



FAR Part 150 Update – Duluth (DLH)

DAA Board Meeting | June 2021



Agenda

- Part 150 Study Overview
- Elements of a Part 150 Study
- Short-Term Noise Monitoring Program
- Existing (2020) and Future (2026) Noise Contours
- Noise Compatibility Program (NCP) Screening Overview
- Land Use Mitigation Recommendations
- Program Management Recommendations
- NCP Estimated Cost
- Public Involvement
- Next Steps

Part 150 Study Overview

- Part 150 Studies are Planning Studies
 - Identify noise and land use impacts that exist today and in the future
 - Work to develop solutions within the FAA's framework
- Part 150 Studies can open funding sources
 - Following FAR Part 150 guidelines makes airport eligible for grants for implementing recommendations of the study
 - Funding is not guaranteed
- Part 150 Studies do not:
 - Recommend closing an airport or implementing mandatory restrictions on aircraft
 - Give environmental approval for implementing noise abatement or land use programs
 - Must complete National Environmental Policy Act (NEPA) review
 - Environmental Impact Statement (EIS), Environmental Assessment (EA), Categorical Exclusion (CATEX)
 - DLH NCP recommendations would fall under the CATEX level review

Elements of a Part 150 Study

- Noise Exposure Maps (NEM's)
 - Description of the noise levels for existing and future conditions
 - Represents an annual-average day (1 year of operations/365)
 - Prepared using the FAA's Aviation Environmental Design Tool (AEDT) Version 3b
 - Per FAA, must use specific noise metric – Day-Night Level (DNL)
 - 24-Hour average
 - Penalty for nighttime (10:00 p.m. to 6:59 a.m.) flights (x10)
 - 65+ DNL identified as national standard threshold for impact classification
- Noise Compatibility Program (NCP)
 - Recommendations for reducing, minimizing, and/or mitigating aircraft noise and land use conflicts
 - Noise Abatement
 - Land Use Mitigation
 - Corrective
 - Preventative
 - Program Management
- Public Involvement
 - Public information meetings/workshops
 - Public hearings
 - Planning Advisory Committee (PAC)

Short-Term Noise Monitoring Program

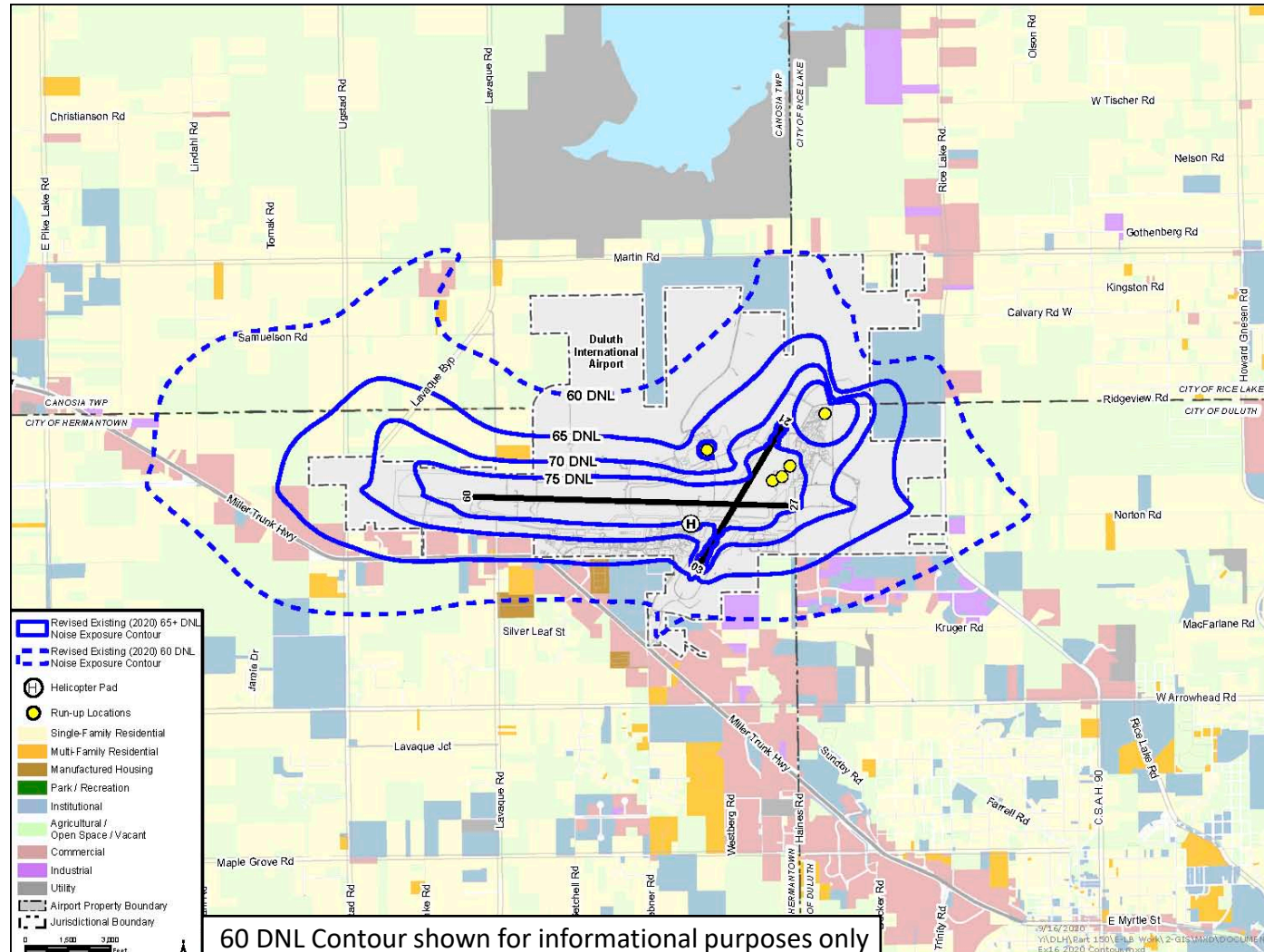
Noise Measurement Sites



Noise monitoring was conducted at all locations requested by community members and was preformed under pre-COVID conditions (November 2019)

Site	Date	Time	Aircraft Type	Lmax (dB)	Arrival/Departure	Runway
1	11/7/2019	1:35 PM	F-16	96.1	D	27
2	11/5/2019	11:21 AM	F-16	108.6	A	27
3	11/6/2019	1:56 PM	F-16	104.2	D	27
4	11/5/2019	1:47 PM	F-16	121.17	D	27
5	11/5/2019	9:32 AM	F-16	122.3	D	27
6	11/7/2019	11:33 AM	F-16	109.7	A	27
7	11/6/2019	3:21 PM	Helicopter	79.3	O	--
8	11/5/2019	1:38 PM	F-16	110.0	D	27
9	11/7/2019	9:43 AM	F-16	105.9	D	27
10	11/5/2019	11:21 PM	F-16	104.6	A	27
11	11/7/2019	3:25 PM	F-16	114.2	D	27
12	11/5/2019	2:51 PM	E6 Mercury	95.2	A	27
13	11/6/2019	4:16 PM	Twin Propeller	67.9	A	27
14	11/5/2019	10:04 AM	F-16	96.2	D	27
15	11/4/2019	3:06 PM	F-16	113.4	A	27
16	11/5/2019	3:28 PM	F-16	105.3	A	27

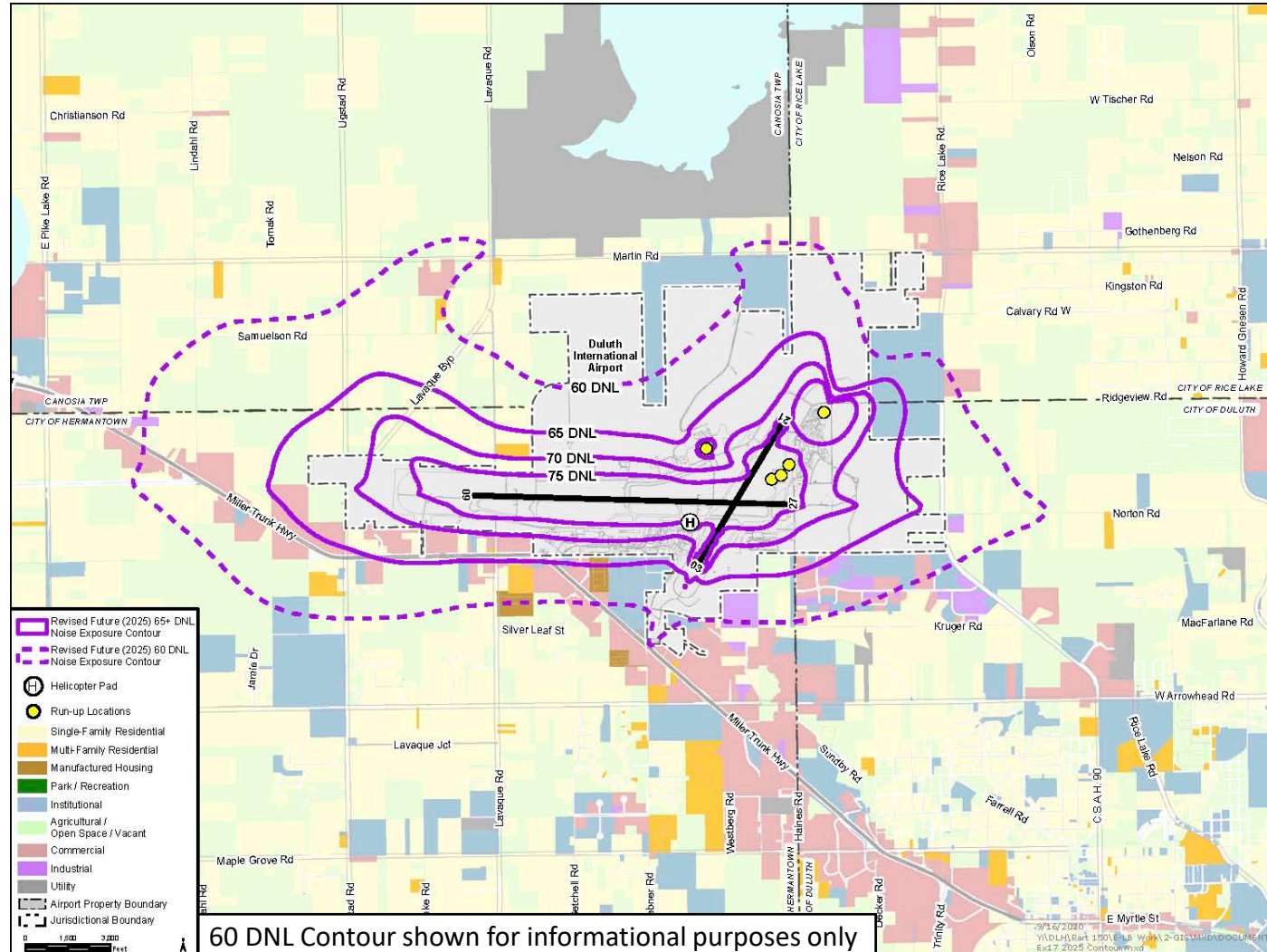
Existing (2020) Baseline Noise Exposure Contours



Contour Input Parameters

- 60,341 annual operations
 - Based on pre-COVID Air Traffic operation counts
- 4,916 F-16 annual F-16C operations
 - F-16 Jet traffic dictates the location of the 65+ DNL noise contours
- Bombardier CRJ-900/700 and Airbus 319-131 account for 83% (1,792 annually) of all large jets

Future (2026) Baseline Noise Exposure Contours



Contour Input Parameters

- 69,509 forecasted annual operations
 - Operations based on pre-COVID forecast
- 5,296 forecasted annual F-16C operations
- Bombardier CRJ-900/700 and Airbus 319-131 account for 86% (2,659 annually) of all large jets

Comments and Questions?

Noise Compatibility Program Screening Overview

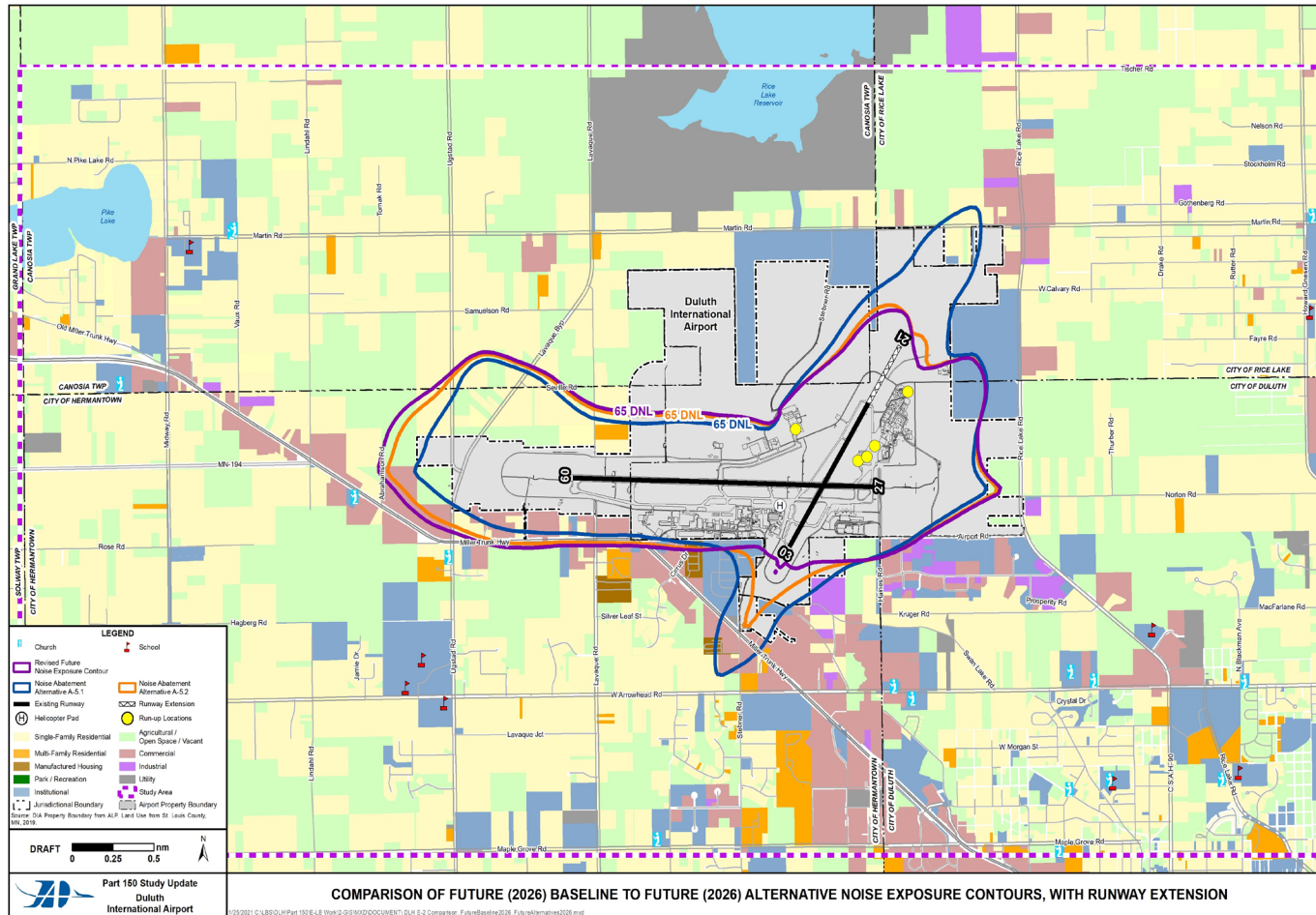
- In order to evaluate each alternative, a set of evaluation criteria was established and used to identify the benefits and drawbacks of each alternative
 - Feasibility
 - Safety
 - Operational considerations
 - Noise reduction
- After it was determined that an alternative was feasible, safe, and had no major operational drawbacks, an assessment of the benefits in terms of noise and land use compatibility was conducted.
- A reduction in noise in one area may result in an increase in noise in another area, priorities were developed to clarify the evaluation process. The noise impact priorities were as follows:
 - Reductions in the 65+ Day-Night Average Noise Level (DNL) noise contours (most important)
 - Sensitivity to shifting noise from one area to another (important)
 - Ensuring that the tradeoffs of increased versus decreased noise are understood before making a decision
 - Recognizing that an alternative may have a net reduction in noise impacts, but may be eliminated because those impacts are a result of decreases in one area with a similar level of increases in another

Noise Compatibility Program Screening Overview

- **Eight (8) Noise Abatement Alternatives Considered**
 - (1) Modification of military flight corridors – *Potential to create additional impacted homes*
 - (2) Modification of commercial aircraft runway use – *Provides no reduction in noise impacts*
 - (3) Optimized Profile Descents – *Provides no reduction in noise impacts*
 - (4) Distant Noise Abatement Departure Profiles – *Provides no reduction in noise impacts*
 - (5) Close-in Noise Abatement Departure Profiles – *Potential to create additional impacted homes*
 - (6) Runway 03/21 extension and modification of military runway use – *Potential to reduce noise impacts to west of airport and potential to create new noise impacts north and south of airport*
 - (7) Noise barriers/berms – *Provides no reduction in noise impacts, potential for limited reduction at 1 residential property*
 - (8) Restrictions to type of aircraft that can operate at airport – *Not recommended due to extreme constraints the airport would incur, loss of revenue and tax base and potential decrease in employment opportunities within the community*
- **Extension of Runway 03/21 and modification of military runway use was recommend for further noise and impact analysis.**
 - Abatement measure would not significantly reduce the number of homes impacted by the 65 DNL noise contour, while potentially impacting properties that are not currently impacted south and north of the 03/21 runway ends.
 - Total cost of extension estimated at \$30 million
- **Noise Abatement screening was presented at the 3rd PAC meeting and at the 3rd Public Workshop for review and comments and suggestions for additional abatement alternatives. To date the study team has received no requests for NEW abatement alternatives to be considered.**

Noise Compatibility Program Screening Overview

- Alternative A-5.1 – 20% F-16 ops. on Rwy. 03/21 (0% night departures)
- Alternative A-5.2 – 10% F-16 ops. on Rwy. 21 only (0% night departures)



FUTURE (2026) BASELINE & FUTURE ALTERNATIVE (2026) DNL NOISE CONTOUR (65+)

Housing Type	Units	Difference from Baseline	Population	Difference from Baseline
FUTURE (2025) BASELINE (0% F-16 ops. on Runway 03/21)				
Single-Family	48	--	99	--
Multi-Family	2	--	4	--
Mobile Homes	33	--	62	--
ALTERNATIVE A-5.1 (20% F-16 arrival/departure ops. on Runway 03 (10%)/21 (10%) & 0% night ops.) – BLUE CONTOUR				
Single-Family	36	-12	74	-25
Multi-Family	2	0	4	0
Mobile Homes	31	-2	58	-4
ALTERNATIVE A-5.2 (10% F-16 arrival/departure ops. on Runway 21 only & 0% night ops.) – ORANGE CONTOUR				
Single-Family	39	-9	81	-18
Multi-Family	2	0	4	0
Mobile Homes	30	-2	58	-4

Comments and Questions?

Noise Compatibility Program Screening Overview

- **Five (5) Corrective Land Use Mitigation Alternatives Considered**
 - (1) Sound Insulation Program – single-family and multi-family units (up to 64 units)
 - (2) Property Acquisition Program – single-family units within 70+ DNL (up to 7 units)
 - (3) Property Acquisition Program – mobile home units (up to 103 units)
 - (4) Avigation Easements – owner occupied single-family units
 - (5) Avigation Easements – owner occupied mobile home units (up to 3 units)
- **All corrective land use mitigation alternatives were recommended for further analysis**

Noise Compatibility Program Screening Overview

- **Four (4) Preventative Land Use Mitigation Alternatives Considered**
 - (1) Airport Land Use Management District (ALUMD)
 - (2) Update to subdivision regulations if necessary
 - (3) Improved building codes if necessary
 - (4) Voluntary fair disclosure program
- **All preventative land use mitigation alternatives were recommended for further analysis**
- **Three (3) Program Management Alternatives Considered**
 - (1) Continued logging of noise complaints
 - (2) Create community round table to address noise related issues
 - (3) Regular updates to NEMs and NCP
- **All program management alternatives were recommended for further analysis**

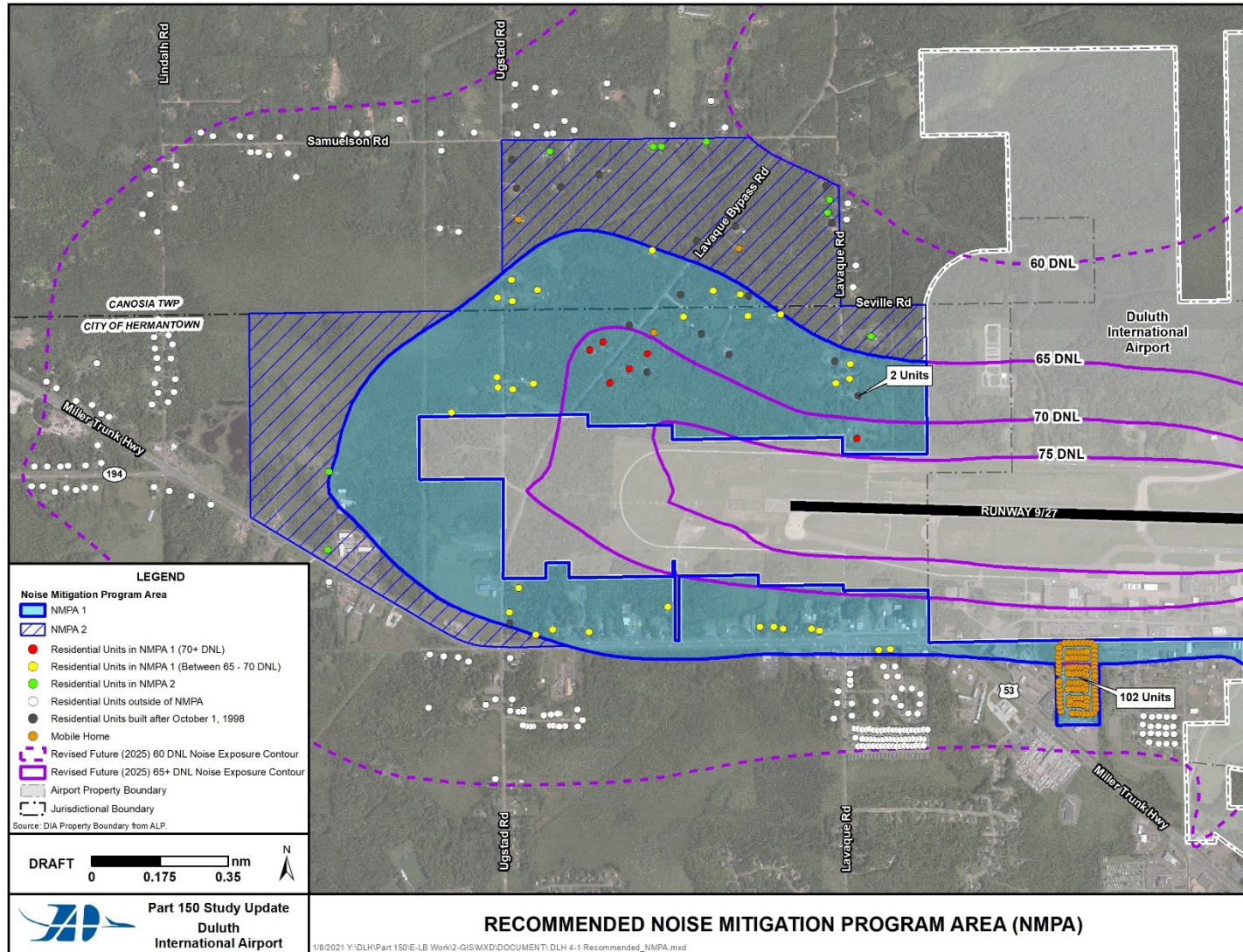
Land Use Mitigation - Recommendations

MEASURE	RESPONSIBLE PARTY	COST TO AIRPORT	COST TO LOCAL GOVERNMENTS	COST TO USERS	IMPLEMENTATION STATUS
CORRECTIVE LAND USE MITIGATION MEASURES					
<p><i>(formerly 1997 NCP Measure M-1)</i> Measure M-A:</p> <p>Offer Residential Sound Insulation Program to Single- and Multi-Family Homes (47 units) within the 65+ DNL Noise Contour.</p> <p>Offer Residential Sound Insulation Program to Single-Family Homes (17 units) within the Block Rounding Area Outside of the 65 DNL Noise Contour</p>	DAA	<p>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 participated the cost to insulate all homes is estimated at \$4,000,000 which includes all hard costs (construction) and soft costs (administrative)</p> <p>Federal AIP funding likely available (80% FAA share/20% local airport share)</p>	None	None	<p>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 65+ DNL and the properties identified in the block rounding area outside the 65 DNL.</p>
<p>Measure M-B:</p> <p>Offer Land Acquisition Program to Single-Family Homes (7 homes) within the 70+ DNL Noise Contour</p>	DAA	<p>It is estimated at \$2,450,000 if 100% of homes participated.</p> <p>Federal AIP funding likely available (80% FAA share/20% local airport share)</p>	Loss of tax base	None	<p>This is a new measure</p>
<p>Measure M-C:</p> <p>Offer Land Acquisition Program to Mobile Homes within NMPA #1 (103 Mobile Homes)</p>	DAA	<p>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 mobile home and mobile home park), and 1 mobile home property located to the east of Lavaque Bypass Road within the 65 DNL contour (cost of single mobile home and property).</p> <p>Federal AIP funding likely available (80% FAA share/20% local airport share)</p>	Loss of tax base	None	<p>This is a new measure</p>

Land Use Mitigation - Recommendations

MEASURE	RESPONSIBLE PARTY	COST TO AIRPORT	COST TO LOCAL GOVERNMENTS	COST TO USERS	IMPLEMENTATION STATUS
CORRECTIVE LAND USE MITIGATION MEASURES					
Measure M-D: Offer avigation easement to owner occupied single-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)	None	None	This is a new measure
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 \$6,000 per home. Federal AIP funding likely available (80% FAA share/20% local airport share)	None	None	This is a new measure
Measure M-F: Offer avigation easement to 2 owner occupied mobile homes within NMPA #2.	DAA	The estimated cost of each avigation easement is up to \$12,000 (\$6,000 max per mobile home). Federal AIP funding likely available (80% FAA share/20% local airport share)	None	None	This is a new measure

Land Use Mitigation - Recommendations



- Noise Mitigation Program Areas (NMPA)
 - **NMPA #1** – Area inside 65+ DNL Noise Contour
 - NMPA #1 extended to include entire Birchwood Mobile Estate property
 - **NMPA #2** – Area outside of the 65+ DNL Contour w/ potential FAA funding for mitigation through block rounding
- Not all properties will meet eligibility requirements during testing phases of the Sound Insulation Program

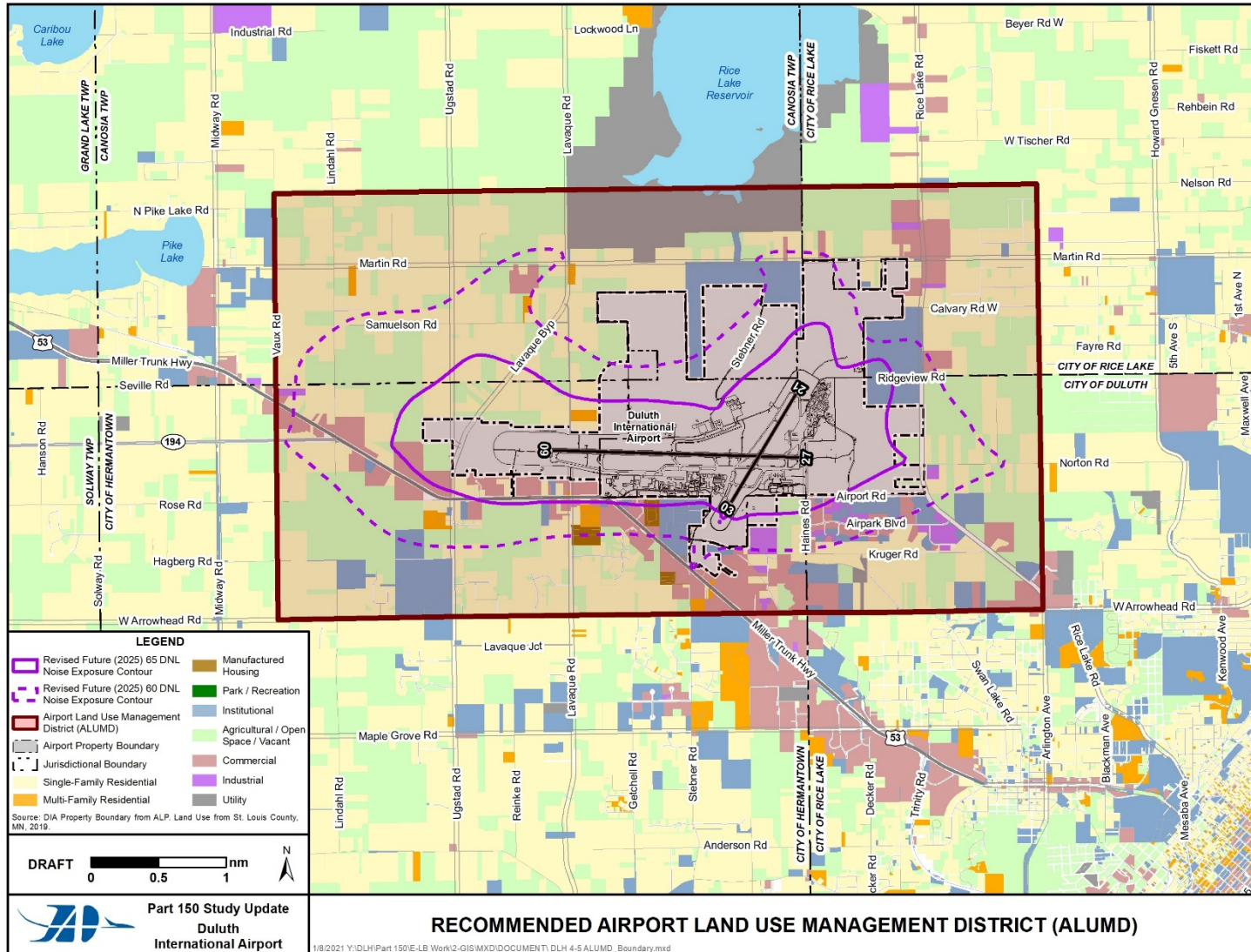
Land Use Mitigation - Recommendations

LAND USE	NMPA1		NMPA2		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

Land Use Mitigation - Recommendations

MEASURE	RESPONSIBLE PARTY	COST TO AIRPORT	COST TO LOCAL GOVERNMENTS	COST TO USERS	IMPLEMENTATION STATUS
PREVENTATIVE LAND USE MITIGATION MEASURES					
<i>(formerly 1997 NCP Measure M-1)</i> 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 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

Land Use Mitigation - Recommendations



• Proposed Airport Land Use Management District (ALUMD)

- West Boundary – Vaux Rd. & Ext.
- South Boundary – Arrowhead Rd.
- East Boundary – Drake Rd. & Ext.
- North Boundary – Nelson Rd. & Ext.

Comments and Questions?

Program Management - Recommendations

MEASURE	RESPONSIBLE PARTY	COST TO AIRPORT	COST TO LOCAL GOVERNMENTS	COST TO USERS	IMPLEMENTATION STATUS
PROGRAM MANAGEMENT MEASURES					
<i>(formerly 1997 NCP Measure A-1)</i> Measure P-A: Continue Logging of Noise Complaints	DAA and 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
<i>(formerly 1997 NCP Measure A-2)</i> 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

NCP Estimated Total Cost

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
Land Use Mitigation Alternatives (Corrective) ⁽¹⁾	\$18,000,000	\$14,400,000	\$3,600,000	None	None
Land Use Mitigation Alternatives (Preventative)	\$200,000	\$160,000	\$40,000	Minimal	None
Program Management Alternatives	\$350,000 - \$750,000	\$280,000 - \$600,000	\$70,000 - \$150,000	Minimal	None
TOTAL	Approximately \$19,000,000 - plus administrative costs	Approximately \$15,200,000 plus administrative costs	Approximately \$3,800,000 plus administrative costs	Minimal administrative costs; plus potential loss of tax base	None

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

- **DAA is actively seeking funding support from the 148th Fighter Wing**
 - Assistance in funding 20% local share if NCP measures are approved by FAA and awarded AIP funding at a later date.
 - 148th funding assistance is vital to fully implementing land use mitigation measures.

Comments and Questions?

Public Involvement – Planning Advisory Committee (PAC)

Planning Advisory Committee (PAC) – Four (4) PAC meetings have been held to date, all materials presented at the PAC meeting can be found on the study website.

- **PAC meeting #1:** Review of Part 150 process and background information including the elements of a Part 150 Study. Background information on public involvement in the Part 150 study and noise modeling.
- **PAC meeting #2:** Presentation of noise modeling methodology including annual operations, runway utilization, time of day, flight tracks and vertical flight profiles. This meeting included a review and discussion of the resulting draft noise exposure contours and a review of the basic elements included in a Noise Compatibility Program.
- **PAC meeting #3:** The final noise exposure contours were presented along with population and housing impacts based on the FAA impact threshold of 65+ DNL. The NCP screening and analysis for the initial mitigation recommendations and estimated costs were presented.
- **PAC meeting #4:** The meeting focused on the review of the final NCP recommendations and associated costs. During the meeting the members of the PAC were asked to participate in a survey to determine the level of support for each NCP measure.

Public Involvement - Workshops

Public Workshops – Three (3) workshops have been held to date, all materials presented at the public workshops along with video recordings of the virtual online public workshops can be found on the study website. Public invitations to these workshops have included postcard invitations (666 individual postcards to each public workshop) to surrounding property owners, social media posts, press releases and other methods.

- **Workshop #1 & Master Plan Open House:** Review of Part 150 process and background information including the elements of a Part 150 Study. Background information on public involvement in the Part 150 study and noise modeling. Participants were asked to sign up for noise monitoring at their homes during the first public workshop meeting.
- **Workshop #2:** Presentation of noise modeling methodology including annual operations, runway utilization, time of day, flight tracks and vertical flight profiles. This meeting included a review and discussion of the resulting draft noise exposure contours and a review of the basic elements included in a NCP.
- **Workshop #3:** The final noise exposure contours were presented along with population and housing impacts based on the FAA impact threshold of 65+ DNL. The NCP screening and analysis for the initial mitigation recommendations and estimated costs were presented.

Public Involvement – Local Planning Coordination

- The study team held coordination meetings with governmental representatives surrounding DLH.
- Representatives meet with the study team to review the noise contours, land use mitigation options and a detailed review of the preventative land use mitigation options.
- The review of the preventative land use mitigation options was focused on areas within each jurisdiction.
- Representatives for each jurisdiction that attended the coordination meetings:

City of Duluth

Adam Fulton, Deputy Director, Planning & Economic Development

Steve Robertson, Senior Planner

City of Hermantown

John Mulder, City Administrator

Eric Johnson, Community Development Director

City of Rice Lake

John Werner, Mayor

Suzanne Herstad, City Council Member

Toni Blomdahl, City Council Member

Saint Louis County

Jenny Bourbonais, Planning Manager

Thomas Stanley, Assistant County Attorney

Comments and Questions?

NEXT STEPS

- Complete preliminary draft documentation
- Complete DAA and FAA review of preliminary draft document
- Public Hearing later this summer followed by public comment period