

Appendix D

Land Use Assessment Methodology

This page intentionally left blank

Appendix D Land Use Assessment Methodology

Identifying and evaluating land uses within the airport environs is an important step in the Part 150 Noise Compatibility Study (Study) process. This evaluation is necessary to identify residential and other noise-sensitive land uses that may be affected by airport noise and operations. The land use assessment includes examining land use classifications, zoning codes, and development trends within the airport environs; and applying the Federal Aviation Administration (FAA) Part 150 guidelines for land use compatibility and previous land use mitigation efforts conducted by the Duluth Airport Authority (DAA) and the Joint Airport Zoning Board (JAZB) at Duluth International Airport (DLH or Airport). A Geographic Information System (GIS) land use database was developed to facilitate the identification of land uses that are incompatible with airport operations.

D.1 Airport Environs and General Study Area

The airport environs, as discussed in **Chapter 2, Affected Environment**, refers to the regional area that may experience broader effects from the noise due to aircraft operations. The airport environs for DLH is shown in **Exhibit 2-1, General Study Area**, and depicts the area of northwest Duluth and other jurisdictions in southeast Saint Louis County. The map includes jurisdictional boundaries, local roads and major highways, the Airport property boundary, and other geographical features. The General Study Area (GSA) is defined as the area that experiences direct overflights of aircraft at lower altitudes. The GSA was determined by examining the boundaries of previous 65 day-night average sound level (DNL) noise exposure contours (the FAA-defined threshold for significant noise impacts), and by reviewing flight tracks of aircraft operating at DLH.

D.2 Land Use Mapping

Land use data was collected and incorporated into a GIS database that includes jurisdictional boundaries, roads, bodies of water, and other physical features. The database was used to identify existing land use conditions within the airport environs and to identify areas impacted by noise per FAA guidelines. This section describes the methodology for collecting and analyzing land use data.

D.2.1 Land Use Classifications

Existing land use data was collected from the cities of Duluth, Hermantown and Rice Lake and areas of Saint Louis County within the GSA. Land uses in the vicinity of DLH were categorized in terms of the general land use classifications as outlined in 14 CFR Part 150 and shown in **Table D-1, Generalized Land Use Classifications**. These classifications include residential (single, multi-family and manufactured housing), commercial, industrial and utility (e.g., manufacturing and production), institutional (e.g., public use), park/recreational, agricultural/open space/vacant. These land uses were identified based on each jurisdictions GIS database, published land use and zoning maps and were verified as necessary with aerial photography and site visits. The existing land use patterns within the airport environs is shown in **Exhibit D-1, Generalized Existing Land Use**.

Table D-1 Generalized Land Use Classifications

GENERALIZED LAND USE	SPECIFIC LAND USE TYPES
Agricultural / Open Space / Vacant	Vacant / Unplatted
	Property Used in Agricultural Operation ¹
	Surface Parking Lot
Single-Family Residential	Single-Family Residential
Multi-Family Residential	Two-Family Residential
	Condominium
	Three-Family Dwelling
	Apartments (4 to 19 Family)
	Apartments (20 to 39 Family)
	Apartments (40+ Family)
	Commercial Rooming House
	Condo (4 to 19 Units)
	Condo (20 to 39 Units)
	Condo (40+ Units)
Manufactured Home Park	Mobile Home Park
Commercial	Sales
	Services
	Retail / Grocery
	Commercial Recreation
	Car Wash
	Commercial Storage Units
	Commercial Garage
	Restaurant / Food Service
	Bank
	Office
	Hotel / Motel
	Parking Structure
	Warehouse / Shop with Office
Industrial	Distribution / Warehouse / Terminal
	Food Processing
	Foundry / Manufacturing
	Industrial Wholesale / Terminal
	Light Manufacturing
Institutional	Mining / Quarry
	Church / Place of Worship

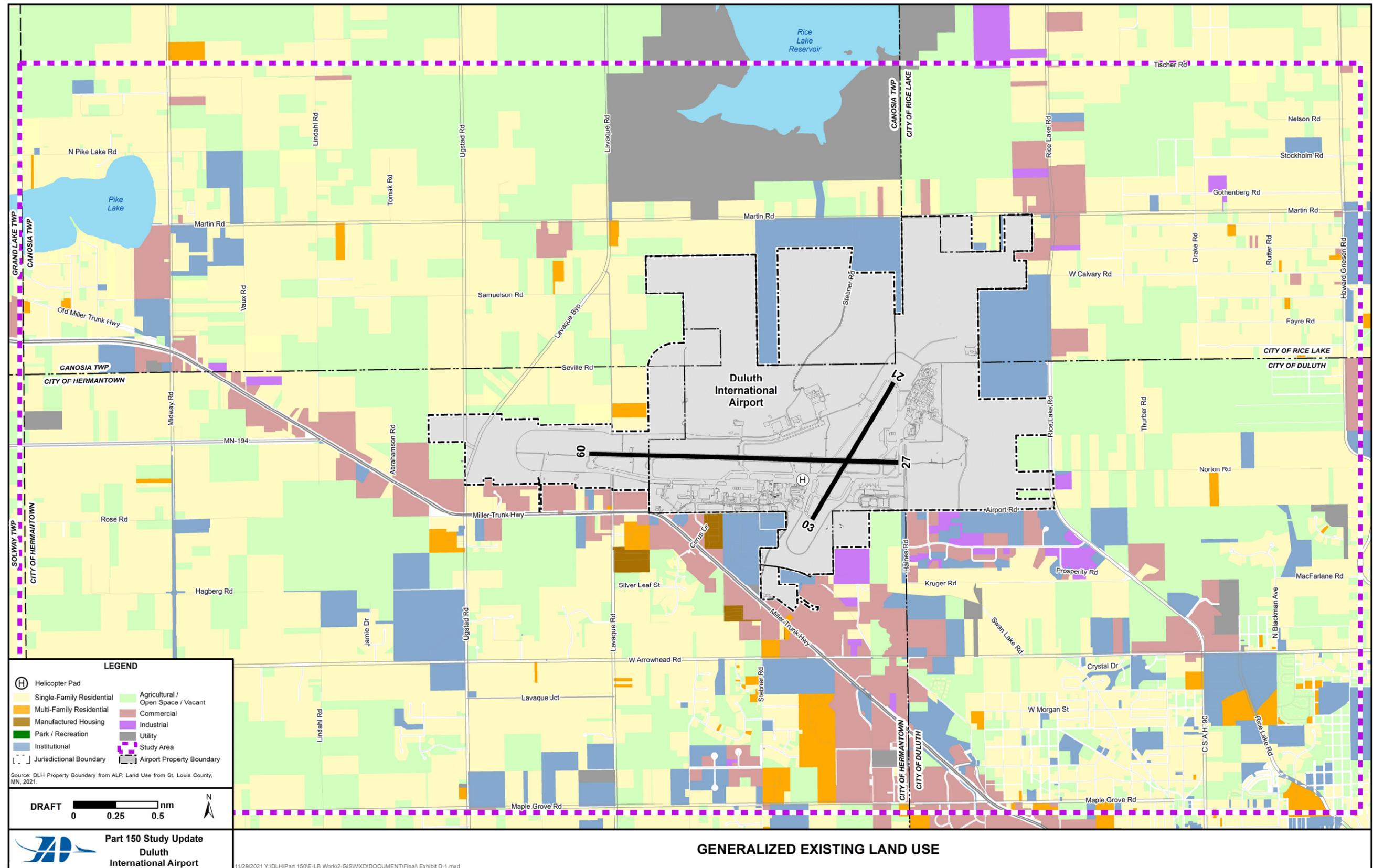
GENERALIZED LAND USE	SPECIFIC LAND USE TYPES
	Day Care / Preschool
	Government Building / Facility
	Hospital
	Libraries
	Nursing Home / Care Facility
Park / Recreation	Golf Course
	Park
Utility	Utilities
	Government non-Institutional

Notes: Agricultural uses are classified as Manufacturing and Production under 14 CFR Part 150 Guidelines but are identified separately for this Study for ease of understanding the land uses near the Airport.

Source: St. Louis County, MN; Parcel database and County Land Explorer: <https://gis.stlouiscountymn.gov/LandExplorer/>
 City of Duluth, Planning and Development Geodatabase
 Landrum & Brown analysis, 2021.

This page intentionally left blank

Exhibit D-1 Generalized Existing Land Use



Source: St. Louis County Land Explorer; City of Hermantown Public GIS Viewer; Landrum & Brown analysis, 2021.

This page intentionally left blank

D.2.2 GIS Data Compilation

Base mapping information; including roads, county and municipal boundaries, and land use; were compiled using ArcMap, version 10.7. ArcMap is an analytical software program that allows manipulation and analysis of spatial data from a variety of sources. The base map information is used for comparison to aircraft noise and operational data analyzed for this study. Flight track data obtained for this Study as described in **Appendix C, Noise Modeling Methodology**, was overlaid onto the land use base map. Noise contours generated by the Aviation Environmental Design Tool (AEDT) were superimposed over the land use base map to produce the Noise Exposure Maps (NEMs) for this Study.

Land parcel and facility data was obtained from Saint Louis County and the City of Duluth in August 2019 and areas within the previous 65 DNL noise exposure contour for DLH were field verified in November 2019. This data was updated over the course of the project based on each jurisdiction's online portals, to account for changes in land use over the course of the project.

The field verified parcel data was used to identify land uses that would be considered noise-sensitive land per FAA guidelines. The 2010 U.S. Census data, at the tract and block level, was combined with the parcel data to calculate total population based on average household size. An estimated ratio of persons per household was determined based on US Census data and that ratio was applied to each parcel to estimate the population within each housing unit. The housing and population incompatibilities within each of the noise contours were determined by overlaying the noise contour and the parcel data using GIS software. The number of residential parcels/structures and population within each DNL noise contour level were then determined by an automated count using the GIS software's built-in capabilities.

D.2.3 Noise Sensitive Public Facilities

Land uses that could be considered incompatible with airport operations include more than just residential uses. FAA guidelines define certain public facilities as noise-sensitive: places of worship, schools (and daycare facilities at which licensed education occurs), nursing homes, libraries, and hospitals. Detailed information on noise-sensitive facilities was collected within the GSA. A variety of sources were used to obtain GIS data showing the locations of noise-sensitive public facilities within the airport environs, including GIS data from Saint Louis County, the cities of Duluth, Hermantown and Rice Lake, aerial imagery and past studies at DLH. This data was supplemented using aerial imagery and field verification in November 2019.

Within the GSA there are 8 schools and 16 places of worship as shown on **Exhibit 2-3, Existing Noise-Sensitive Public Facilities** in **Chapter 2, Affected Environment** and defined in **Table 2-1, Existing Noise Sensitive Public Facilities**.

D.2.4 Existing Historic Sites

Historic properties on or eligible for inclusion in the National Register of Historic Places (NRHP) should be identified on the NEMs per 14 CFR Part 150. The NRHP is the official list of historic places worthy of preservation in the U.S. as authorized by the National Historic Preservation Act of 1966. Within the GSA, there are no structures that are listed on or determined eligible for the NRHP.

D.3 Preventative Local Land Use Controls

The evaluation of land use planning techniques is intended to address the potential for future development in areas located inside and in the vicinity of the DNL 65 decibel (dB) noise exposure contour where aircraft overflights continue.²⁶ The responsibility for controlling and managing the development and redevelopment of land outside the airport boundary is the responsibility of each community. Therefore, it is incumbent upon the local planning and elected officials to monitor and plan for new development in a manner that is compatible with aircraft operations.

According to an FAA land use guidance manual, *Land Use Compatibility and Airports*,²⁷ the FAA recognizes that aircraft noise does not stop at the DNL 65 dB noise exposure contour.

“While the FAA can provide assistance and funding to encourage compatible land development around airports, it has no regulatory authority for controlling land uses that would protect airport capacity. The FAA recognizes that state and local governments are responsible for land use planning, zoning and regulation, including that necessary to provide land use compatibility with airport operations. However, pursuant to the Federal Airport and Airway Development Act, as a condition precedent to approval of an FAA-funded airport development project, the airport sponsor must provide the FAA with written assurances that “...appropriate action, including the adoption of zoning laws have been or will be taken, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations including the landing and takeoff of aircraft...”

FAA has required the phasing out of noisy Stage 1 and Stage 2 aircraft consequently, the aviation industry has spent substantial monies to meet this requirement. To assist in the compatible land use efforts, the FAA, local airport sponsors, and state aviation agencies have expended significant funds related to airport planning and off-airport noise and land use compatibility planning throughout the United States. Airport master plans have been prepared to identify the near-term and long-range projections for airport activity and the development necessary to meet these activity demands. In addition, noise and land use studies (Part 150 studies) have been conducted to evaluate ways to minimize impacts of aircraft noise, and the FAA and airport sponsors have financed land acquisitions and other noise compatibility measures throughout the United States.”

Therefore, the FAA encourages airport sponsors and local governments to work together to establish local land use controls in areas adjacent to an airport and within the flight corridors that extend beyond the DNL 65 dB contour.²⁸ A brief discussion of typical preventive land use management techniques, and their application by the jurisdictions within the Airport Environs, is provided in the following sections.

²⁶ Note that per Part 150 regulations, all land uses are compatible with outdoor noise levels below DNL 65 dB; however, local planning efforts may, at the discretion of local jurisdictions, consider noise below DNL 65 dB independent of the Part 150 process.

²⁷ *Land Use Compatibility and Airports: A Guide for Effective Land Use Planning*, FAA Airports Division, Southern Region Office, Atlanta, Georgia, Jacqueline Sweatt-Essick, et al, July 1999.
http://www.faa.gov/about/office_org/headquarters_offices/aep/planning_toolkit/media/III.B.pdf

²⁸ Note that per Part 150 regulations, all land uses are compatible with outdoor noise levels below DNL 65 dB; however, local planning efforts may, at the discretion of local jurisdictions, consider noise below DNL 65 dB independent of the Part 150 process.

D.3.1 Comprehensive Planning

A comprehensive plan sets the land use and development policies and goals for a community and is the guide for land use policy implementation. St. Louis County and the communities surrounding DLH have adopted future land use plans to guide development.

Minnesota cities and counties have prepared comprehensive plans for many years. Minnesota Statute 473.175 requires all local governments to prepare comprehensive plans to be approved by the Metropolitan Council.²⁹ As a result, Duluth and its surrounding cities or counties all have comprehensive plans that meet the requirements of the state comprehensive plan regulations.

As part of its comprehensive planning regulations, the State of Minnesota mandates that when an airport is owned or operated by the state, an airport zoning board must be created for each airport.³⁰ DLH is a city-owned airport, and as a result, the Joint Airport Zoning Board (JAZB) was created. The JAZB consists of representatives from the City of Duluth, City of Hermantown, City of Rice Lake, Township of Canosia and St. Louis County. In 1988, the JAZB created the Duluth International Zoning Ordinance to ensure consistent planning and zoning for the area surrounding DLH. The Ordinance was approved by the State of Minnesota and went into effect on June 18, 1988.³¹ The purpose of the ordinance was to regulate the height of structures and other objects within the vicinity of DLH and create appropriate restrictions, boundaries, and zones for development around the DLH. The Ordinance also established a Board of Adjustment, which would enforce the Ordinance and impose penalties. Since the Ordinance went into effect, the City of Duluth, Hermantown and Rice Lake have incorporated the Airport Overlay Zones into its zoning maps and data. The City of Duluth has also incorporated the Airport Overlay Zones into its zoning codes.

A comprehensive plan in and of itself does not and cannot control development or relieve noise impacts/incompatibilities without implementing a development plan, but there are other tools available, which are subsequently discussed below

D.3.2 Land Use Planning

The formal adoption of a local land use plan by the jurisdictions within the airport environs provides the basis for zoning determinations and evaluations regarding the suitability of various development proposals for implementation. The land use plan element of the comprehensive community plan should take into account the compatibility of proposed development and the identification of developable lands taking into account the existing and anticipated aircraft noise levels and plan future land uses accordingly. The land use plan should serve as the basis to guide the development of the community's Capital Improvement Program (CIP).

D.3.3 General Purpose Zoning

Zoning is one of the primary tools available to local communities to ensure land use compatibility. Zoning ordinances and regulations are intended to promote public health, safety, and welfare by regulating the use of the land within a jurisdiction based on factors such as land use compatibility and existing and expected socioeconomic conditions. The regulation of land through a zoning ordinance is premised as part of the police power inherent in the state and delegated to the local jurisdiction through state enabling legislation. Saint Louis County and various communities surrounding DLH do have the statutory authority to adopt zoning ordinances and

²⁹ Minnesota Statutes 2019 473.175, *Review of Comprehensive Plans*. Available online at: <https://www.revisor.mn.gov/statutes/cite/473.175>.

³⁰ Minnesota Statutes 2019 360.063(7), *Airport zoning board for each airport*. Available online at: <https://www.revisor.mn.gov/statutes/cite/360.063>.

³¹ Duluth International Airport Joint Zoning Board, *Duluth International Airport Zoning Ordinance*, April 18, 1988. Available online at: <https://www.dot.state.mn.us/aero/planning/airports/ordinance-text/DLH%20Duluth%20Ordinance%201988.pdf>.

maps.³² The communities surrounding DLH have adopted zoning ordinances and do control the land use within their respective boundaries.

Zoning is useful for controlling land use development and promoting compatibility while supporting private land ownership. Zoning cannot be relied upon as a “remedial land use management measure” as it can only be applied prospectively and not retroactively. Also, because zoning is a creature of a political body and subject to changing conditions and situations, the zoning classification of any particular tract of land is always subject to change and its implementation and enforcement must be monitored to ensure continuing compatibility.

Master Planned Development District

A Master Planned Development (MPD) district is intended to accommodate development that may be difficult if not impossible to carry out under otherwise applicable zoning district standards. Examples of MPD include Enhanced Protection of Natural Resources Areas, in which a planned development offers enhanced protection of natural resources and sensitive environmental features, and Mixed-use Development Areas, in which developments contain a complementary mix of residential and nonresidential uses. The different types of MPDs are intended to promote different planning goals. In general, MPDs are intended to promote flexibility and creativity in responding to changing social, economic, and market conditions and could result in greater public benefits than could be achieved using conventional zoning and development regulations. MPD zoning is typically for proposed developments that cannot be reasonably accommodated by other available regulations of a development ordinance, and would result in a greater benefit to the city as a whole than would development under conventional zoning district regulations. Such greater benefit may include the implementation of adopted planning policies, neighborhood/community amenities, urban design, natural resource preservation, or a general level of development quality.

Airport Land Use Management District

An Airport Land Use Management District (ALUMD) establishes a set of development guidelines on areas designated as highly sensitive to aircraft noise. Such a district would lie as an overlay of the underlying land use zoning and would impose various guidelines on the development of land within its boundaries. These constraints may include a requirement for the sound insulation of new or rehabilitated properties, disclosure of the susceptibility of the property to elevated aircraft noise levels, the dedication of an aviation easement for new development, the requirement of development densities for incompatible uses in concordance with the level of noise exposure, the coordinated review of development proposals, etc. The boundaries of the district may be established by the local jurisdiction having land use control at any level deemed to be appropriate to the management of the risk of adverse effects and incompatibility between aircraft and noise-sensitive development.

D.3.4 Coordinated Project Review Process

The coordinated review of proposals for zoning changes, subdivision development, or building permits may be activated as a means for consideration of the potential effects of aircraft noise on proposed development actions. The coordination assumes the review by both airport and land use management personnel of project compatibility, and may result in a report on each item under consideration which is attached to the project file and reported to the governing bodies as part of their consideration of the suitability of the project action for approval or denial. Such measures may be included in an NCP as separate measures or incorporated into a broader measure such as an ALUMD.

³² Minnesota Statutes 2019 462.537, *Official Controls: Zoning Ordinance*. Available online at: <https://www.revisor.mn.gov/statutes/cite/462.357>.

D.3.5 Full Disclosure Policy

A program can be developed to ensure that the buyers of residential property within the airport environs receive full disclosure of the location of the property relative to the airport. This would require that the sellers of residential property in the airport environs deliver to buyers a purchase disclosure notice consisting of a copy of the ALUMD Ordinance and Map with a statement that the property is located within the ALUMD. It may also require that all advertisements and listings for sale of residentially zoned or improved property in the ALUMD include a statement about aircraft noise, such as, “Not recommended for persons who may easily be disturbed by aircraft noise.” Finally, solicitation of the voluntary inclusion of the notice in the Multiple Listing Services by the real estate profession alerts potential buyers of property to aircraft noise conditions.

D.3.6 Subdivision Regulations

Subdivision regulations apply in cases where a parcel of land is proposed to be divided into lots or tracts. They are established to ensure the proper arrangement of streets, adequate and convenient open space, efficient movement of traffic, adequate and properly-located utilities, access for fire-fighting apparatus, avoidance of congestion, and the orderly and efficient layout and use of land.

Subdivision regulations can be used to enhance noise-compatible land development by requiring developers to plat and develop land so as to minimize noise impacts or reduce the noise sensitivity of new development. The regulations can also be used to protect the airport proprietor from litigation for noise impacts at a later date. The most common requirement is the dedication of a noise or aviation easement to the local government by the land subdivider as a condition of the development approval. The easement authorizes overflights of the property with the noise levels attendant to such operations. Subdivision regulations may also require the developer to disclose the aircraft noise levels over the property or to provide information on noise insulation criteria to be used in the construction of any building on the property.

Subdivision regulations for each of the jurisdictions within the GSA for DLH were examined. None of the jurisdictions require notice of any kind on subdivision plats that the subdivision is within the vicinity of an airport and may experience aircraft noise and/or overflight. In addition, there is no requirement to grant an aviation easement for aircraft overflights as a condition of approval for land subdivision/development in any of the subdivision regulations.

D.3.7 Building Codes

Building codes regulate building construction and construction practices ensuring that all safety standards are met and resulting in the issuance of a building permit from the local governing body. (A building code is most easily enforced through a local building permit process.) Sound insulation may be required in new homes, offices, and institutional buildings to mitigate the effects of high aircraft noise levels. Building code requirements intended for energy efficiency may also provide acoustical insulation benefits. Caulking of joints, continuous sheathing, dead air spaces, ceiling and wall insulation, solid core doors, and double-pane windows can attenuate aircraft noise while conserving energy used for home heating and cooling.

Not all sound insulation needs are met by typical energy-conserving building methods. For example, field research has found that some modern and highly energy-efficient storm window designs are less efficient for sound insulation than some older designs that allow for larger dead air spaces. Other sound insulation measures that may not be justifiable for energy efficiency are vent baffling and year-round, closed-window ventilation systems.

Building codes apply to existing buildings only when remodeling or expansion is contemplated. Amendments to building codes do not help to correct noise problems in developed areas. Minnesota adopted an updated building codes on March 31, 2020, which does not specifically address sound attenuation for airport noise.³³ All cities and townships around DLH use the state building code and have not developed municipality-specific building codes.

D.3.8 Transfer of Development Rights

The Transfer of Development Rights (TDR) is a land use regulatory tool under which development rights can be severed from a tract of land and sold in a market transaction. The parcel from which the rights are transferred is then permanently restricted as to future development, and the purchaser of the rights may assign them to a different parcel to gain additional density. A TDR program would allow landowners in a designated “sending” area to transfer the development rights assigned to their property to a landowner in a designated “receiving” area where the community would like to concentrate development. In this case, the designated “sending” district would be residentially-zoned land located in areas substantially affected by aircraft noise. The designated “receiving” district would be in a location not greatly affected by airport noise. The designated “receiving” area would be allowed to develop at a higher density than would be permitted by the underlying zoning. Though the community defines the requirements and parameters associated with establishing the sending and receiving districts, any actual transfer is negotiated between the landowner in the sending district and landowner in the receiving district.

D.3.9 Capital Improvement Programs

CIPs are multi-year plans typically covering five or six years that list major capital improvements planned to be undertaken during each year. Most capital improvements have no direct bearing on noise compatibility; few municipal capital improvements are noise-sensitive. The obvious exceptions to this are schools and, in certain circumstances, libraries, medical facilities, and cultural/ recreational facilities.

Some capital improvements may have an indirect, but more profound, relationship to noise compatibility. For instance, the development of new sewer and water facilities may open up large vacant areas for the private development of noise-sensitive residential uses.

In contrast, the same types of facilities, sized for industrial users, could commit to industrial development in a noise-impacted area that might otherwise be attractive for residential development.

D.3.10 Growth Risk Assessment

Before evaluating the impact of aircraft noise within the airport environs, it is important to understand the likelihood for the future development of residential and other noise-sensitive land uses, especially in the planning timeframe. Understanding development trends in the airport vicinity is of critical importance in noise compatibility planning, because future residential growth can potentially constrain airport operations, if that growth occurs beneath aircraft flight tracks and within areas subject to high noise levels.

The growth risk analysis focuses primarily on undeveloped land which is planned and zoned for residential use. It is recognized that additional development may occur through in-filling and redevelopment of currently developed areas.

The methodology for analyzing potential growth risk is as follows:

³³ Minnesota Department of Labor and Industry, *2020 Minnesota State Building Code adoption*, March 31, 2020. Available online at: <https://duluthmn.gov/media/9497/2020-minnesota-state-building-code-adoption.pdf>.

- Identify all vacant, unplatted tracts of land zoned for future residential development with the greatest potential for being developed within the next five years.
- Calculate the area of the tracts; apply a factor accounting for development inefficiencies and the platting of streets; multiply by dwelling unit densities specified in the zoning ordinance; and multiply by household size to obtain the population holding capacity of presently vacant, unplatted land.
- Sum the above population holding levels to determine the total population holding capacity of the study area.

The final step in the growth risk analysis is to estimate whether the development is likely to occur before or after the year for which future noise exposure has been calculated. This tends to be quite speculative and should be regarded only as a general indicator of the potential risk of increases in land use incompatibility.

D.3.11 State Legislation

Chapter 360 of the Minnesota Statute regulates airports and aeronautical facilities, including land use planning and compatibility with aircraft operations and airports.³⁴ Aircraft noise levels are regulated by Minnesota Administrative Rule (MAR) Chapter 7030.³⁵ Under the MAR, there are four types of noise classification areas: 1; 2; 3; and 4.³⁶ Noise area 1 includes noise-sensitive uses such as residential, medical facilities, cultural activities, religious activities, and entertainment. Noise areas 2 and 3 include a mixture of transportation uses, commercial uses, and trade/industrial uses. Noise area 4 is primarily for natural resources or undeveloped land. Minnesota has set noise standards for noise classification areas 1, 2, and 3, which includes most airports and their surrounding uses. **Table D-3, *Minnesota Noise Standards***, lists the noise standards in Ln values. Ln values are statistical noise levels from fluctuating noise sources over time and can be measured from 0.01% to 99.9%. The MAR uses L10, 10%, and L50, 50%, as their noise values.

Table D-2 Minnesota Noise Standards

Noise Area Classification	Daytime		Nighttime	
	L50	L10	L50	L10
1	60	65	50	55
2	65	70	65	70
3	75	80	75	80

Source: Minnesota Administrative Rule 7030.0040, *Noise Standards*. December 12, 2003.

³⁴ Minnesota Statutes 2019 Chapter 360, *Airports and Aeronautics*. Available online at: <https://www.revisor.mn.gov/statutes/cite/360>.

³⁵ Minnesota Administrative Rule 2017 Chapter 7030, *Noise Pollution Control*. Available online at: <https://www.revisor.mn.gov/rules/7030/>.

³⁶ Minnesota Administrative Rule 7030.0050, *Noise Area Classification*, December 12, 2003. Available online at: <https://www.revisor.mn.gov/rules/7030.0050/>.

D.4 Remedial Land Use Mitigation Alternatives

Remedial measures are intended to convert existing, non-compatible uses to compatible uses. Generally, remedial uses fall into two categories: modify existing use, and maintain existing use. The following is a brief discussion of typical remedial land use mitigation alternatives included in Part 150 studies.

D.4.1 Modify Existing Use

Land Acquisition to Change Land Use

If the acquisition of property results in a change in land use, from incompatible to compatible with airport operations (e.g., airport/transportation, commercial, or industrial), the property owner would be eligible for relocation assistance and moving expenses, consistent with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act*. The property would be acquired, residents would be relocated, and the property would be converted to a compatible land use. This would prevent further development of incompatible land uses. The land acquisition program should assure that the subsequent land use is consistent with local land use plans and policies, including compatibility with noise exposure levels in the area. Because the acquisition is to result in a change in land use, the local jurisdiction may decide to apply its power of eminent domain.

D.4.2 Maintain Existing Use

Sound Insulation of Homes

A program for sound insulation of residences is always voluntary on part of the homeowner and is generally focused on residences located in a 65 DNL to 70 DNL noise contour. Other than the obvious benefit of reducing interior noise levels, a sound insulation program maintains the land use of the area and generally increases the value of the properties. Unfortunately, sound insulation treatments do not reduce the noise outside the residence and as such the benefits of the treatments are reduced when doors and windows are open.

Land Acquisition without Change to Land Use

The acquisition of incompatible property where no change in land use would result would be a “voluntary” acquisition program, where participation in the program would be voluntary on the part of the property owner. The reason for such a voluntary program is most often due to the owner’s inability to sell the property at fair market value. Acquisition procedures would be implemented in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* and relocation benefits would not apply.

Purchase Guarantee

Purchase guarantee is a program whereby the airport sponsor agrees to purchase a residence for fair market value should the owner be unable to sell the property on the open market because of noise impacts. Participation in this program is voluntary on the part of the property owner and is implemented in areas where the land use is not going to change. In order to protect potential buyers a stipulation of this program requires that the seller disclose to the buyer the airport noise exposure on the property and the intention of the airport sponsor to retain an easement on the property. Acquisition procedures would be implemented in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* and relocation benefits would not apply.

Sales Assistance

The airport sponsor guarantees that the property owner will receive the appraised value, or some increment thereof, regardless of final sales value that is negotiated with a buyer. However, unlike purchase guarantee, the

airport sponsor does not take ownership of the property in the event that it does not sell. In return for the assistance, the airport sponsor retains an avigation easement on the property and will typically require sound insulation before the sale.

Avigation Easements

Acquisition of avigation easements should be used to alleviate conflicts if no other land use controls are viable or in some cases, in lieu of outright acquisition of the land. The easement would be noted on the property deed and passed on to any subsequent owners of the property.

Amending local zoning and subdivision regulations to provide for the dedication of an easement to the airport sponsor as a condition of approval for residential rezoning or subdivision plats within the 65 DNL noise contour would alert developers, lenders, and prospective purchasers to the proximity of the airport and to the existence of a potential noise issue. The avigation easement would also protect the airport from future litigation by purchasers of the rezoned or subdivided property.

There is a constitutional issue raised by requiring dedication of an easement as well as imposing more vigorous and expensive standards for construction within the airport environs. Government may not require a person to give up a constitutional right (i.e., a public use) in exchange for a discretionary benefit conferred by the government unless there is a reasonable relationship between a legitimate governmental objective and the condition that is imposed on the developer. Moreover, the exaction demanded by the permit or condition must be in proportion to the impact of the proposed development that is sought to be alleviated. Whether that balance exists requires an individualized determination. If it were determined not to meet these standards, then the legislation would either be unenforceable, or its enforcement would constitute a taking requiring the payment of just compensation.

D.5 Role of Local Jurisdictions and Planning Organizations in Noise Compatibility Planning

Local planners and elected officials are typically responsible for local land use zoning and control. These entities and individuals prepare comprehensive plans, as well as review and implement zoning and land use regulations in a manner that may consider the effect of those actions as they relate to aviation activity and noise exposure.

The responsibility of regulating land use around an airport, in order to minimize existing and prevent future land use incompatibilities, is traditionally delegated to state and local governments. In addition to regulating land uses, local municipalities may facilitate the acquisition of property or the initiation of sound insulation programs as a means to mitigate and prevent future incompatible land uses resulting from airport noise. At airports with an approved Part 150 Study, an airport sponsor may apply directly to the FAA for funding of noise mitigation projects.

Local land use planners and elected officials were included in the membership of the Planning Advisory Committee (PAC) and participated in the study throughout the process. **Appendix G, Public Involvement**, includes a summary of coordination with the land use planners and elected officials.

D.5.1 Zoning Data Compilation

Specific zoning information for each jurisdiction within the GSA was collected and reviewed in order to identify tools for prohibiting incompatible development and encouraging compatible development near the airport.

Exhibit D-2, Generalized Existing Zoning, graphically depicts the generalized zoning districts within the GSA around DLH. **Table D-4, Generalized Zoning Classifications**, shows the generalized zoning categories, and the specific zoning classifications included in each generalized category, by jurisdiction.

Table D-3 Generalized Zoning Classifications

GENERALIZED ZONING	ZONING DISTRICT CODE
City of Duluth	
Commercial / Industrial	MU-B - Mixed-Use Business Park
	MU-C - Mixed-Use Commercial
Mixed Use / Planned Unit Development	MU-N - Mixed-Use Neighborhood
	MU-P - Mixed-Use Planned
	R-P - Residential Planned
Recreation / Conservation	P-1 - Park
	R-C - Rural Conservation
Institutional	MU-I - Mixed-Use Institutional
	R-1 - Residential Traditional
Single-Family Residential	RR-1 - Rural Residential 1
	RR-2 - Rural Residential 2
Multi-Family Residential	R-2 - Residential Urban
City of Hermantown	
	BLM - Business/Light Manufacturing
Commercial / Industrial	C - General Commercial
	C1 - Office/Light Industrial
	C1A - Sexually Oriented Uses
	HM - Hermantown Marketplace
	M2 - Heavy Industrial
Mixed Use / Planned Unit Development	PUD - Planned Unit Development
	O - Conservation/Open Space
Recreation / Conservation	Shoreline - General Development
	Shoreline - Natural Environment
	Shoreline - Recreational Development
Institutional	P - Public Facilities
	R1 - Residential
Single-Family Residential	R3 - Residential
	S1 - Rural/Suburban
Multi-Family Residential	R3a - Multiple Family Dwellings
City of Rice Lake	
	CLR - Closed Landfill Restricted
Commercial / Industrial	Commercial
	Industrial
	Light Industrial
Recreation / Conservation	Shoreland
Institutional	Public
	Rural 1
Single-Family Residential	Rural Residential 1
	Rural Residential 2
Multi-Family Residential	Multi-Unit Residential
Saint Louis County	
Commercial / Industrial	COM - Commercial
	FAM - Forest Agricultural Management

GENERALIZED ZONING	ZONING DISTRICT CODE
	LI - Light Industrial
	COM - Commercial
Mixed Use/Planned Unit Development	MU - Multiple Use
Recreation / Conservation	SMU - Shoreland Multiple Use
Single-Family Residential	RES - Residential

Source: St. Louis County, MN; County Land Explorer: <https://gis.stlouiscountymn.gov/LandExplorer/>
 Hermantown Public GIS Viewer: <https://hermantownmn.maps.arcgis.com/>
 Landrum & Brown analysis, 2021.

As mentioned in **Chapter 2, Affected Environment**, the Joint Airport Zoning Board (JAZB), adopted the Duluth Internal Airport Zoning Ordinance in June of 1988, this ordinance was revised in May of 1996 pursuant to Minnesota Statutes 360.061 – 360.074.³⁷ **Exhibit D-3, Airport Overlay Districts**, shows the existing overlay districts adopted in 1996. There are four districts that are required by the Minnesota Statute:

- **Clear Zone:** Airport must control property in the Runway Protection Zone (RPZ) associated with the approach to the runway
- **Zone A:** There shall be no buildings in the approach zone adjacent to the RPZ
- **Zone B:** No land use of less than 3 acres should be found in an approach zone that extends outward from Zone A to a distance equal to one-third of the runway length
- **Zone C:** All land within the horizontal zone, subject to uses that do not interfere with airport electronic facilities

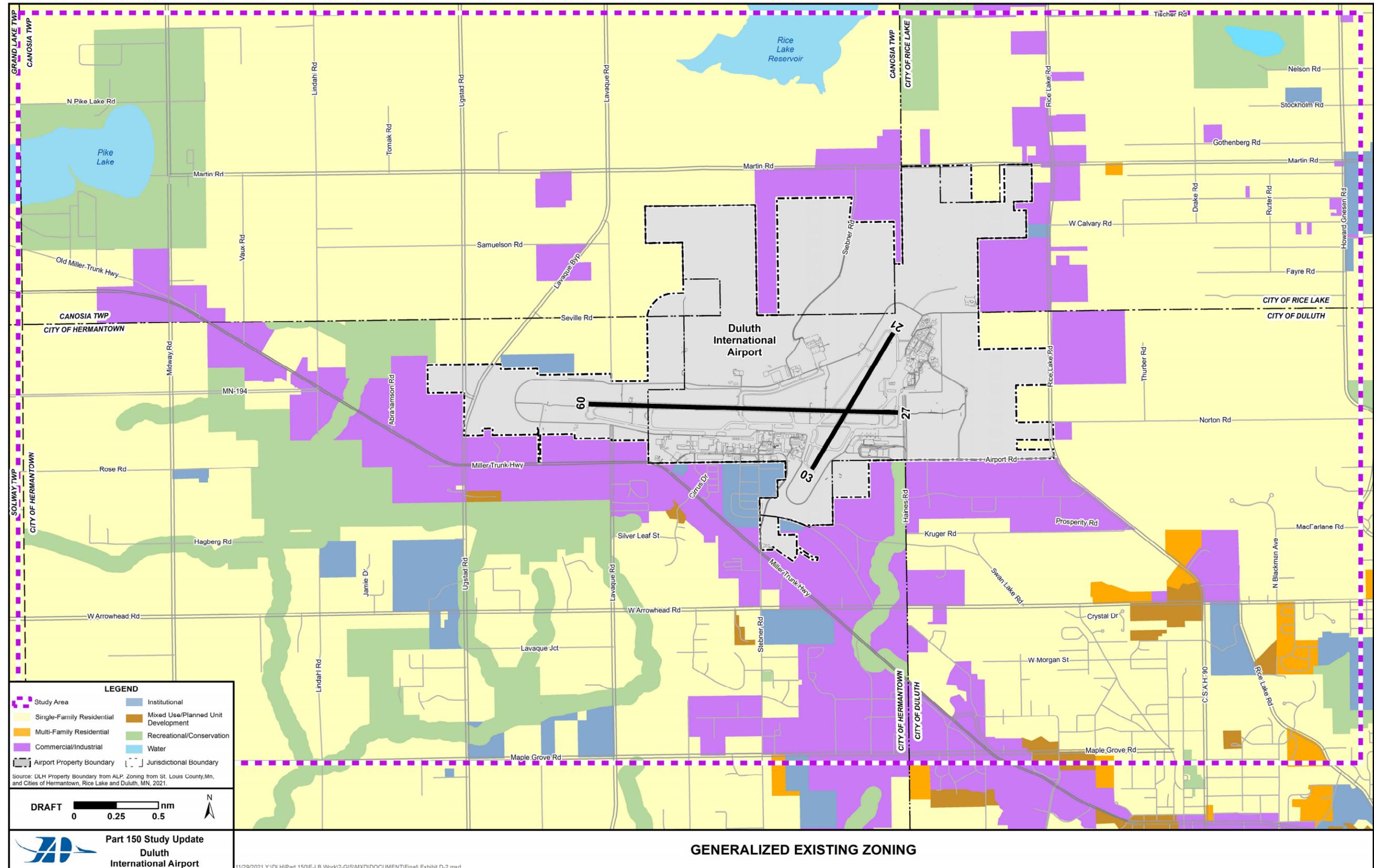
It should be noted that the JAZB is in the process of updating the zoning ordinance and the overlay districts in accordance with a 2019 revision to Minnesota Statute, which created new guidelines for establishing the overlay districts and for State of Minnesota review.³⁸ The updated overlay districts will take into account the potential for an extension to the north side of Runway 03/21. Additional preventative land use controls based on the Future (2026) Baseline noise exposure contours are discussed in **Chapter 4, Noise Compatibility Program**, and **Appendix F, Land Use Alternatives**. Ideally these preventative land use controls would be incorporated into future JAZB ordinances as it pertains to overlay districts and the safety of the communities surrounding the Airport.

³⁷ Duluth International Airport Master Plan Update, 3.13.4 Airport Zoning, Land Use & Regulations, Version 6.0, January 2015.

³⁸ Joint Airport Zoning Board, Airport Zoning Ordinance Analysis, September 2020.

This page intentionally left blank

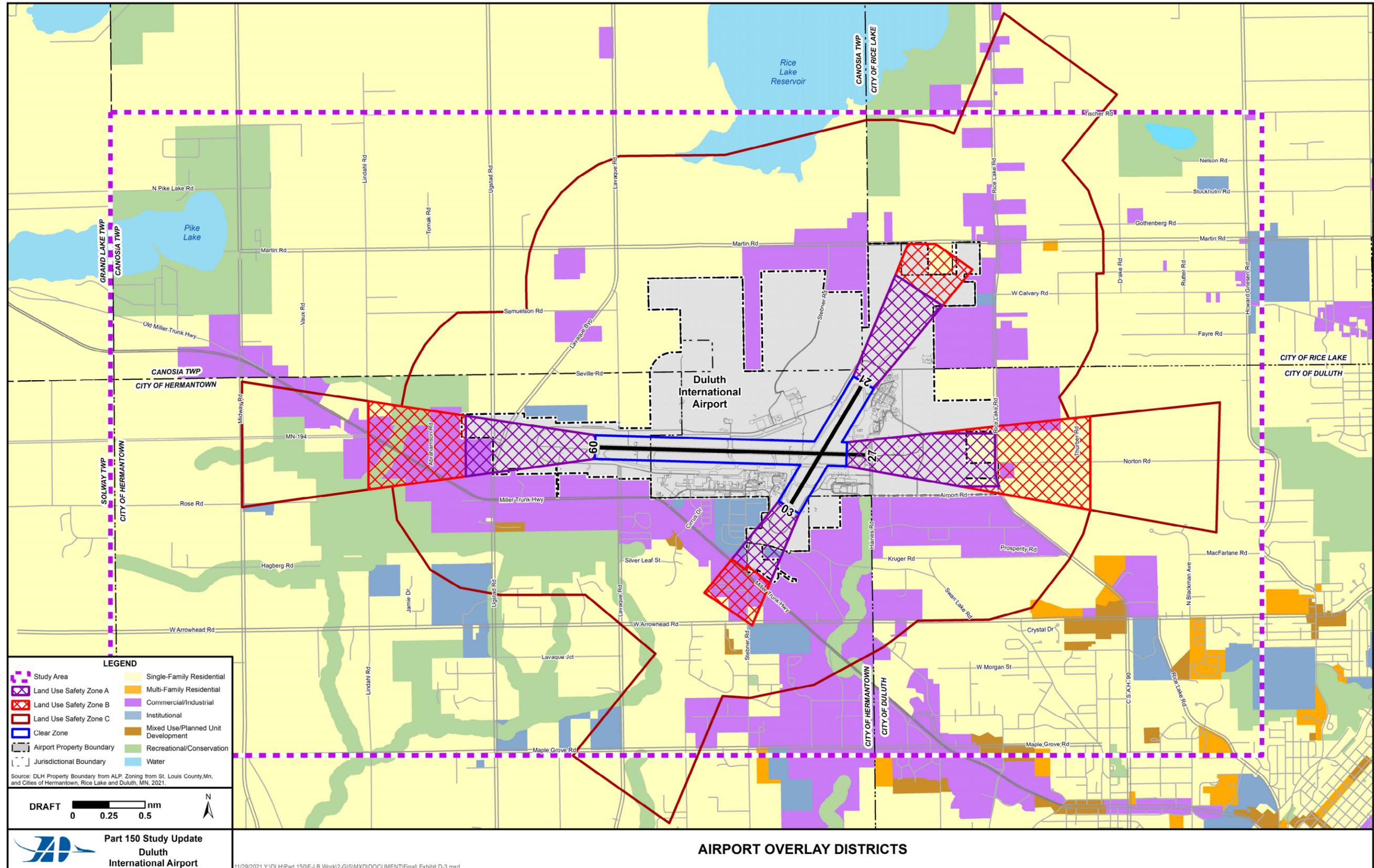
Exhibit D-2 Generalized Existing Zoning



Source: St. Louis County Land Explorer; City of Hermantown Public GIS Viewer; Landrum & Brown analysis, 2021.

This page intentionally left blank

Exhibit D-3 Airport Overlay Districts



Source: St. Louis County Land Explorer; City of Hermantown Public GIS Viewer; Landrum & Brown analysis, 2021.

This page intentionally left blank

D.6 FAA Land Use Planning Guidelines

While the FAA can provide assistance and funding to encourage compatible land development around airports, it has no regulatory authority for controlling land uses to protect airport capacity. The FAA recognizes that state and local governments are responsible for land use planning, zoning, and regulation including that necessary to provide land use compatibility with airport operations. However, pursuant to the Federal Airport and Airway Development Act, as a condition precedent to approval of an FAA-funded airport development project, the airport sponsor must provide the FAA with written assurances that "...appropriate action, including the adoption of zoning laws have been or will be taken, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations including landing and takeoff of aircraft..."³⁹ The Federal Government has enacted regulations and the FAA has implemented policies designed to improve airport land use compatibility as described in **Appendix A, FAA policies, Guidance and Regulations**.

³⁹ 49 U.S.C. § 47107(a)(10), formerly Section 511(a)(5) of the 1982 Airport Act

This page intentionally left blank