Approval based on the availability of funding.

Effects on Other Programs/Measures: This measure is not expected to impact other programs or measures.

NOISE COMPATIBILITY PROGRAM MEASURE: M-H

Description: Adopt Updated Subdivision Regulations.

Background and Intent: During the review of the plats for new subdivisions by public entities, the site plans would be reviewed to ensure the design minimizes noise impacts. This could include the use of more open public space or by decreasing the density of development within a subdivision. The intent is to minimize the density of residences that could be subjected to aircraft noise and to minimize noise complaints against the airport.

Relationship to 1997 NCP: This is a new measure and was not included in the 1997 NCP.

Land Use Compatibility Improvement: This measure has the potential include more open space within a new development and to reduce the density of development within a subdivision. While the property is not considered incompatible use, it has the potential to reduce noise issues within the community.

Responsible Implementing Parties: Cities of Duluth and Hermantown and Rice Lake and Canosia

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA approval of new measure and funding will be requested to implement this program.

Steps:

- Secure FAA funding.

- Contract with the Duluth-Superior Metropolitan Interstate Council (DSMIC), or other like agency, to assist with the development of new subdivision regulations and to coordinate with the local jurisdictions.

- Request that all local jurisdictions incorporate the new subdivision regulations into their current land use planning documents.

Costs: The total cost of implementation would include contracting with the DSMIC or other agency to assist with the development of new general subdivision regulations and the coordination with local jurisdictions. While the local jurisdictions will have some minor administrative costs, most of the cost would be for the development of the new subdivision regulations. Total cost is estimated at approximately $50,000.

Schedule: This measure could be implemented following receipt of the FAA Record of Approval based on the availability of funding.

Effects on Other Programs/Measures: This measure is not expected to impact other programs or measures.

NOISE COMPATIBILITY PROGRAM MEASURE: M-I

Description: Adopt Improved Building Codes.

Background and Intent: This measure would update the existing building codes to ensure that any new or remodeled residential construction would meet or exceed FAA criteria for sound-insulation.

Relationship to 1997 NCP: This is a new measure and was not included in the 1997 NCP.

Land Use Compatibility Improvement: This measure has the potential to reduce noise for new development or the remodeling of residential property. It would ensure that materials for doors, windows, and insulation are installed to a certain standard to upgrade noise reduction capabilities. While the properties would not be considered incompatible use, the improved building codes would have the potential to reduce noise issues within the community.

Responsible Implementing Parties: Cities of Duluth, Hermantown and Rice Lake and Canosia

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA approval of new measure and funding will be requested to implement this program.

Steps:

- Secure FAA funding.

- Contract with the Duluth-Superior Metropolitan Interstate Council (DSMIC), or other like agency, to assist with the development of new building codes and to coordinate with the local jurisdictions.

- Request that all local jurisdictions incorporate the new building codes into their current land use planning documents.

Costs: The total cost of implementation would include contracting with the DSMIC or other agency to assist with the development of the new building codes and the coordination with local jurisdictions. While the local jurisdictions will have some minor administrative costs, most of the cost would be for the development of the new building codes. Total cost is estimated at approximately $50,000.

Schedule: This measure could be implemented following receipt of the FAA Record of Approval based on the availability of funding.

Effects on Other Programs/Measures: This measure is not expected to impact other programs or measures.

NOISE COMPATIBILITY PROGRAM MEASURE: M-J

Description: Develop a Voluntary Fair Disclosure Program

Background and Intent: Will disclose through regulations on the seller or their representatives at the time of sale that an existing property or plats of buildable lots in a new subdivision could be subjected to aircraft noise. Potential buyers will be made aware before they purchase the property that it is in an area that has the probability of receiving noise from aircraft.

Relationship to 1997 NCP: This is a new measure and was not included in the 1997 NCP.

Land Use Compatibility Improvement: This measure has the potential to alert news purchasers of residential property that they are moving into an area that could be subjected to noise from aircraft.

Responsible Implementing Parties: Duluth Board of Realtors, Lake Superior Area Realtors, Cities of Duluth and Hermantown, Rice Lake and the Township of Canosia.

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA approval of new measure.

Steps:

- Have the Duluth Board of Realtors and the Lake Superior Area Realtors work together to develop language for the disclosure program and to coordinate with the local jurisdictions.

- Request that all local jurisdictions incorporate the new disclosure program into their current land use planning documents.

Costs: Minimal cost for the local agencies developing the program language and coordinating with jurisdictions. Total cost is estimated at approximately $50,000.

Schedule: This measure could be implemented following receipt of the FAA Record of Approval.

Effects on Other Programs/Measures: This measure is not expected to impact other programs or measures.

NOISE COMPATIBILITY PROGRAM MEASURE: P-A (formerly measure A-1)

Description: Continue Logging of Noise Complaints.

Background and Intent: The airport staff and MnANG staff should continue to receive noise complaints on an as-required basis. Due to the low level of noise complaints, a formal system is not required. However, a more formal system of complaint logging should be used by airport and MnANG staff. Data can be categorized, and the information used as a basis for future noise abatement committee meetings.

Relationship to 1997 NCP: This measure replaces on-going measure A-1 with modifications.

Land Use Compatibility Improvement: This measure does not directly improve land use compatibility; rather, it provides the airport with additional resources to monitor potential or emerging noise issues, to determine the effectiveness of noise abatement measures, and to respond to public inquiries about noise and airport operations.

Responsible Implementing Parties: Duluth Airport Authority & MnANG staff

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA approval of continued measure with modification.

Steps: The airport staff can develop a simple form to be used to record the information received by the community.

Costs: Minimal administrative costs for both the airport and MnANG.

Schedule: Both parties can implement immediately.

Effects on Other Programs/Measures: This measure is not expected to impact other measures or programs.

NOISE COMPATIBILITY PROGRAM MEASURE: P-B (formerly measure A-2)

Description: Initiate Community Roundtable or Noise Abatement Committee.

Background and Intent: The airport staff should develop a noise abatement committee that brings together airport staff, FAA ATC personal, MnANG staff, airline representatives, FBOs, officials of local governmental entities, and also representatives from impacted neighborhoods to review and discuss noise issues on at least a quarterly basis. The noise complaint logging, described in Measure P-A above, can be used as a basis for the discussion.

Relationship to 1997 NCP: This measure replaces on-going measure A-2 with modifications.

Land Use Compatibility Improvement: This measure does not directly improve land use compatibility; rather, it provides the airport with additional resources to monitor potential or emerging noise issues, to determine the effectiveness of noise abatement measures, and to respond to public inquiries about noise and airport operations.

Responsible Implementing Parties: Duluth Airport Authority & MnANG staff

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA approval of continued measure with modification.

Steps: The airport staff can develop a list of interested parties to participate in the committee.

Costs: Minimal time for the airport and other parties to attend the meetings, plus some minimal administrative costs to document meeting minutes, distribute agendas and other material.

Schedule: Can be implemented immediately.

Effects on Other Programs/Measures: This measure is not expected to impact other measures or programs.

NOISE COMPATIBILITY PROGRAM MEASURE: P-C

Description: Perform Regular Updates to the Noise Exposure Maps (NEMs) and Review of Noise Compatibility Program (NCP).

Background and Intent: The NEMs should be updated every five years or when there are significant changes in operating levels and patterns in accordance with the FAA's guidelines for determining what constitutes a potentially significant increase in operations (1.5 decibel (dB) DNL increase in the area impacted by 65+ DNL).

The NCP should be updated every five years, or as necessary, to reflect any broader changes in the nature of aircraft noise surrounding the Airport. Should any on-airport development, such as runway extensions or significant modifications to ground facilities, enlarge the area of incompatible use exposed to aircraft noise above 65 Day-Night Average Sound Level (DNL), the NCP should be updated prior to the implementation of those improvements. A full update may not be required, but rather, a targeted assessment of the changes occasioned by specific development projects may suffice to bring the NCP to conformity and to qualify additional areas for NCP programs, if appropriate.

Relationship to 1997 NCP: This is a new measure.

Land Use Compatibility Improvement: This measure does not directly improve land use compatibility; rather, it provides for periodic review and update of the NCP.

Responsible Implementing Parties: Duluth Airport Authority

Implementation Steps, Costs, and Phasing:

FAA Requested Action: FAA approval of new measure.

Steps:

- Evaluate the need of NEM or NCP update based on conditions.
- If appropriate, retain a qualified planning consultant to conduct the update(s).
- Complete and publish the results, modifying or expanding NCP programmatic boundaries as appropriate at the time of update.

Costs: It is estimated that the NEM update could be accomplished for approximately $350,000 to $400,000. An NEM/NCP could be updated at an estimated cost of $650,000 to $700,000 (assuming only a minimal review of existing abatement measures is necessary). Both updates are eligible for funding through FAA AIP grant monies at 80 percent FAA participation.

Schedule: NEM update in 2026, with NCP update as needed based on operational changes or airfield changes that affect aircraft operations.

Effects on Other Programs/Measures: Reviews all other programs and measures to assure their incorporation into the description of the noise condition at the airport.

4.2.1 Recommended Noise Mitigation Program Area

This section describes the recommended Noise Mitigation Program Areas (NMPA) included in the DLH 2021 NCP. The NMPA encompasses two (2) general areas. **Exhibit 4-2, *Recommended Noise Mitigation Program Areas (NMPA)*** illustrates the recommended NMPA areas and the Future (2026) NEM contours. In order to assist in understanding the block rounding boundaries, NMPA #2 was divided into two (2) areas for the purpose of this explanation. The area to the north of the 65+ DNL is considered NMPA #2.a and the area west of the 65+ DNL is considered NMPA #2.b. **Exhibit 4-3, *NMPA #1 Boundary*** shows only the NMPA #1 boundary as well as geographical features that the boundary was based upon and impacted structures within the boundary. **Exhibit 4-4, *NMPA #2.a*** and **Exhibit 4-5, *NMPA #2.b*** shows the two (2) areas that make up the NMPA #2 and the geographical features the boundaries were based upon and the residential structures impacted within each area.

In order to define the boundaries, a broader description of these areas are described below:

- NMPA #1 – This is defined as the area outlined in blue and within the 65+ DNL contours. This area included 45 single-family residential units and two (2) multi-family residential units. NMPA #1 also includes 103 mobile homes that are part of the land acquisition recommendation but are not included in the sound-insulation measures recommended in the NCP. The 47 residential units would have an avigation easement attached to the deed in exchange for participation in the sound-insulation program. In addition, if the owner of the single mobile home declines land acquisition, they would be offered an avigation easement that would be placed on the property and attached to the deed. The description of the mitigation areas within the 65 DNL (NMPA #1) are explained below.

- NMPA #2 – This is the blue cross-hatched area located outside of the 65 DNL noise contours. This area includes 17 single-family residential units that are located in close proximity to the 65 DNL noise contour. The 17 residential units would have an avigation easement attached to the deed in exchange for participation in the sound-insulation program. This area also includes 2 mobile homes that are not included in the recommended block rounding area for sound-insulation. These 2 mobile homes are also outside of the 65 DNL and are not recommended for acquisition in the NCP. The two (2) mobile homes would be offered an avigation easement that would be placed on the property and attached to the deed. The description of the block rounding area (NMPA #2) is as follows:

NMPA #1

1. Begins at the airport property line south of Seville Road and extends west along 65 DNL contour
2. Continues along the 65 DNL contour until intersecting property line of Birchwood Mobile Estates
3. Continues south to extent of southern parcel boundary for mobile home park
4. Continues east to the extent of the eastern parcel boundary for the mobile home park
5. Continues north to the intersection of the mobile home park parcel boundary and the 65 DNL contour
6. Continues east along the 65 DNL until intersecting the airport property boundary

NMPA #2.a

1. Begins at intersection of the 65 DNL noise contour and the western airport property line south of Seville Road
2. Continues north along the property line until the intersection of Seville Road
3. Continues west along Seville Road until the intersection with Lavaque Road
4. Continues north along Lavaque Road until the intersection with the 60 DNL noise contour
5. Continues west along the 60 DNL noise contour until the intersection with Samuelson Road
6. Continues west along Samuelson Road until the intersection with Ugstad Road
7. Continues south along Ugstad Road until the intersection with the 65 DNL noise contour

8. Continues west along the 65 DNL noise contour until the intersection of the Canosia Township/City of Hermantown line

NMPA #2.b

1. Begins at the intersection of the Canosia Township/City of Hermantown jurisdictional boundary and the 65 DNL contour and extends west to the extent of the parcel's property line.
2. Continues south along the parcel property line until the intersection of Miller Trunk Highway
3. Continues southeast along Miller Trunk Highway until the intersection of the 65 DNL contour

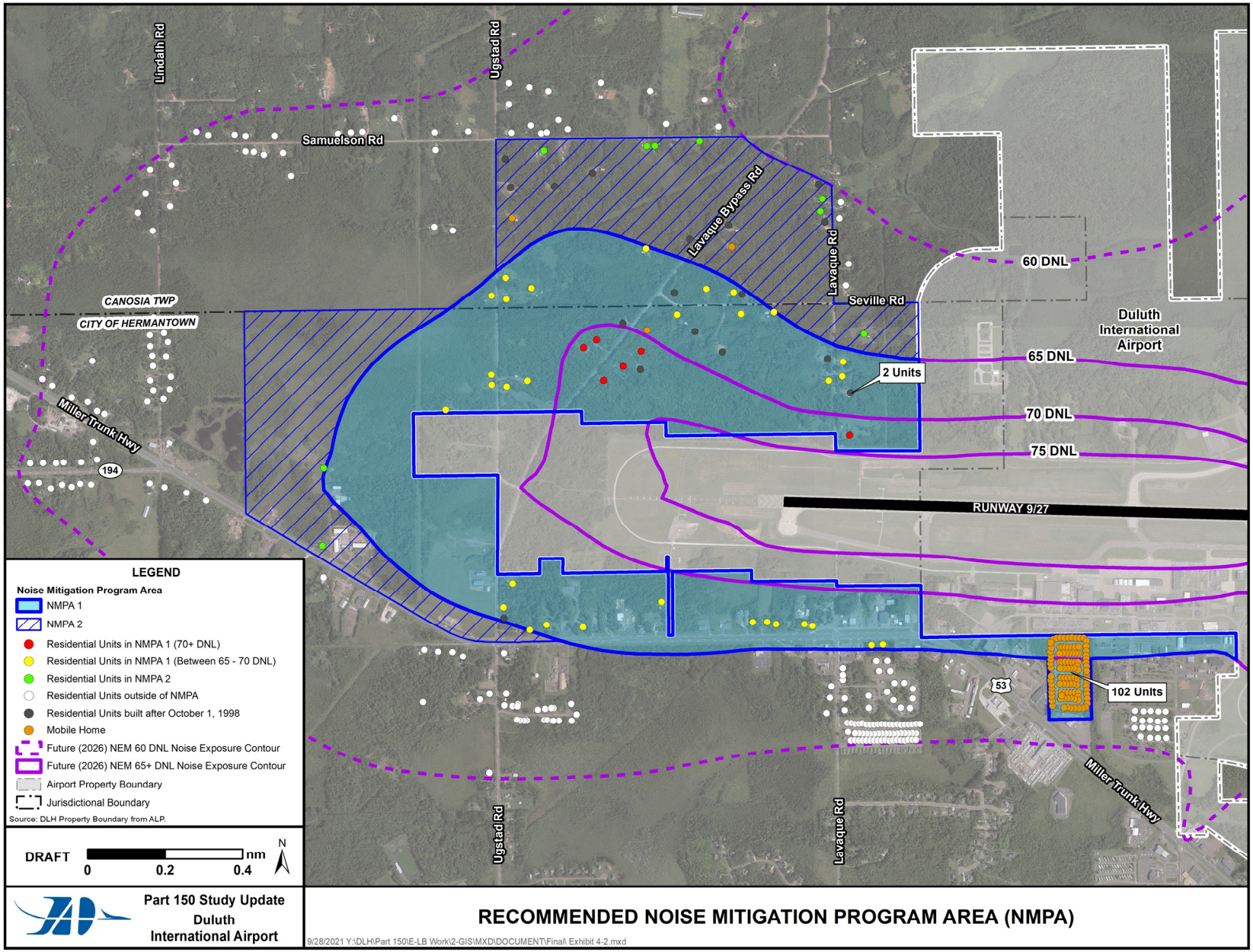
The NMPAs are based on the Future (2026) NEM contours developed for this NCP update. Per FAA Order 5100.38D, noise mitigation may undertake block rounding to "….include parcels continuous to the project area ……." to include a reasonable additional number of otherwise ineligible parcels contiguous to the project area, if necessary to achieve equity in the neighborhood.[15] The requirements for block rounding are defined in the "*AIP Handbook, Change 1, dated February 26, 2019, Appendix R. Noise Compatibility Planning/Projects*, *Section R-9, Block Rounding, Table R-2, Block Rounding Requirements"*. All of the property identified both inside (NMPA #1) and outside (NMPA #2) the DNL 65 noise contour are subjected to the new FAA eligibility requirements. In addition, all properties must have been built prior to October 1, 1998 to be eligible. The final eligibility determination based on the build date will be made following approval of the program and once the program is underway. **Table 4-3, *Properties Considered for Sound-insulation Block Rounding***, presents the specific address, year built and type of structure for the 17 single-family properties being considered for block rounding.

[15] U.S. Department of Transportation, Federal Aviation Administration, Order 5100.38D, Airport Improvement Program Handbook, Appendix R, Noise Compatibility Planning/Projects, September 30, 2014.

Table 4-3 Properties Considered for Sound-insulation Block Rounding

ADDRESS	YEAR BUILT	AGE	STRUCTURE TYPE
5210 Samuelson Road, Duluth, MN 55811	1940	80	Single-Family
5200 Samuelson Road, Duluth, MN 55811	1995	25	Single-Family
5236 Samuelson Road, Duluth, MN 55811	1999	21	Single-Family
4754 Ugstad Road, Duluth, MN 55811	1987	33	Mobile
5296 Samuelson Road, Duluth, MN 55811	2019	1	Single-Family
5280 Samuelson Road, Duluth, MN 55811	1991	29	Single-Family
4774 Ugstad Road, Duluth, MN 55811	2016	4	Single-Family
5276 Samuelson Road, Duluth, MN 55811	2002	18	Single-Family
4771 Lavaque Road, Duluth, MN 55811	2003	17	Single-Family
4759 Lavaque Road, Duluth, MN 55811	N/A	N/A	Single-Family
4749 Lavaque Road, Duluth, MN 55811	1982	38	Single-Family
5178 Samuelson Road, Duluth, MN 55811	1951	69	Single-Family
4746 Lavaque Bypass Road, Duluth, MN 55811	2002	18	Mobile
4748 Lavaque Bypass Road, Duluth, MN 55811	2012	8	Single-Family
4735 Lavaque Bypass Road, Duluth, MN 55811	2006	14	Single-Family
4741 Lavaque Road, Duluth, MN 55811	1999	21	Single-Family
4682 Lavaque Road, Hermantown, MN 55811	1925	95	Single-Family
4599 Abrahamson Road, Hermantown, MN 55811	1916	104	Single-Family
5405 Miller Trunk Highway, Hermantown, MN 55811	1976	44	Single-Family

Exhibit 4-2 Recommended Noise Mitigation Program Areas (NMPA)



Source: Landrum & Brown analysis, 2021.

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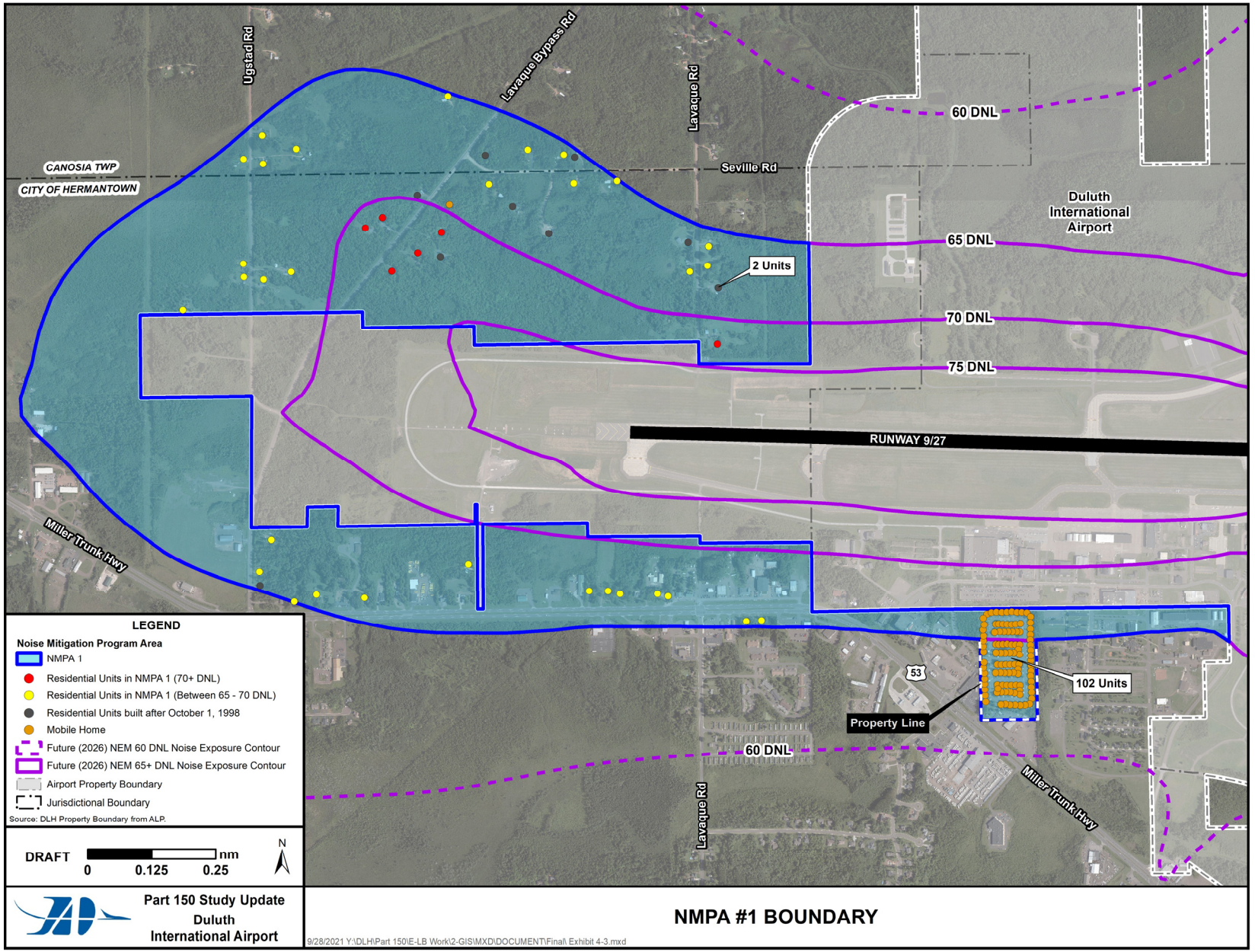
Exhibit 4-3 NMPA #1 Boundary



Source: Landrum & Brown analysis, 2021.

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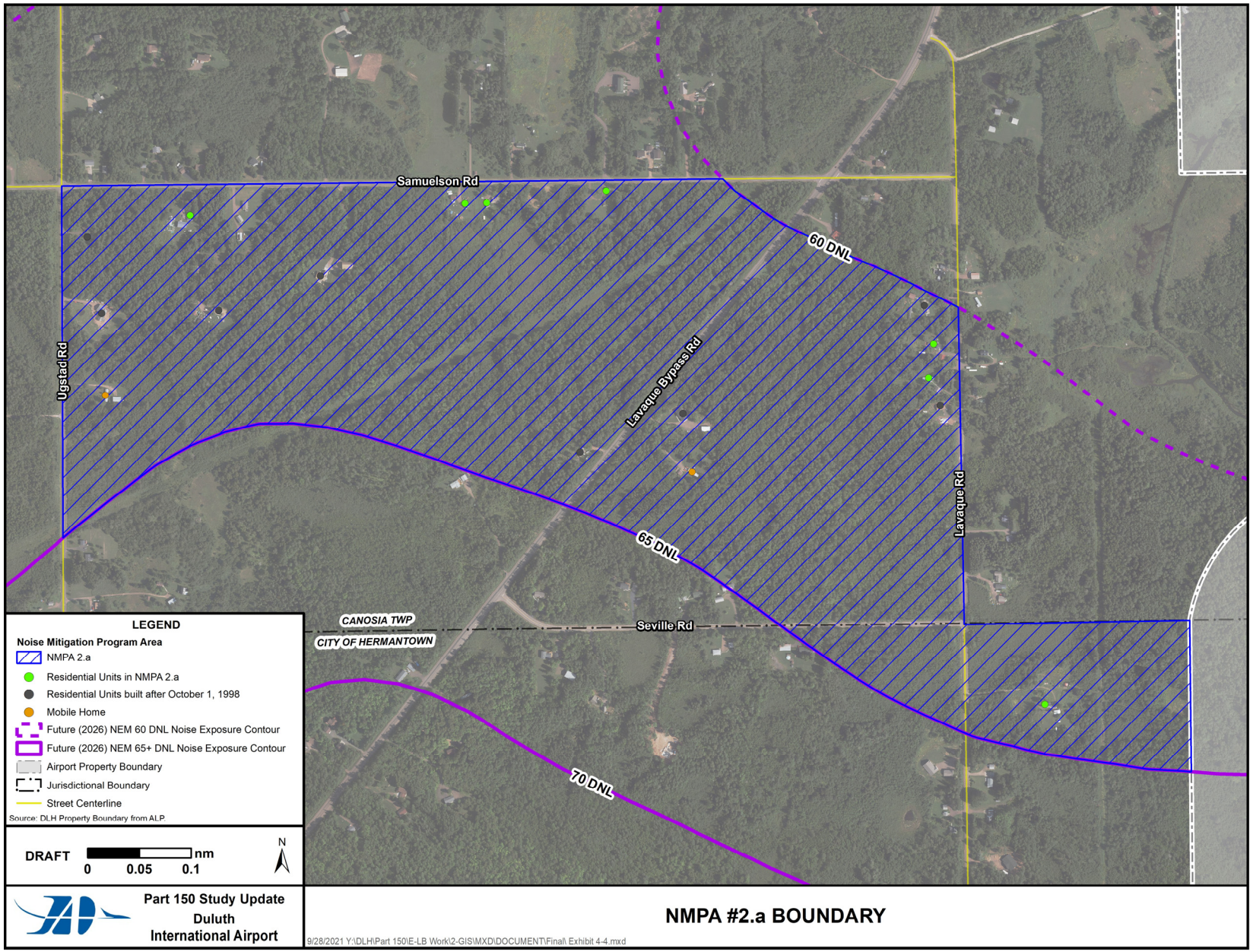
Exhibit 4-4 NMPA #2.a Boundary



Source: Landrum & Brown analysis, 2021.

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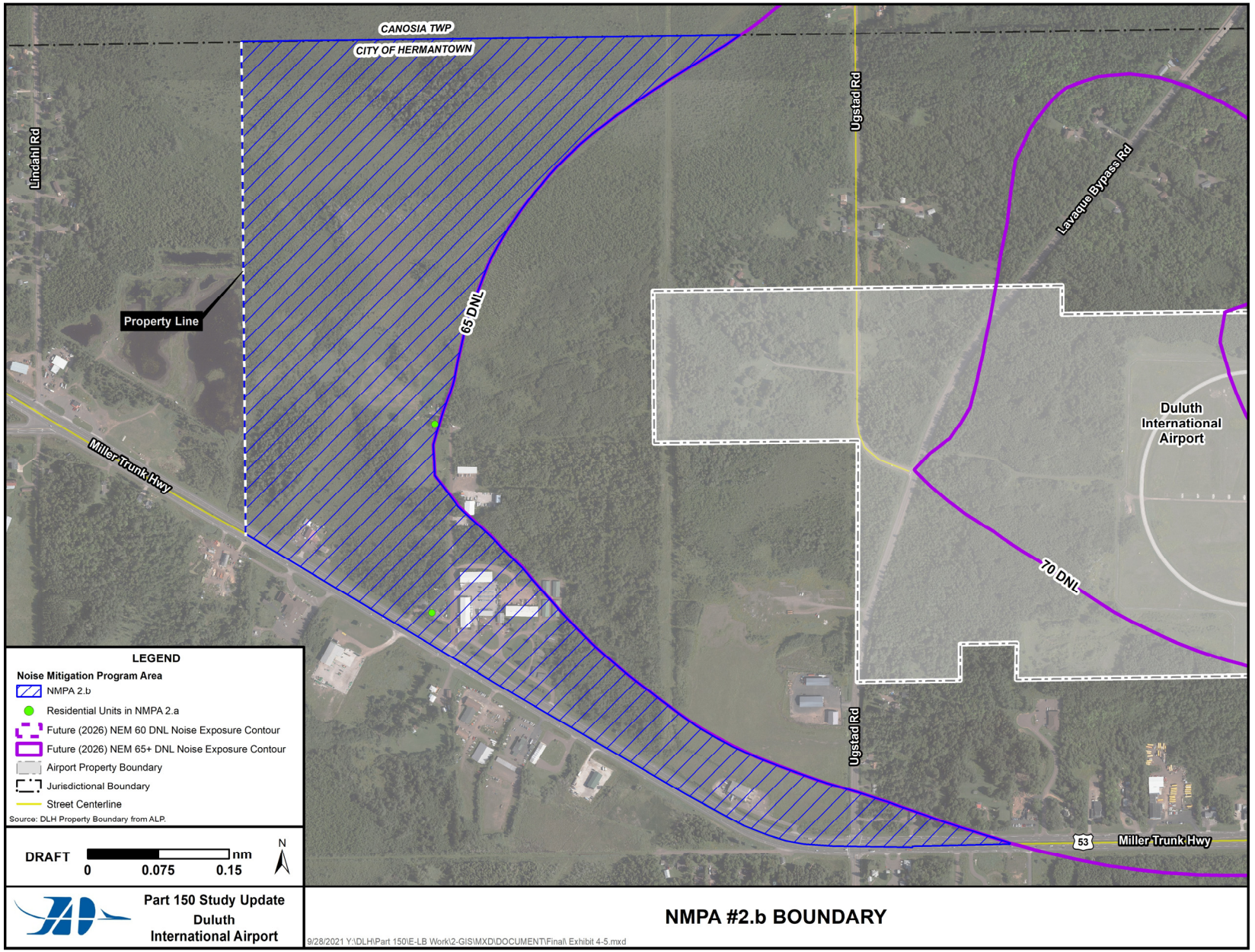
Exhibit 4-5 NMPA #2.b Boundary



Source: Landrum & Brown analysis, 2021.

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4.2.2 Recommended Airport Land Use Management District

This section describes the recommended Airport Land Use Management District (ALUMD) at DLH (Measure M-G). The ALUMD is a recommended general area at this time, subject to FAA approval and the impending work of the local planning agencies and the local jurisdictions. The boundaries try to follow local roadways and geographic boundaries to define the limits of this area. A broad description of this area is described below:

- West Boundary – Vaux Road (and Vaux Road extended)
- North Boundary – Nelson Road (and Nelson Road extended)
- South Boundary – Arrowhead Road
- East Boundary – Drake Road (and Drake Road extended)

Exhibit 4-6, *Recommended Airport Land Use Management District (ALUMD)*, illustrates the recommended ALUMD and the Future (2026) NEM contours. The final boundaries of the ALUMD to be determined after FAA approval.

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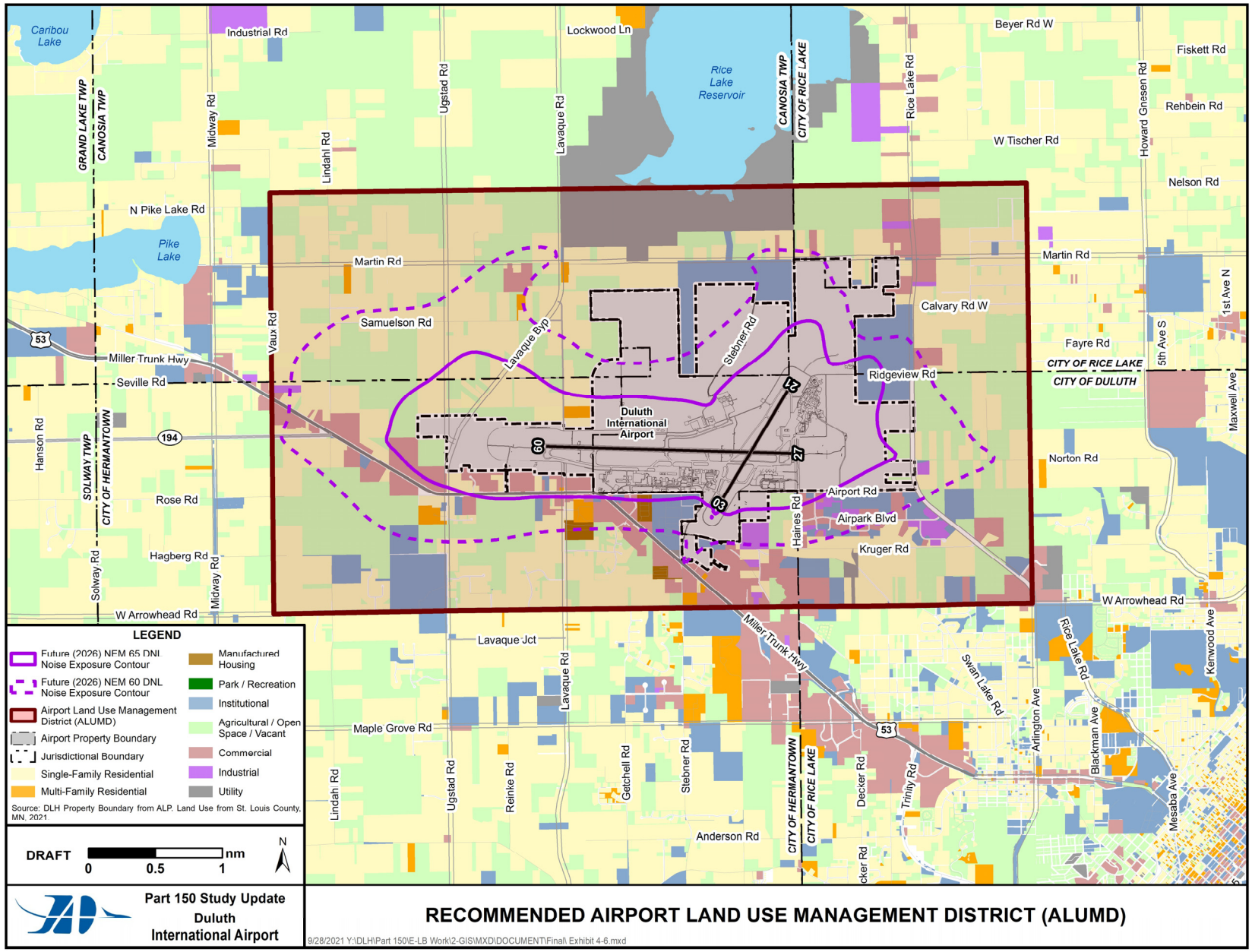
Exhibit 4-6 Recommended Airport Land Use Management District (ALUMD)



Source: Landrum & Brown analysis, 2021.

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4.3 Noise Compatibility Program Costs

The airport, supplemented by funding from the FAA, would incur the direct costs associated with the recommended NCP measures. The majority of the costs are associated with either sound-insulation, land acquisition or avigation easements of eligible housing units within the recommended NMPA areas. **Table 4-1** above provided the number of housing units located within the DNL 65+ dB noise exposure contour of the Future (2026) NEM contours. Furthermore, the airport has committed to mitigate eligible housing units in the vicinity of the DNL 65 dB noise exposure contours of the Future (2026) NEM contours that are within the block rounding area identified as NMPA #2, subject to final eligibility determination. The estimated number of eligible housing units within the recommended NMPAs are included in **Table 4-4, *Potentially Eligible Housing Units within the Recommended Noise Mitigation Program Areas.***

Costs for completion of the program have been estimated in 2020 dollars and are presented in **Table 4-5, *Noise Compatibility Program Implementation Costs*.** These cost estimates are based on the consultant team's preliminary assessment and are subject to change once the measures are further evaluated prior to implementation. Presently, the cost estimates are based on mitigation for the property identified within the DNL 65 (≥65) noise contour (NMPA #1) and the properties outside the 65 DNL noise contour in the proposed block rounding area (NMPA #2). These costs include one-time expenditures plus additional annual costs for administrative, operational, and maintenance costs. The airport-funded mitigation actions recommended for implementation are eligible; however, for Federal matching funds amounting to approximately 80 percent of the total program cost.

The costs of each individual measure are detailed earlier in this chapter. The total estimated cost for all NCP recommendations, is estimated at approximately $18,000,000 plus additional operational, maintenance, and administrative costs. Note that this cost includes the residential sound-insulation program, land acquisition, and other measures. This cost estimate assumes 100 percent participation in the program by eligible property owners.

Table 4-4 Potentially Eligible Housing Units within the Noise Mitigation Program Areas

LAND USE	NMPA #1		NMPA #2		TOTAL	
	TOTAL HOUSING UNITS	POPULATION	TOTAL HOUSING UNITS	POPULATION	TOTAL HOUSING UNITS	POPULATION
Single-Family Residential	45	93	17	40	62	133
Multi-Family Residential	2	4	0	0	2	4
Mobile Homes	103	193	2	5	105	198
Total	**150**	**290**	**19**	**45**	**169**	**335**

Notes: *Housing counts are based on field verification and Saint Louis County Assessors data: https://www.stlouiscountymn.gov/departments-a-z/assessor/property-information
*Population numbers are estimated based on the housing counts multiplied by the average household size from the 2000 Census.
Final eligibility for mitigation programs will be determined as program implementation moves forward.

Source: Landrum & Brown analysis, 2021.

Table 4-5 Noise Compatibility Program Implementation Costs

MEASURE ID	TYPE OF MEASURE	DIRECT COST (TOTAL)	DIRECT COST TO FAA (80% SHARE)	DIRECT COST TO AIRPORT (20% SHARE)	DIRECT COST TO LOCAL GOVERNMENT	DIRECT COST TO USERS
	ABATEMENT MEASURES					
	No abatement measures recommended for inclusion in the NCP					
	SUBTOTAL	**$0**	**$0**	**$0**	**--**	**--**
	MITIGATION MEASURES (CORRECTIVE)					
M-A	Sound insulate 64 eligible single-& multi-family housing units	$4,000,000	$3,200,000	$800,000	None	None
M-B	Acquire 7 eligible single-family housing units	$2,450,000	$1,960,000	$490,000	Potential loss of tax base	None
M-C	Acquire 103 eligible mobile homes including 102 Birchwood Mobile Estates mobile homes	$11,568,000 (mobile homes & mobile home property)	$9,254,400 (mobile homes & mobile home property)	$2,313,600 (mobile homes & mobile home property)	Potential loss of tax base	None
M-D	Acquire avigation easements to owner-occupied single- and multi- family homes within NMPA #1 and #2 if acquisition and/or sound-insulation is declined	$192,000	$153,600	$38,400	None	None
M-E	Acquire avigation easement to 1 mobile homes within NMPA #1 if acquisition is declined	$3,000	$2,400	$600	None	None
M-F	Acquire avigation easement to 2 mobile homes within NMPA #2	$6,000	$4,800	$1,200	None	None
	SUBTOTAL [1]	$17,576,500	$14,061,200	$3,515,300	**Minimal administrative costs; plus loss of tax base**	**None**

Table 4-6 Noise Compatibility Program Implementation Costs *(continued)*

MEASURE ID	TYPE OF MEASURE	DIRECT COST (TOTAL)	DIRECT COST TO FAA (80% SHARE)	DIRECT COST TO AIRPORT (20% SHARE)	DIRECT COST TO LOCAL GOVERNMENT	DIRECT COST TO USERS
	MITIGATION MEASURES (PREVENTATIVE)					
M-G	Develop an Airport Land Use Management District (ALUMD)	$50,000	None	$50,000	Minimal	None
M-H	Adopt Updated Subdivision Regulations	$50,000	None	$50,000	Minimal	None
M-I	Adopt Improved Building Codes	$50,000	None	$50,000	Minimal	None
M-J	Develop a Voluntary Fair Disclosure Program	$50,000	None	$50,000	Minimal	None
	SUBTOTAL	**$200,000**	**$0**	**$200,000**	**Minimal administrative costs; plus loss of tax base**	**None**

Source: Landrum & Brown analysis, 2021.

Table 4-5 Noise Compatibility Program Implementation Costs *(continued)*

MEASURE ID	TYPE OF MEASURE	DIRECT COST (TOTAL)	DIRECT COST TO FAA (80% SHARE)	DIRECT COST TO AIRPORT (20% SHARE)	DIRECT COST TO LOCAL GOVERNMENT	DIRECT COST TO USERS
	PROGRAM MANAGEMENT MEASURES					
P-A	Continue Logging of Noise Complaints	Minimal Administrative Costs	None	Minimal Administrative Costs	None	None
P-B	Initiate Community Roundtable or Noise Abatement Committee	Minimal Administrative Costs	None	Minimal Administrative Costs	None	None
P-C	Perform Regular Updates to the NEWs and Review of NCP					
	- Update NEM ONLY	$350,000 to $400,000	$280,000 to $320,000	$70,000 to $80,000	None	None
	- Update NEM & NCP	$650,000 to $750,000	$520,000 to $600,000	$130,000 to $150,000		
	SUBTOTAL	**$350,000 to $750,000 plus administrative costs**	**$280,000 to $600,000 plus administrative costs**	**$70,000 to $150,000 plus administrative costs**	**None**	**None**
	ALL NOISE COMPATIBILITY PROGRAM MEASURES					
	TOTAL	**$18,126,500 to $18,526,500 plus other administrative, operational, and maintenance costs**	**$14,501,200 to $14,821,200 plus other administrative, operational, and maintenance costs**	**$3,625,300 to $3,705,300 plus other administrative, operational, and maintenance costs**	**Minimal administrative costs; loss of tax base**	**Minimal**

Notes: (1)Total cost for land use mitigation measures is the maximum possible mitigation cost and assumes 100 percent participation in program by eligible property owners. Property owners participating would also have to ensure they meet both the eligibility requirements for interior noise levels and the year the property was built. In addition, some property owners may choose one measure over another which would reduce overall costs. All costs are in 2020 dollars

Source: Landrum & Brown analysis, 2021, and based on comparable mitigation programs at other U.S. airports.

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4.4 Noise Compatibility Program Implementation

The implementation of the existing Mitigation Measure M-1 (now Measure M-A) will require FAA re-approval to become part of the NCP. New mitigation Measures M-B thru M-J will also require FAA approval to become part of the NCP. For Measure M-B and M-C, land use measures including property acquisition must adhere to the provisions of the Uniform Relocation Assistance and Real Properties Acquisition Polices Act.

Recommended Program Management Measures A-1 and A-2 (now Measure P-A and P-B) are being continued with slight modifications. However, they are being put forth for re-approval by the FAA since they were included as part of the abatement measures in the 1997 NCP. New Measure P-C can be implemented at the discretion of the airport. However, this measure will require FAA approval of the NCP in order to be eligible for Federal funding.

It is anticipated that the FAA will issue a Record of Approval (ROA) for all thirteen (13) of the Mitigation Measures and Program Management Measures.

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