

APPENDIX L: AVIATION LAND USE COMPATIBILITY GUIDELINES

The regional land use compatibility guidelines for aircraft noise have been prepared to assist communities in preventative and corrective mitigation efforts that focus on compatible land use. The compatibility guidelines are one of several aviation system elements to be addressed in the comprehensive plans and plan amendments of communities affected by aircraft and facility operational impacts. The Metropolitan Land Planning Act requires all local government units to prepare a comprehensive plan for submittal to the Metropolitan Council for review; updated plans will be due in December 2018. The new plans will reflect the Thrive MSP 2040 vision, and the 2015 Metro Systems Statements. The following overall process and schedule applies:

- In 2015, after adoption of the new 2040 Transportation Policy Plan, the Metropolitan Council transmits new systems statements to each metro community.
- Within nine months after receipt of the systems statements each community reviews in comprehensive plan and determines if a plan amendment is needed to ensure consistency with Thrive MSP 2040. If an amendment is needed the community prepares a plan amendment and submits it to the Metropolitan Council for review.
- Each community affected by aircraft noise and airport owner jointly prepare a noise program to reduce, prevent or mitigate aircraft noise impacts on land uses that are incompatible with the guidelines; both operational and land use measures should be evaluated. Communities should assess their noise impact areas and include a noise program in the 2018 comprehensive plan update.
- Owners/Operators of system airports should include their part of the noise program in preparation or update of each airports long-term comprehensive plan. See Table L-1 Noise Impacted Communities for listing of noise-impacted communities.
- Metropolitan Council reviews community plan submittal and approves or requires a plan modification.
- Airport owner submits long-term comprehensive airport plan or plan update for Metropolitan Council review and approval. A schedule for updates of long-term comprehensive plans is included in Appendix K as Table K-1.

Airport Noise

The airport section of the land use compatibility guidelines assumes:

- Federal and Manufactures programs for reduction of noise at its source (engines, airframes)
- Airport operational noise abatement measures plan/in place
- Community comprehensive plans reflect compatible land use efforts occurring through land acquisition, "preventive" land use measures, or "corrective" land use measures

- Availability of a Metropolitan Council noise policy area map (from the most recently approved long-term comprehensive plan) for the facility under consideration - the noise policy exposure maps identify where, geographically, the land use compatibility guidelines are to be applied

Preventive and Corrective Land Use Measures

Airport noise programs, and the application of land use compatibility guidelines for aircraft noise, are developed within the context of both local community and comprehensive plans, and individual airports long-term comprehensive plans. Both the airport and community plans should be structured around an overall scheme of preventive and corrective measures. Table L-2 Current Land Use Measures depicts the current land use measures adopted in conjunction with development of the MSP noise compatibility programs.

The status of noise compatibility programs at other system airports, in relation to the land use measures adopted at Minneapolis-St. Paul International, are also included to indicate the extent of the current noise control effort on a system-wide basis. Other land use measures may also need to be considered at reliever system airports. The level and extent of noise impacts vary widely between the airports and therefore not all land use measures may be appropriate for each specific airport, in addition, the level of noise abatement emphasis may need to be different for neighborhoods with the same community.

The compatibility guidelines indicate that some uses be "discouraged." Prior to applying the guidelines, the comprehensive plan or plan amendment needs to assess what has been or can be done to discourage noise sensitive uses. This should be done when the overall preventive and corrective land use guidelines (contained in Table L-2) are defined and described below. All new land uses are categorized according to whether they are considered new/major redevelopment or new/in-fill/redevelopment.

The land uses are listed in Table L-3 Land Use Compatibility Guidelines for Aircraft Noise as specific categories grouped to reflect similar general noise attenuation properties and what the normally associated indoor and outdoor use activities are. The listing is ranked from most to least sensitive uses in each category based upon the acoustic properties of typical land uses by the standard land use coding manual. The Metropolitan Council has prepared a builder's guide to assist in determining acoustic attenuation of proposed new single-family detached housing, which is discouraged, but may be allowed by communities in zone 4 and the buffer zone.

Table L-1: Noise Impacted Communities

Airport	Community
MSP International*	Minneapolis, Bloomington, Richfield, Mendota Heights, Mendota, Eagan, Burnsville
St. Paul Downtown	St. Paul
Anoka County-Blaine	Blaine
Flying Cloud	Eden Prairie
Crystal	Crystal, Brooklyn Park, Brooklyn Center
Airlake	Eureka Twp., Lakeville
South St. Paul	South St Paul, Inver Grove Heights
Lake Elmo	Baytown, West Lakeland, Lake Elmo

* As defined under MS 473.621, Sd 6.

Table L-2: Current Land Use Measures

Preventive Land Use Measures

	MSP International Airport Communities	Other Regional Airport Communities
Amend local land use plans to bring them into conformance with regional land use compatibility guidelines for aircraft noise.	YES	YES
Apply zoning performance standards.	YES	YES
Establish a public information program	YES	YES
Revise Building code.	YES/MS 473.192	YES/MS 473.192
Fair property disclosure policy.	YES/Usually applied by developer or builder.	YES/Usually applied by developer or builder.
Dedication of aviation easements/releases.	YES	YES
Transfer of development rights.	NO	NO
Land banking (acquisition of undeveloped property)	NO	NO

Corrective Land Use Measures

	MSP International Airport Communities	Other Regional Airport Communities
Airport Developed property		
Within RPZs	YES	YES
Within Runway Safety Zones	YES	FCM&STP
Within DNL 70	YES	Airports
Part 150 sound insulation program	YES	NO
Property purchase guarantee	NO	NO
Creation of sound barriers		
Walls	YES	YES (Proposed in the FCM and ANE LTCPs)
Berms	YES	
Ground runup enclosures	YES	

Table L-3: Land Use Compatibility Guidelines for Aircraft Noise Levels

Land Use Category	New Development Major Redevelopment					Infill Development Additions to Existing Structures				
	1 DNL 75+	2 DNL 74-70	3 DNL 69-65	4 DNL 64-60	Buffer Zone*	1 DNL 75+	2 DNL 74-70	3 DNL 69-65	4 DNL 64-60	Buffer Zone *
Noise Exposure Zones										
Residential										
Single / Multiplex with Individual Entrance	INCO	INCO	INCO	INCO		COND	COND	COND	COND	
Multiplex / Apartment with Shared Entrance	INCO	INCO	COND	PROV		COND	COND	PROV	PROV	
Mobile Home	INCO	INCO	INCO	COND		COND	COND	COND	COND	
Educational, Medical, Schools, Churches, Hospitals, Nursing Homes	INCO	INCO	INCO	COND		COND	COND	COND	PROV	
Cultural/Entertainment/Recreational										
Indoor	COND	COND	COND	PROV		COND	COND	COND	PROV	
Outdoor	COND	COND	COND	COND		COND	COND	COND	COMP	
Office / Commercial/Retail	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP	
Transportation-Passenger Facilities	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP	
Transient Lodging	INCO	COND	PROV	PROV		COND	COND	PROV	PROV	
Other medical, Health & Educational	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP	
Other Services	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP	
Industrial/Communication / Utility	PROV	COMP	COMP	COMP		PROV	COMP	COMP	COMP	
Agriculture Land/Water Areas / Resource Extraction	COMP	COMP	COMP	COMP		COMP	COMP	COMP	COMP	

NOTE: COMP = Compatible; PROV = Provisional; COND = Conditional; INCO = Incompatible.

New Development: Major Redevelopment or Infill/Reconstruction

New Development – means a relatively large, undeveloped tract of land proposed for development. For example, a residential subdivision, industrial park, or shopping center.

Major Redevelopment - means a relatively large parcel of land with old structures proposed for extensive rehabilitation or demolition and different uses. For example, demolition of an entire block of old office or hotel buildings for new housing, office, commercial uses; conversion of warehouse to office and commercial uses

Infill Development - pertains to an undeveloped parcel or parcels of land proposed for development similar to or less noise-sensitive than the developed parcels surrounding it. For example, a new house on a vacant lot in a residential neighborhood, or a new industry on a vacant parcel in an established industrial area.

Reconstruction of Additions to Existing Structures - pertains to replacing a structure destroyed by fire, age, etc. to accommodate the same use that existed before destruction, or expanding a structure to accommodate increased demand for existing use (for example, rebuilding and modernizing an old hotel, or adding a room to a house). Decks, patios and swimming pools are considered allowable uses in all cases.

Definition of Compatible Land Use

The four land use ratings in land use compatibility Table L-3 are explained as follows:

COMP/Compatible – uses are acoustically acceptable for both indoors and outdoors.

PROV/Provisional – uses that should be discouraged if at all feasible; if allowed, must meet certain structural performance standards to be acceptable according to MS 473.192 (Metropolitan Area Aircraft Noise Attenuation Act). Structures built after December 1983 shall be acoustically constructed so as to achieve the interior sound levels described in Table L-4. Each local government unit having land within the airport noise zones is responsible for implementing and enforcing the structure performance standards in its jurisdiction.

COND/Conditional – uses that should be strongly discouraged; if allowed, must meet the structural performance standards, and requires a comprehensive plan amendment for review of the project under the factors described in Table L-3.

INCO/Incompatible – Land uses that are not acceptable even if acoustical treatment were incorporated in the structure and outside uses restricted.

Noise Policy Areas

A noise policy area is defined for each system airport and includes – aircraft noise exposure zones, a (optional) buffer zone; and, the preventative and corrective land use measures that apply to that facility. This section of the land use compatibility guidelines for aircraft noise UPDATE MAP, waiting on MAC data. contains maps depicting the latest noise information being used to define the noise policy areas for each system airport. The noise policy area is established as part of the [latest] LTCP reviewed and approved by the Metropolitan Council.

Figure L-1 2030 Preferred Alternative Contours, Minneapolis-St. Paul International Airport

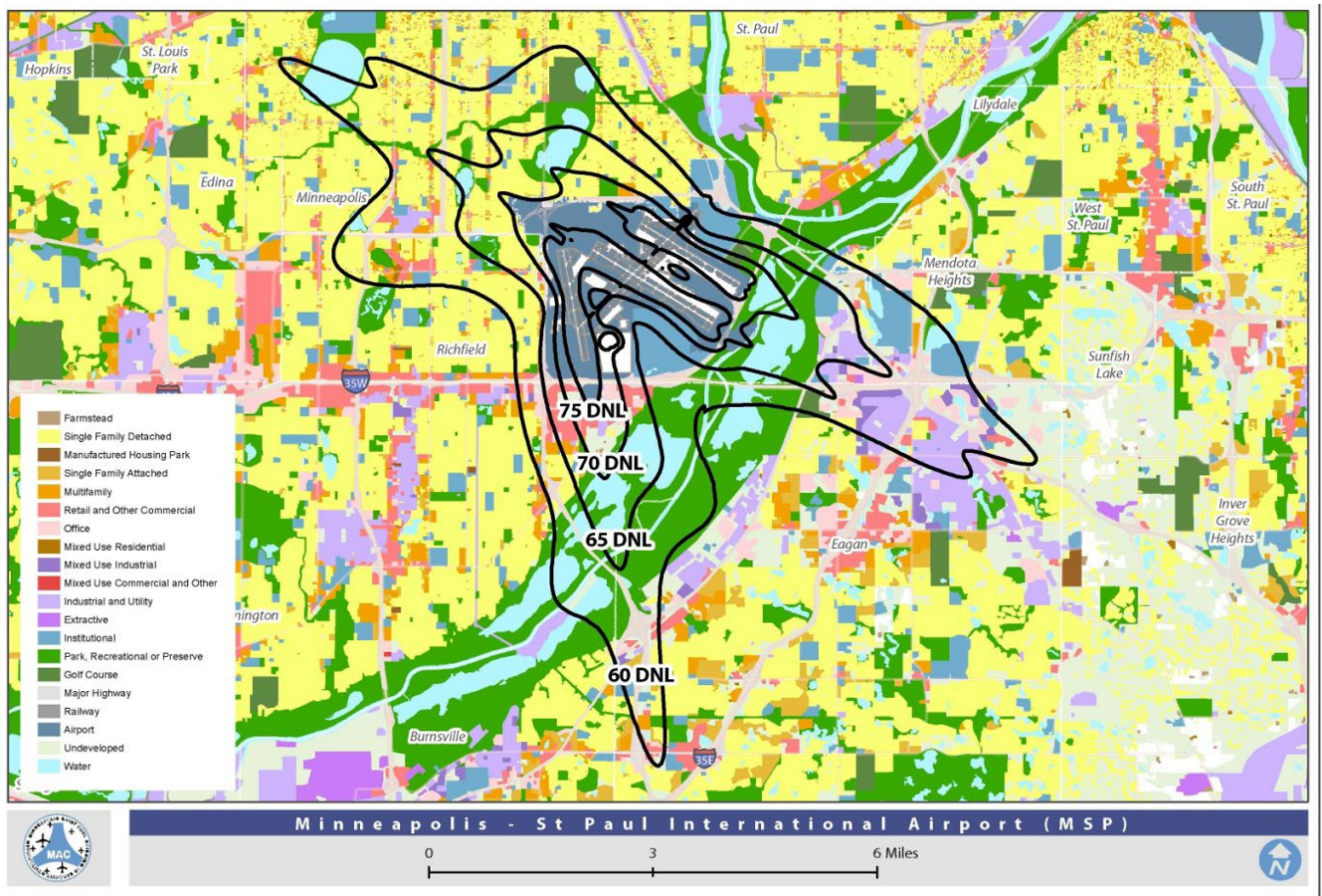


Figure L-2 2025 Preferred Alternative Contours, St. Paul Downtown Airport

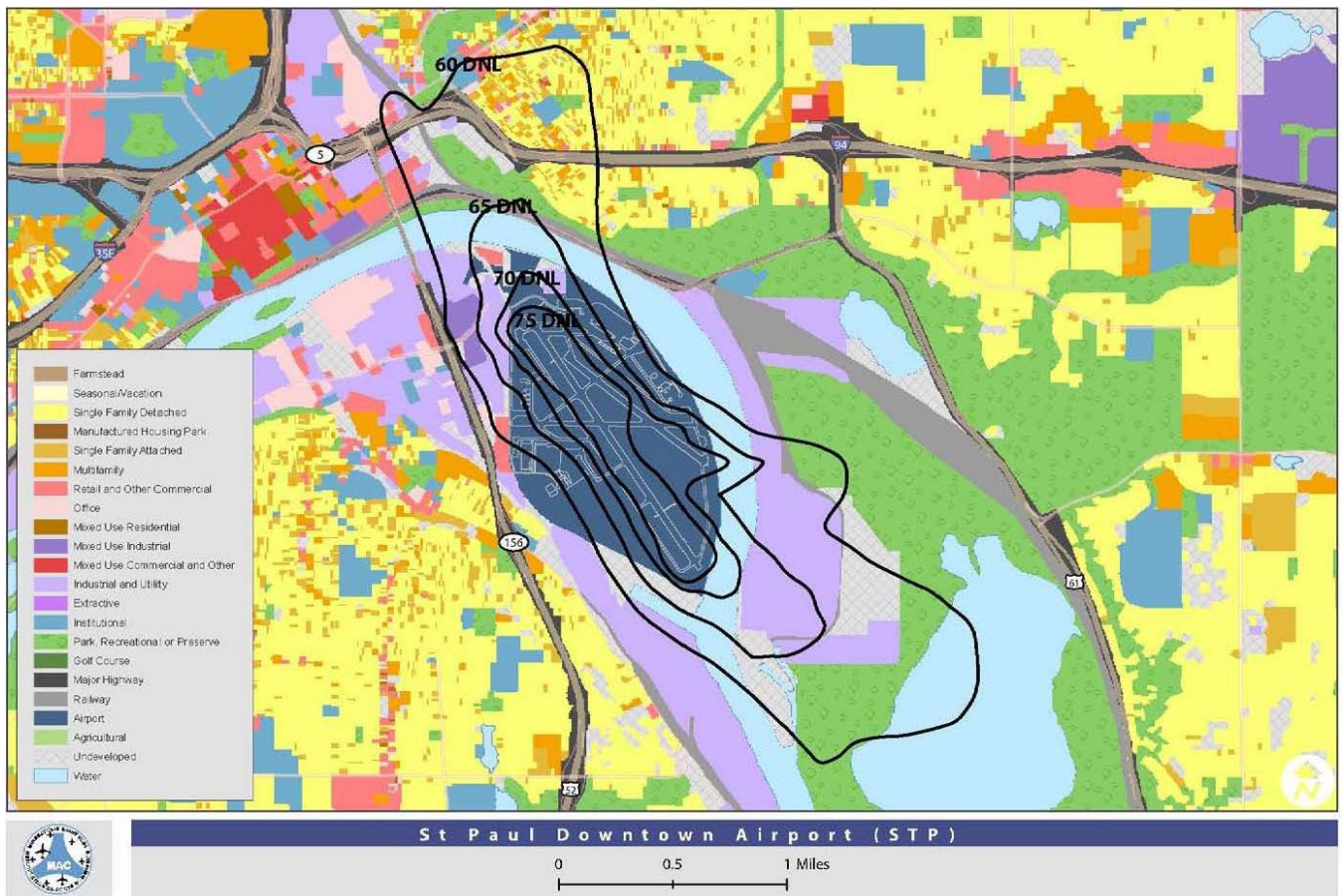


Figure L-3 2035 Preferred Alternative Contours, Airlake Airport

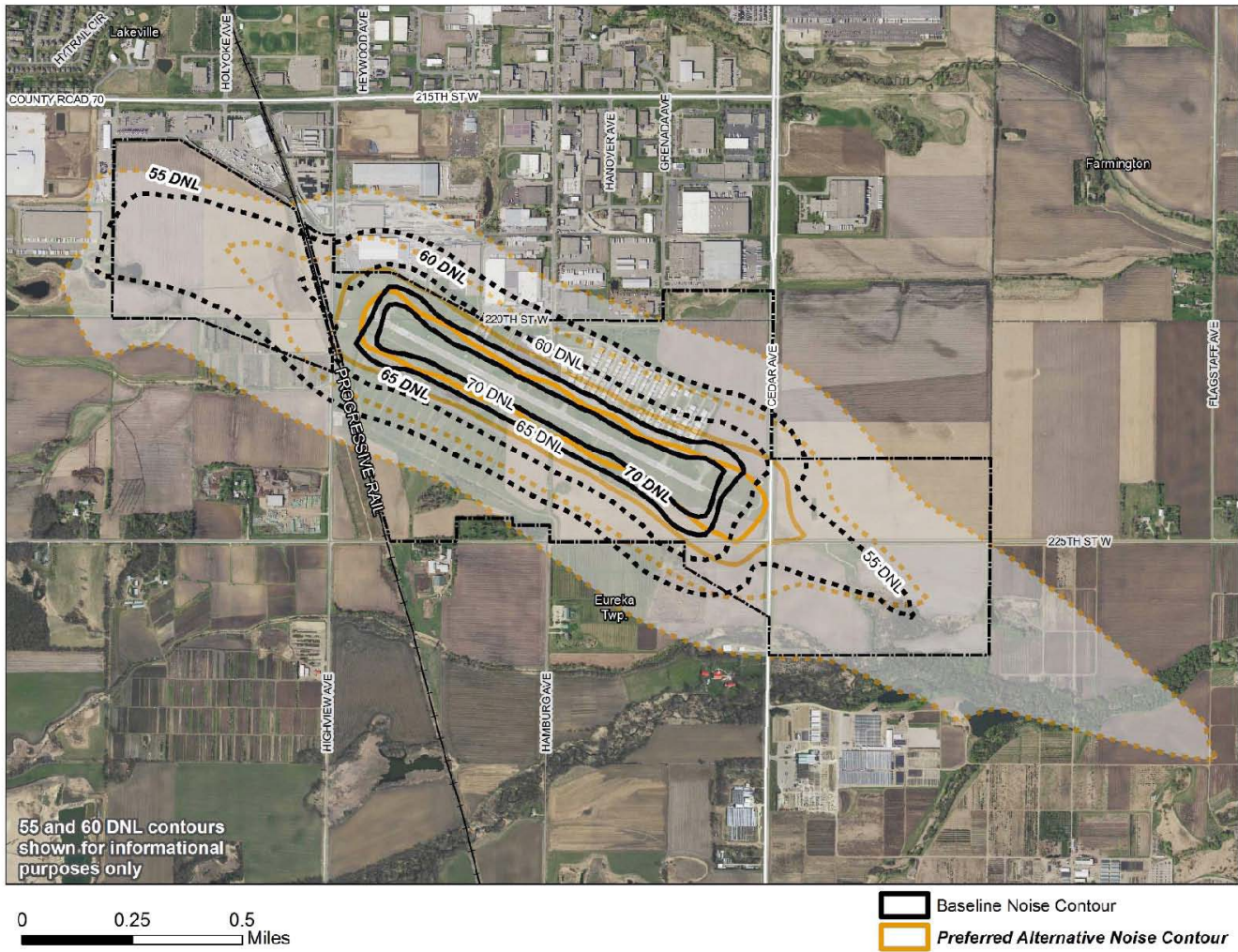


Figure L-4 2025 Preferred Alternative Contours, Anoka County – Blaine Airport

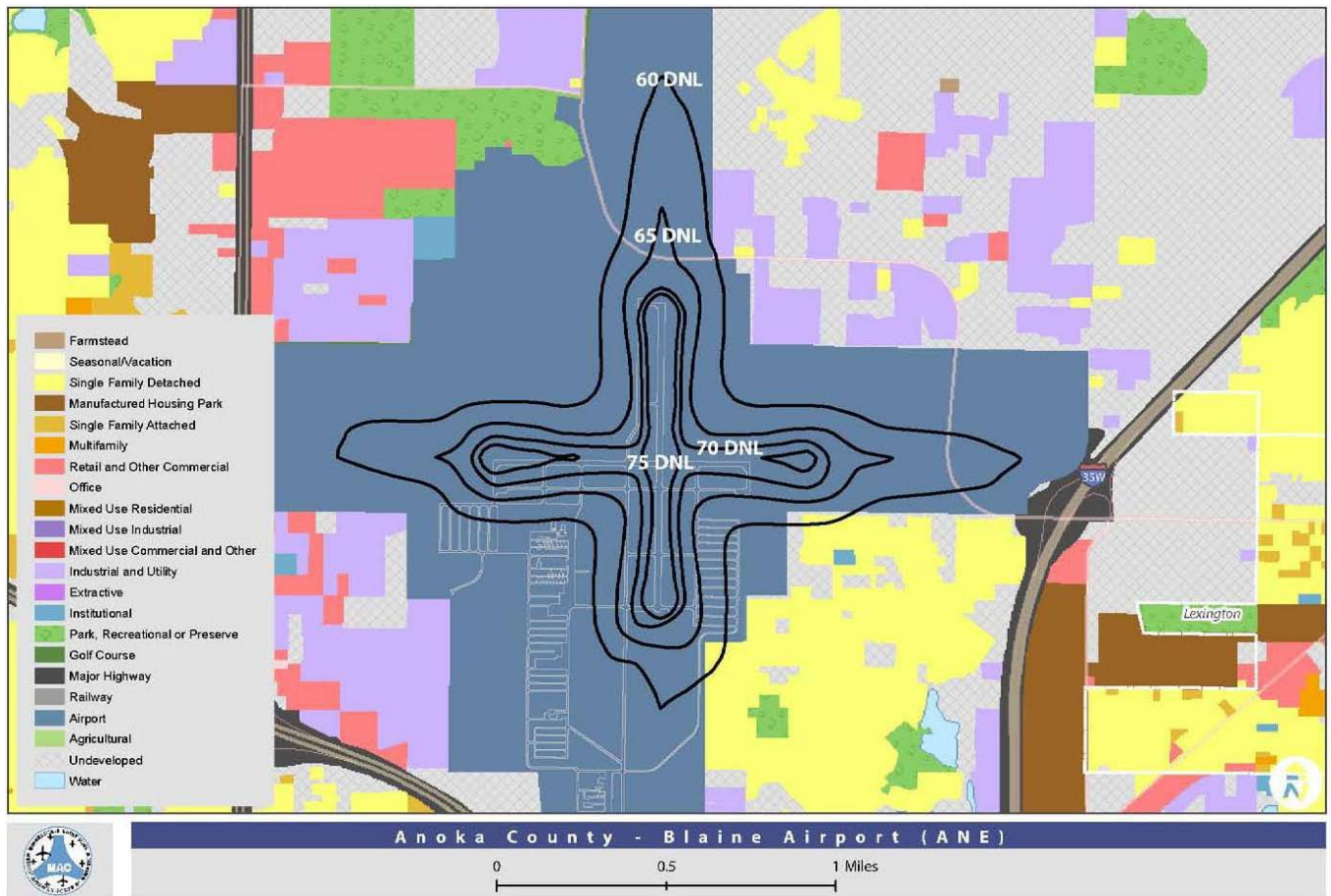


Figure L-5 2035 Preferred Alternative Contours, Crystal Airport



Figure L-6 2025 Preferred Alternative Contours, Flying Cloud Airport

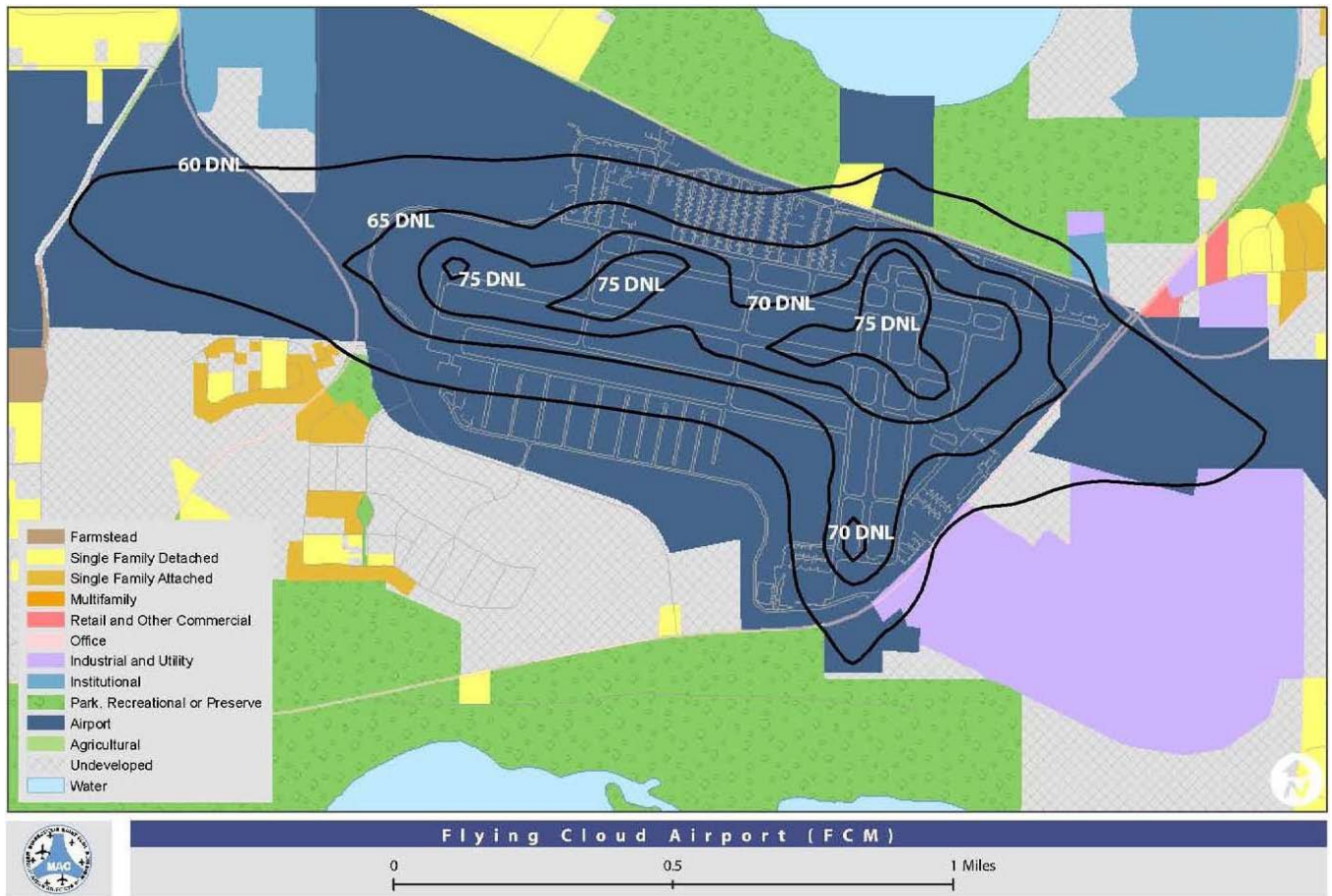


Figure L-7 2035 Preferred Alternative Contours, Lake Elmo Airport



MAC – Lake Elmo Airport LTCP, 2016

Noise Exposure Zones

Zone 1 – Occurs on and immediately adjacent to the airport property. Existing and projected noise intensity in the zone is severe and permanent. It is an area affected by frequent landings and takeoffs and subjected to aircraft noise greater than 75 DNL. Proximity of the airfield operating area, particularly runway thresholds, reduces the probability of relief resulting from changes in the operating characteristics of either the aircraft or the airport. Only, new, non-sensitive, land uses should be considered - in addition to preventing future noise problems the severely noise-impacted areas should be fully evaluated to determine alternative land use strategies including eventual changes in existing land uses.

Zone 2 – Noise impacts are generally sustained, especially close to runway ends. Noise levels are in the 70-74 DNL range. Based upon proximity to the airfield the seriousness of the noise exposure routinely interferes with sleep and speech activity. The noise intensity in this area is generally serious and continuing. New development should be limited to uses that have been constructed to achieve certain exterior to - interior noise attenuation and that discourage certain outdoor uses.

Zone 3 – Noise impacts can be categorized as sustaining. Noise levels are in the 65-69 DNL range. In addition to the intensity of the noise, location of buildings receiving the noise must also be fully considered. Aircraft and runway use operational changes can provide some relief for certain uses in this area. Residential development may be acceptable if it is located outside areas exposed to frequent landings and takeoffs, is constructed to achieve certain exterior-to-interior noise attenuation and is restrictive as to outdoor use. Certain medical and educational facilities that involve permanent lodging and outdoor use should be discouraged.

Zone 4 – Defined as a transition area where noise exposure might be considered moderate. Noise levels are in the 60-64 DNL range. The area is considered transitional since potential changes in airport and aircraft operating procedures could lower or raise noise levels. Development in this area can benefit from insulation levels above typical new construction standards in Minnesota, but insulation cannot eliminate outdoor noise problems.

Noise Buffer zones – Additional areas that can be protect at option of the affected community; generally, the buffer zone becomes an extension of Noise zone 4. At MSP, a one-mile buffer zone beyond the DNL 60 has been established to address the range of variability in noise impact, by allowing implementation of additional local noise mitigation efforts. A buffer zone, out to DNL 55, is optional at those reliever airports with noise policy areas outside of the MUSA.

Table L-4: Structure Performance Standard*:

Land Use	Interior Sound Level**
Residential	45dba
Educational/Medical	45dba
Cultural/Entertainment/Recreational	50dba***
Office/Commercial/Retail	50dba
Services	50dba
Industrial/Communications/Utility	60dba
Agricultural Land/Water Area/Resource Extraction	60dba

* Do not apply to buildings, accessory buildings, or portions of buildings that are not normally occupied by people.

** The federal DNL descriptor is used to delineate all the system airport noise policy zones.

*** Special attention is required for certain noise sensitive uses, for example, concert halls.