



## Appendix E



# Land Use Assessment Methodology



## Appendix E 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 Greater Rockford Airport Authority (GRAA) at Chicago Rockford International Airport (RFD or Airport). A Geographic Information System (GIS) land use database was developed to facilitate the identification of land uses and existing zoning that are incompatible with airport operations.

### » E.1 Airport Environs and 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 RFD is shown in **Exhibit 2-1, Airport Environs**, and depicts a 150+ square mile area that extends between five and seven miles off of each runway end and includes portions of the city of Rockford; the villages of New Milford and Cherry Valley, Rockford and Cherry Valley townships in southern Winnebago County; Marion, Byron, Scott, and Monroe townships in northeastern Ogle County; and the villages of Davis Junction and Stillman Valley. The map includes jurisdictional boundaries, local roads and major highways, the Airport property boundary, and other geographical features. The study area is defined as the area that experiences direct overflights of aircraft at lower altitudes and depicted in **Exhibit 2-2, Study Area Boundary**. The study area 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 RFD.

### » E.2 Land Use Data Collection and 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 within the study area.

#### E.2.1 Land Use Classifications

Existing land use data was collected from Winnebago and Ogle County. Land uses within the study area were categorized in terms of the general land use classifications as outlined in 14 CFR Part 150 and shown in **Table E-1, Generalized Land Use Classifications**. These classifications include residential (single-family, 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 jurisdiction's GIS database, published land use and zoning maps, and were verified as necessary with aerial imagery. The existing land use patterns within the study area is shown in **Exhibit E-1, Generalized Existing Land Use**.



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**TABLE E-1 | GENERALIZED LAND USE CLASSIFICATIONS**

GENERALIZED LAND USE	SPECIFIC LAND USE TYPES
Agricultural / Open Space / Vacant	Vacant / Unplatted
	Property Used in Agricultural Operation <sup>1</sup>
	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
	Day Care / Preschool
	Government Building / Facility



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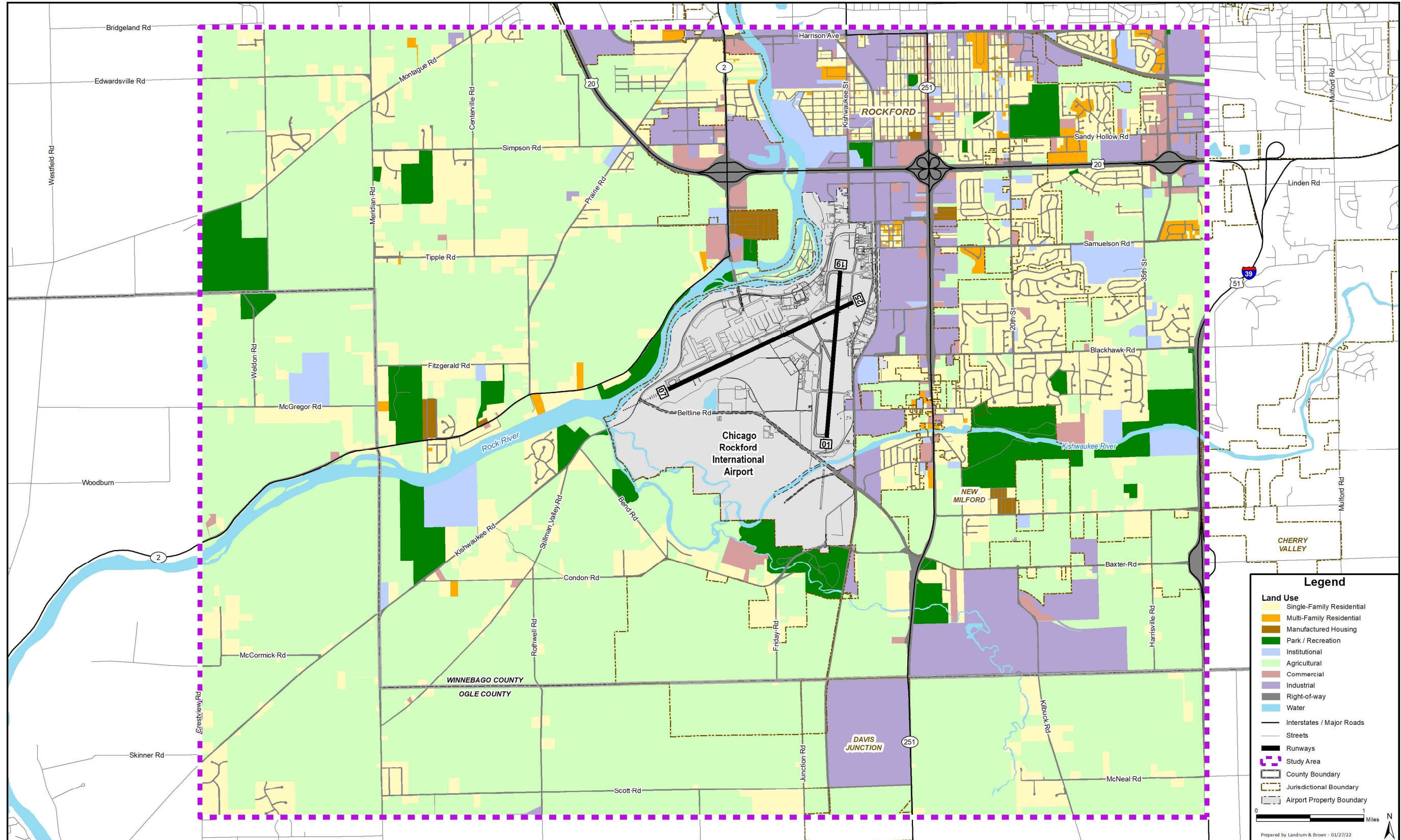
GENERALIZED LAND USE	SPECIFIC LAND USE TYPES
	Hospital
	Libraries
	Nursing Home / Care Facility
Park / Recreation	Golf Course
	Park
Utility	Utilities
	Government non-Institutional

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: Winnebago County, Illinois; WinGIS Parcel database; <https://agis.wingis.org/>

Ogle County, Illinois, Map Server (Beacon); [https://www.oglecounty.org/departments/gis/beacon\\_map\\_server.php](https://www.oglecounty.org/departments/gis/beacon_map_server.php)  
Landrum & Brown analysis, 2023.

**EXHIBIT E-1 | GENERALIZED EXISTING LAND USES**



Source: Winnebago & Ogle County GIS data, 2022, Landrum & Brown analysis, 2023.



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### E.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 Winnebago and Ogle County in 2021. 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 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.

#### E.2.2.1 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 study area. A variety of sources were used to obtain GIS data showing the locations of noise-sensitive public facilities within the study area, including GIS data from Winnebago and Ogle counties, aerial imagery and past studies at RFD.

Within the study area there are 9 schools and 49 places of worship as shown on **Exhibit 2-5, Existing Noise-Sensitive Public Facilities** and defined in **Table E-1, Existing Noise-sensitive Public Facilities**.

#### E.2.2.2 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 study area, there is one location, the Indian Hill Manor and Farmhouse Historic District, listed on or determined eligible for the NRHP. This site is located at the intersection of Kishwaukee Rd. and Bend Rd. and depicted on **Exhibit 2-5, Existing Noise-Sensitive Facilities**.





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**TABLE E-2 | EXISTING NOISE-SENSITIVE PUBLIC FACILITIES**

ID	TYPE	NAME	ADDRESS
C1	Place of Worship	Abundant Life Tabernacle	3015 S. 4th Street, Rockford, IL 61109
C2	Place of Worship	Apostolic Pentecostal Church of Rockford	840 Mattis Avenue, Rockford, IL 61109
C3	Place of Worship	Bethel Baptist Church	724 Harrison Avenue, Rockford, IL 61104
C4	Place of Worship	Bethlehem Lutheran Church	4620 20th Street, Rockford, IL 61109
C5	Place of Worship	Bishop Lane Retreat Center	7708 E McGregor Road, Rockford, IL 61102
C6	Place of Worship	Brooke Road United Methodist Church	1404 Brooke Road, Rockford, IL 61109
C7	Place of Worship	Calvary Church	2715 N. Alpine Road, Rockford, IL 61114
C8	Place of Worship	Cathedral Baptist Church	5622 35th Street, Rockford, IL 61109
C9	Place of Worship	Christ the Savior Orthodox Church	1802 Pershing Avenue, Rockford, IL 61109
C10	Place of Worship	Christian Faith Community Church	3312 Harrison Avenue, Rockford, IL 61108
C11	Place of Worship	Church of Christ	3227 Kishwaukee Street, Rockford, IL 61109
C12	Place of Worship	Church of Christ East Side	3529 20th Street, Rockford, IL 61109
C13	Place of Worship	Church of God of Prophecy	2610 S. 5th Street, Rockford, IL 61109
C14	Place of Worship	Community Bible Church	5950 35th Street, Rockford, IL 61109
C15	Place of Worship	Faith Center	4721 S. Main Street, Rockford, IL 61102
C16	Place of Worship	Gentle Shepherd Fellowship	2905 Bildahl Street, Rockford, IL 61109
C17	Place of Worship	Highway to Heaven Full Gospel	3202 Potter Street, Rockford, IL 61109
C18	Place of Worship	House Of God Church	840 Brooke Road, Rockford, IL 61109
C19	Place of Worship	International Rock Church	4761 20th Street, Rockford, IL 61109
C20	Place of Worship	Jehovah's Witnesses - Central	2916 Chadwick Drive, Rockford, IL 61109
C21	Place of Worship	Kishwaukee Baptist Church	2742 9th Street, Rockford, IL 61108
C22	Place of Worship	Kishwaukee Presbyterian Church	8195 Kishwaukee Road, Stillman Valley, IL 61084
C23	Place of Worship	Lao Evangelical Free Church	5881 35th Street, Rockford, IL 61109
C24	Place of Worship	Life Church - South Campus	4312 20th Street, Rockford, IL 61109
C25	Place of Worship	Lighthouse Temple Pentecostal Church	2638 9th Street, Rockford, IL 61109



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ID	TYPE	NAME	ADDRESS
C26	Place of Worship	Maywood Evangelical Free Church	3621 Samuelson Road, Rockford, IL 61109
C27	Place of Worship	New Covenant Christian Fellowship	621 South Avenue, Rockford, IL 61109
C28	Place of Worship	New Milford United Methodist	7102 Cindy Drive, Rockford, IL 61109
C29	Place of Worship	Next Level Community Church	3844 Sandy Hollow Road, Rockford, IL 61109
C30	Place of Worship	Pelley Road Christian Fellowship	3800 Pelley Road, Rockford, IL 61102
C31	Place of Worship	Prairie Road Baptist Church	3990 Prairie Road, Rockford, IL 61102
C32	Place of Worship	Prayer Tabernacle Church	2907 S 4th Street, Rockford, IL 61109
C33	Place of Worship	Ratanarma Buddhist Temple	4502 35th Street, Rockford, IL 61109
C34	Place of Worship	Rockford Korean Presbyterian Church	5512 35th Street, Rockford, IL 61109
C35	Place of Worship	Rockford Pentecostal Church of God	2904 18th Street, Rockford, IL 61109
C36	Place of Worship	Rockford Slavic Baptist Church	3046 16th Street, Rockford, IL 61109
C37	Place of Worship	Rockford South Church of God	2622 19th Street, Rockford, IL 61109
C38	Place of Worship	Rockford United General Baptist	3126 Marshall Street, Rockford, IL 61109
C39	Place of Worship	Samuelson Road Church - Nazarene	3183 Samuelson Road, Rockford, IL 61109
C40	Place of Worship	Silver Hill Pentecostal Church	4401 20th Street, Rockford, IL 61109
C41	Place of Worship	Souls Harbor Church	2802 11th Street, Rockford, IL 61109
C42	Place of Worship	St Edwards Catholic Church	3004 11th Street, Rockford, IL 61109
C43	Place of Worship	St Luke Missionary Baptist Church	2919 19th Street, Rockford, IL 61109
C44	Place of Worship	Templo Pentecostal El Calvario	1022 Brooke Road, Rockford, IL 61109
C45	Place of Worship	Twentieth Street Missionary Baptist	5820 20th Street, Rockford, IL 61109
C46	Place of Worship	Unity of Rockford Spiritual Center	4381 Manchester Drive, Rockford, IL 61109
C47	Place of Worship	Victory Baptist Church	7028 Rydberg Road, Rockford, IL 61109
C48	Place of Worship	Water of Life Ministries	2420 New Milford Church Road, Rockford, IL 61109
C49	Place of Worship	Woodside General Baptist Church	3022 18th Street, Rockford, IL 61109
S1	School	Bernard W Flinn Middle School	2525 Ohio Parjway, Rockford, IL 61108
S2	School	Cathedral Baptist School	5622 35th Street, Rockford, IL 61109



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ID	TYPE	NAME	ADDRESS
S3	School	Froberg Elementary School	4555 20th Street, Rockford, IL 61109
S4	School	Galapagos Rockford Charter School	3051 Rotary Road, Rockford, IL 61109
S5	School	Jefferson High School	4145 Samuelson Road, Rockford, IL 61109
S6	School	Legacy Academy of Excellence Charter School	4029 Prairie Road, Rockford, IL 61102
S7	School	Riverdahl Elementary School	3520 Kishwaukee Street, Rockford, IL 61109
S8	School	Swan Hillman Elementary School	3701 Green Dale Drive, Rockford, IL 61109
S9	School	William Nashold Early Childhood Center	3303 20th Street, Rockford, IL 61109

Source: Winnebago County, Illinois; WinGIS Parcel database; <https://agis.wingis.org/>  
 Ogle County, Illinois, Map Server (Beacon); [https://www.oglecounty.org/departments/gis/beacon\\_map\\_server.php](https://www.oglecounty.org/departments/gis/beacon_map_server.php)  
 Landrum & Brown analysis, 2023.



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## » E.3 Preventative Local Land Use Mitigation Alternatives

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.<sup>1</sup> 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*,<sup>2</sup> 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.<sup>3</sup> 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.

### E.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. Winnebago and Ogle counties and the communities surrounding RFD have adopted future land use plans to guide development.

<sup>1</sup> 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.

<sup>2</sup> *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](http://www.faa.gov/about/office_org/headquarters_offices/aep/planning_toolkit/media/III.B.pdf)

<sup>3</sup> 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.



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The State of Illinois adopted the Local Land Resource Management Planning Act of 1985 as an Illinois Compiled Statute (ICLS) [50 ILCS 805/], the statute provides authority for land planning at the county level. The statute encourages Illinois counties to adopt a comprehensive land use plan and related policies and objectives. In 2002 the Local Planning Technical Assistance Act [20 ILCS 662] was adopted to provide technical assistance to local governments that request assistance in the development of comprehensive plans and to encourage local governments to engage in planning, regulatory, and development approaches that promote and encourage comprehensive planning.

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.

### E.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).

### E.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. Winnebago and Ogle Counties and various communities surrounding RFD do have the statutory authority to adopt zoning ordinances and maps. The jurisdictions surrounding RFD 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 "corrective 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.

#### E.3.3.1 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



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planning policies, neighborhood/community amenities, urban design, natural resource preservation, or a general level of development quality.

### *E.3.3.2 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 avigation 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.

### **E.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.

### **E.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.

### **E.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 avigation 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.





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Subdivision regulations for each of the jurisdictions within the study area for RFD 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 avigation easement for aircraft overflights as a condition of approval for land subdivision/development in any of the subdivision regulations.

### E.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. The State of Illinois has not adopted statewide building codes, instead local governments are allowed to adopt codes of their choice based on the most current version of the Illinois Energy Conservation Code, Illinois Accessibility Code and the Illinois Plumbing Code.

### E.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.

### E.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.

### E.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:

- 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.

## » E.4 Corrective Land Use Mitigation Alternatives

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

### E.4.1 Modify Existing Land Use

#### E.4.1.1 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 compatible land use. This would prevent further development of incompatible land uses. The land acquisition program should ensure 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.

## E.4.2 Maintain Existing Land Use

The Airport Improvement Program (AIP) Handbook<sup>4</sup> provides guidance and sets forth policy and procedures used in the administration of the AIP. Appendix R, *Noise Compatibility Planning/Projects* of the AIP Handbook, provides guidance and eligibility requirements for airport noise mitigation programs. The following sections provide the general steps for determining eligibility for mitigation under AIP guidelines.

### E.4.2.1 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.

### E.4.2.2 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.

### E.4.2.3 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.

### E.4.2.4 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.

### E.4.2.5 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.

<sup>4</sup> U.S. Department of Transportation, Federal Aviation Administration, Order 5100.38D, Change 1, February 26, 2019.



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 aviation 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.

## » E.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 land use incompatibilities 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 Advisory Committee (AC) and participated in the study throughout the process. **Appendix D, Public Involvement**, includes a summary of coordination with the land use planners and elected officials.

### E.5.1 Zoning Data Compilation

Specific zoning information for the City of Rockford, Winnebago and Ogle Counties was collected and reviewed in order to identify tools for prohibiting incompatible development and encouraging compatible development near the airport. **Exhibit E-2, Generalized Existing Zoning**, graphically depicts the generalized zoning districts within the study area around RFD. **Table E-3, City of Rockford - Zoning Districts**, **Table E-4, Winnebago County - Zoning Districts** and **Table E-5, Ogle County - Zoning Districts** shows the generalized zoning categories, and the specific zoning classifications included in each generalized category for each jurisdiction within the study area with current zoning ordinances.



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**TABLE E-3 | CITY OF ROCKFORD – ZONING DISTRICTS**

GENERALIZED ZONING	ZONING DISTRICT CODE
Commercial	C-1: Limited Office District
	C-2: Limited Commercial District
	C-3: General Commercial District
	C-4: Urban Mixed Use District
Industrial	I-1: Light Industrial
	I-2: General Industrial
	I-3 Airport Industrial
Open Space / Parks	HDO: Historic District and National Register Overlay
	RRO: Rock River Overlay
	Wellhead Setback Overlay Districts
	Arts and Cultural Overlay Districts
Single-Family Residential	RE: Rural Estate
	R-1: Single-Family Residential
	R-1U: Single-Family Residential, Urban
Multi-Family Residential	R-2: Two-Family Residential
	R-3: Multi-Family Residential
	R-4: Multi-Family Residential

Source: City of Rockford, Illinois; Zoning Ordinance, August 31, 2020.  
Landrum & Brown analysis, 2023.

**TABLE E-4 WINNEBAGO COUNTY – ZONING DISTRICTS**

GENERALIZED ZONING	ZONING DISTRICT CODE
Commercial	C-N: Neighborhood Commercial District
	C-C: Community Commercial District
	C-G: General Commercial District
	OP: Office Park District
Industrial	I-L: Light Industrial District
	I-G: General Industrial District
	I-H: Heavy Industrial District
Open Space / Parks	AG: Agricultural Priority District
	A1: Agricultural District
	A-2: Agriculture-Related Business District
	OS: Open Space District
	FP: Flood Plain Overlay District
Single-Family Residential	CD: Conservation Design District
	R-A: Rural Agricultural Residential District
	R-1: Single-Family Residential District
Multi-Family Residential	R-2: Single-Family and Two-Family Residential District



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GENERALIZED ZONING	ZONING DISTRICT CODE
	R-3: Multi-Family Residential District
	R-4: Multi-Family Residential district
	R-MH: Manufactured Home Park and Residential District

Source: WinGIS Parcel database; <https://agis.wingis.org/>; Winnebago County, Illinois, Code of Ordinances, Chapter 90, Unified Development Ordinance; [https://library.municode.com/il/winnebago\\_county/codes/code\\_of\\_ordinances?nodeId=COCO\\_CH90UNDEOR](https://library.municode.com/il/winnebago_county/codes/code_of_ordinances?nodeId=COCO_CH90UNDEOR) Landrum & Brown analysis, 2023.

**TABLE E-5 | OGLE COUNTY – ZONING DISTRICTS**

GENERALIZED ZONING	ZONING DISTRICT CODE
Commercial	B-1: Business District
	B-2: Business Recreation District
	B-3: Restricted Interstate Highway Area Business District
Industrial	I-1: Industrial District
Open Space / Parks	AG-1: Agricultural District
	IA: Immediate Agricultural District
	PD: Planned Development District
Single-Family Residential	R-1: Rural Residential District
	R-2: Single-Family Residential District
Multi-Family Residential	R-3: Mobile Home Subdivision District
	R-4: Mobile Home Park District
	R-4: Multi-Family Residential district
	R-MH: Manufactured Home Park and Residential District

Source: Ogle County, Illinois, Amendatory Zoning Ordinance, Chapter 16 of the Ogle County Code, September 2017; [https://www.oglecounty.org/departments/planning\\_&\\_zoning/zoning\\_ordinance.php](https://www.oglecounty.org/departments/planning_&_zoning/zoning_ordinance.php) Map Server (Beacon); [https://www.oglecounty.org/departments/gis/beacon\\_map\\_server.php](https://www.oglecounty.org/departments/gis/beacon_map_server.php) Landrum & Brown analysis, 2023.

## » E.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...”<sup>5</sup> 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**.

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

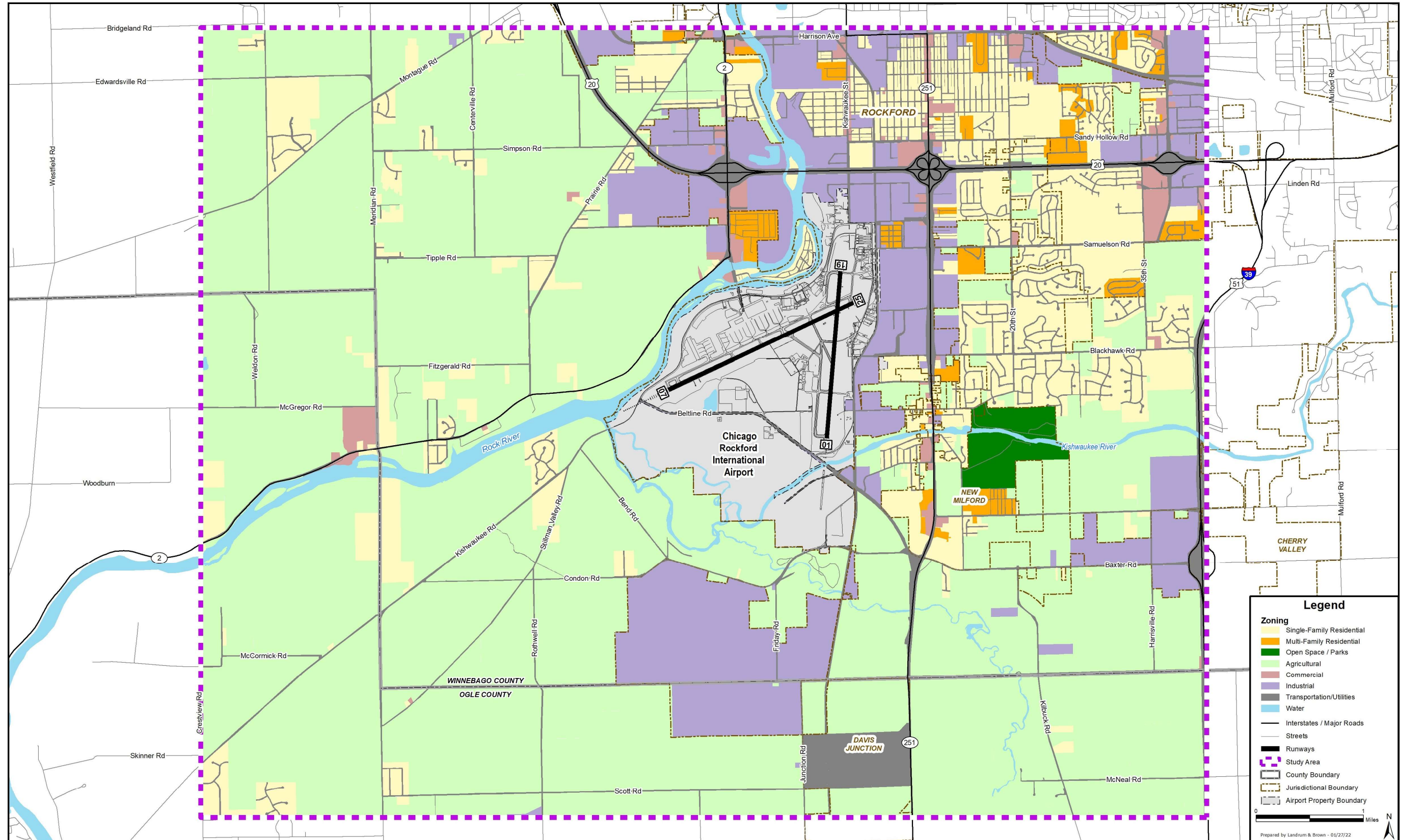


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**EXHIBIT E-2 GENERALIZED EXISTING ZONING**



Source: Winnebago & Ogle County GIS data, 2022, Landrum & Brown analysis, 2023.





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