Chapter 6. Land Use Evaluation and Environmental Considerations

6.1. Introduction

Airport operations and development are driven not only by aviation-related activities occurring on-property, but also by the land uses and natural features within an airport's environs. These contextual elements can affect an airport's expansion potential, the flight procedures that govern how aircraft land at and take off from the facility, the type and extent of economic activity supported by the airport, and numerous other facets of ongoing airport operations and improvements. Land uses and environmental conditions adjacent to and near airports can have complex relationships with airport activities, and decisions that are made off-airport can have severe consequences for an airport and its users. As a result, it is important for airport managers and sponsors to understand local land use conditions and the potential impacts those conditions can have on aviation operations. Furthermore, airports must comply with numerous state and federal statutes and regulations that govern land uses and the environment—particularly for airport improvement projects that use federal money. These laws are designed to protect the safe and efficient operation of aircraft, the well-being of people and property on the ground, and the health of the natural environment.

This chapter of the Illinois Aviation System Plan (IASP) provides a general overview of various elements of land use compatibility and environmental features that most commonly affect airports in Illinois. The chapter offers airport managers and sponsors a general understanding of their responsibilities in terms of regulatory compliance and their role in ensuring that airports can coexist compatibly with communities as good neighbors and environmental stewards. As an advocate for airports and the administrator of the Airport Improvement Program (AIP) in the state, the Illinois Department of Transportation (IDOT) also has the responsibility of supporting and partnering with airports to promote positive relationships with local communities and the implementation of environmental best practices at airports. By identifying the land use compatibility and environmental issues that most often arise in Illinois, the IASP pinpoints areas that IDOT may consider addressing in terms of additional guidance to airports, policy changes, or project prioritization.

This chapter of the IASP opens by first providing an overview of IDOT's current environmental policies before turning to specific issues of land use compatibility and environmental considerations. Conclusions are then drawn regarding these issues. Airport-specific detail tables that report each study airport's performance in terms of the issues discussed are presented at the end. As such, this chapter is organized as follows:

- IDOT Aeronautics Policy
- Land Use Evaluation
- Environmental Considerations
- Conclusion
- Airport-specific Detail Tables

It is important to note that the IASP does not inventory environmental features to the degree required for airport-specific planning or design projects or to complete a specific environmental review process. Instead, the study provides a high-level review of potential concerns witnessed across the state. Data

used in these analyses were obtained from Google Earth aerial imagery, numerous federal and state governmental sources, the airports during the data collection process.

6.2. IDOT Aeronautics Policy

The federal government has established numerous laws designed to protect the health and safety of people, as well as the natural environment. Hailed as a watershed environmental statute when first enacted in 1970, the National Environmental Policy Act (NEPA) requires government agencies to consider the potential environmental effects of proposed actions when federal money is involved. Nearly all airport maintenance and improvement projects conducted at airports included in the National Plan of Integrated Airport Systems (NPIAS) are funded, at least in part, via the AIP. As such, all NPIAS airports are required to use the NEPA process to evaluate the environmental and related social and economic effects of proposed actions, as well as provide opportunities for public review and comment on those evaluations.

The President's Council on Environmental Quality (CEQ) is responsible for overseeing NEPA implementation. On July 15, 2020, the CEQ's final rulemaking on modernization of NEPA implementing regulations was published. While not effective until September 14, 2020, the Federal Aviation Administration (FAA) has one year to update its policies and procedures in accordance with other U.S. DOT direction to reflect the updated CEQ rulemaking.

Currently, FAA Order 1050.1F, "Environmental Impacts: Policy and Procedure" documents the FAA's policy and procedures for compliance with NEPA and implementing CEQ's associated regulations. Additionally, FAA provides Order 5050.4B, "NEPA Implementing Instruction for Airport Projects" and the "Environmental Desk Reference for Airport Actions" to assist airports in complying with all statutory and regulatory requirements. Specific FAA actions subject to NEPA review include (but are not limited to) grants, loans, contracts, leases, construction and installation actions, research activities, licensing, permits, and plans that require the FAA's approval.[97] In general, NEPA is required any time there is a federal action undertaken at an airport.

Once it is determined that NEPA applies to a proposed action, the FAA must decide on the appropriate level of environmental review. These levels are depicted in **Figure 6.1**; each of these requires an increasing level of detail, documentation, public comment, and agency review based on the potential type and severity of impact resulting from the proposed action. EISs are triggered only by proposed major federal actions significantly affecting the quality of the environment. An EIS is generally required for projects, such as developing a new commercial service airport or runway to support commercial traffic in a Metropolitan Statistical Area (MSA), major runway extensions, or actions pertaining to the development or permitting of a commercial space launch site.[98]

Figure 6.1. Levels of NEPA Reviews

Source: Kimley-Horn 2020

[97] FAA Order 1050.1F, Paragraph 1-9
[98] FAA Order 1050.1F, Paragraph 3-1.1

EAs are used to determine if a proposed action could result in significant impacts. A CATEX refers to a proposed action that does not have significant environmental impacts and for which an EA or EIS is not required. The following actions are normally considered categorically excluded by the FAA.[99]

- Administrative or general in nature
- Issuance of certificates or compliance with certification processes
- Installation, repair, or upgrade of equipment or instructions necessary for operations and safety
- Acquisition, repair, replacement, maintenance, or upgrading of grounds, infrastructure, buildings, structures, or facilities that generally are minor in nature
- Establishment, modification, or application of airspace and air traffic procedures
- Establishment of, compliance with, or exemptions to regulatory programs or requirements

As a State Block Grant Participant (SBGP), IDOT is responsible for overseeing all environmental reviews for proposed actions that require a CATEX at nonprimary airports.[100] CATEXs are conducted in accordance with the FAA's Standard Operating Procedure (SOP) 5.1, "CATEX Determinations" (effective June 2, 2017). This document notes that projects must both fall into one of the categories bulleted above and:[101]

- There are no extraordinary circumstances
- Any extraordinary circumstances that are present can be either:
  - Eliminated or resolved through conservation measures included in the project design
  - Resolved through the completion of special purpose law requirement(s)

A CATEX must be documented via simple written record or by following the procedures offered in Appendix A of SOP 5.1.[102] As part of its responsibilities under NEPA, IDOT provides environmental clearance for all categorically excluded projects at Nonprimary airports and maintains the appropriate records in the project files. EAs and EISs at Nonprimary airports are coordinated directly with the FAA. The process at Primary airports is different in that all environmental reviews—including CATEXs, EAs, and EISs—are coordinated directly through the FAA.

To supplement all environmental clearance submittals, the IDOT Bureau of Design and Environment completes a biological and cultural survey prior to all airport improvement projects in the state. As discussed further in the Historical Resources section later in this chapter, surveys are required on projects involving undisturbed ground or structures of potential historical significance. The IDOT Bureau of Design and Environment has agreements with the State Historic Preservation Office (SHPO) regarding the cultural surveys and works with airports and IDOT to identify the specific surveys triggered by each airport project.

6.3. Land Use Evaluation

Airport land use compatibility refers to land use adjacent to or in the vicinity of airports that neither impacts safe and efficient airport operations nor exposes people to unacceptable levels of noise and safety hazards. When airport operations cannot coexist with surrounding use, this incompatibility can be

[99] FAA Order 1050.1F, Paragraph 5-6.
[100] IDOT is also responsible for reviewing Environmental Assessments at nonprimary airports, however, ultimate approval is the responsibility of the FAA.
[101] FAA Office of Airport (ARP) SOP 5.1, Chapter 2.
[102] Depending on project type. Section SOP 5.1, Chapter 7 for additional details.

an annoyance to people and results in safety concerns related to airspace, overflights, and accident severity. Airport land use compatibility is often associated with encroachment in which undeveloped land adjacent to or near an airport is developed as residential or other incompatible use. Areas may be redeveloped from a compatible use, such as farmland or industrial use, to a sensitive-use property like a hospital, school, daycare facility, or church. Incompatibility can also occur when tall structures that exceed FAA height restrictions are developed in navigable airspace. These height obstructions are governed by Title 14 Code of Federal Regulation (CFR), Part 77, "Safe, Efficient Use, and Preservation of the Navigable Airspace" (Part 77). Part 77 incompatibility arises when structures penetrate specific airspace dimensions known as "imaginary surfaces." Imaginary surfaces are designed to allow aircraft to safely operate within established traffic patterns and within approach and departure areas.

Land use and height incompatibility can lead to serious concerns for airports; pilots, passengers, and other aviation professionals; nearby businesses and their workers; and local residents.[103] In addition to safety risks, some of the most common concerns associated with land use incompatibility include:

- Community impacts
  - Pressure to close airports
  - Lack of local community and/or government support
  - Induced socioeconomic impacts
  - Impacts to parks, recreational, and natural areas
  - Noise and vibration that adversely affect daily life
- Airport impacts
  - Constrained airport development and expansion potential
  - Limited future economic opportunities
  - Degraded airport operations
  - Access restrictions including runway displacement thresholds and revised instrument approach procedures (IAPs)

Airport Cooperative Research Program (ACRP) Report 27, "Enhancing Airport Land Use Compatibility, Volume 1: Land Use Fundamentals and Implementation Resources," defines compatible land uses as those that can coexist with a nearby airport without either constraining the safe and efficient operation of the airport or exposing people living and working nearby to unacceptable levels of noise or hazards.

Because of the importance of land use compatibility for airports and the communities they serve, this section of the IASP identifies land uses that are typically considered incompatible in the vicinity of airports and/or near aircraft operations. Incompatible land uses include buildings and structures whose height exceeds Part 77 standards as well as other types of development that may attract wildlife or large concentrations of people, are noise-sensitive, or cause visual obstructions. The land uses within Part 77 surfaces and Runway Protection Zones (RPZs) are the focus of this evaluation.

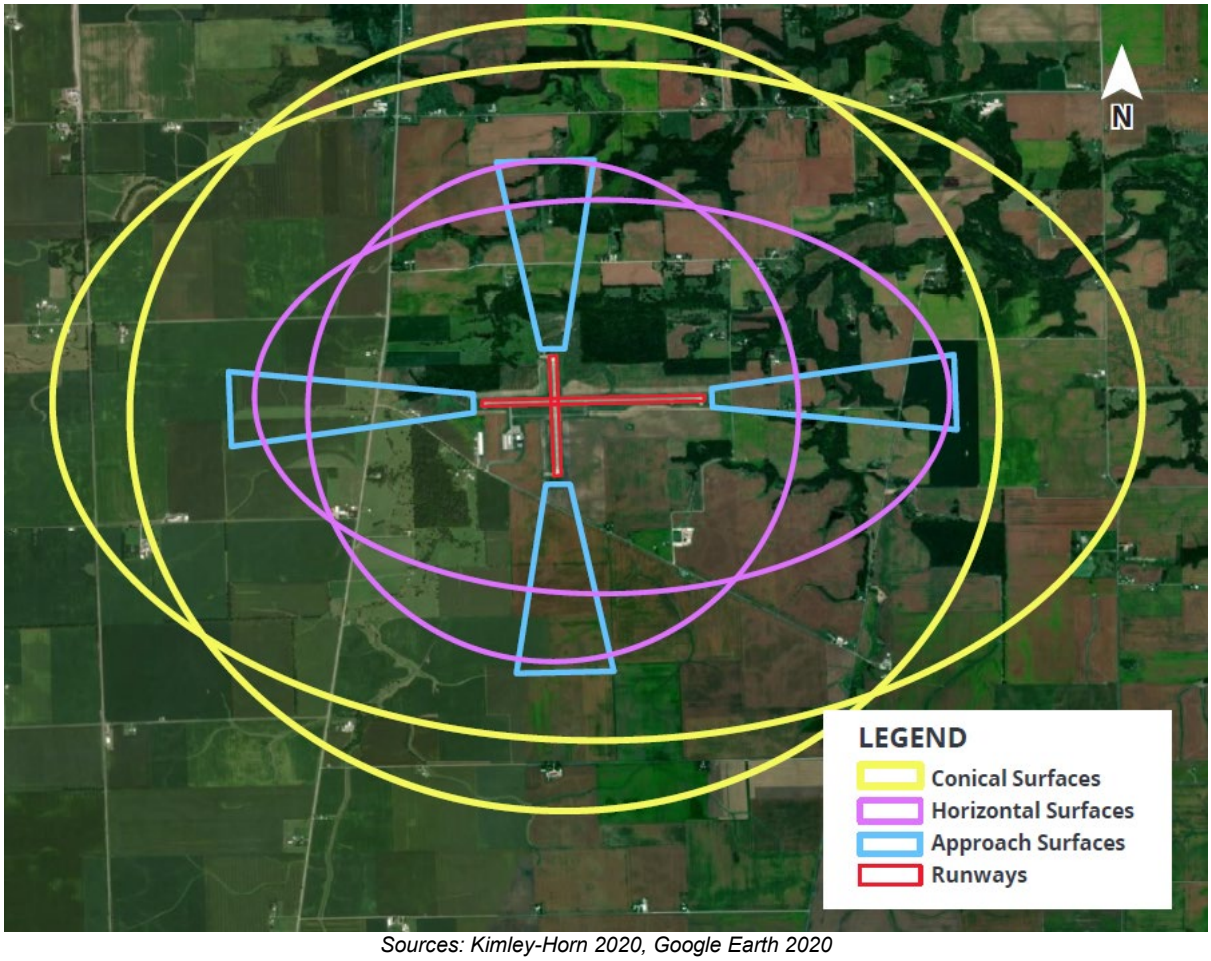
The assessment was conducted by mapping the RPZs and Part 77 surfaces for each Illinois airport

[103] The state of Illinois enforces statewide air hazard zoning for tall structures. For more information, visit Illinois Compiled Statutes (620 ILCS 25/) Airport Zoning Act.

included in the IASP. Incompatible developments including dense residential areas; major developments, such as malls, stadiums, and campus environments; bodies of water; and landfills were then identified by desktop visual assessment utilizing Google Earth imagery. Each type of incompatibility is addressed in turn in the sections that follow. It is important to note that the Part 77 and RPZ land use assessments presented in the following sections are only meant to provide context within the airport environs. The results of these analyses do not necessarily indicate there is a need for any action to be taken.

An example land use evaluation map is provided in **Figure 6.2**. Land use maps were provided to each airport manager during the inventory process for discussion purposes of known land use concerns within these areas. The results of the Part 77 surfaces and RPZ analysis at the airport level are presented in the Airport-specific Detail Tables at the end of this chapter (see **Table 6.3**). The table uses a checkmark (✓) to indicate that an airport is affected by an incompatible land use within either the RPZ or the Part 77 surfaces. While the check marks presented in **Table 6.3** may indicate the presence of a certain type of development within an airport's area of influence, it does not mean action must be taken to remove the obstruction or mitigate the issue.

Figure 6.2. Surfaces Evaluated for Land Use Compatibility (Example)



Sources: Kimley-Horn 2020, Google Earth 2020

6.3.1. Part 77 Analysis

Part 77 regulations are the FAA's primary mechanism for overseeing airport compatible land use. Among several other provisions, Part 77 gives the FAA the authority to:

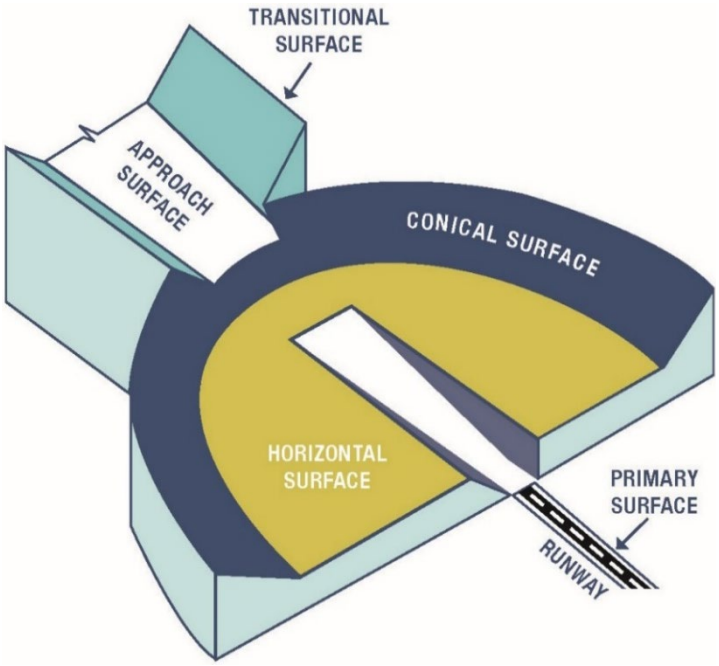
- Evaluate the efficient use and preservation of navigable airspace
- Assess the effect of proposed construction or alteration of an existing object on air safety
- Determine if the proposed construction or alteration is a hazard to air navigation
- Identify mitigation measures should a hazard be identified, including recommendations for appropriate marking and lighting using FAA Advisory Circular (AC) 70/7460-1L, Obstruction Marking and Lighting
- Notify pilots and other stakeholders of the construction or alteration of an object that affects navigable airports

Most pertinent to this evaluation, Part 77 establishes specific airspace dimensions as imaginary surfaces based on the design criteria of airports that should not be exceeded by objects or structures. Imaginary surfaces are designed to allow aircraft to safely operate within the airport's traffic pattern and along established approach and departure areas into and out of the airport. Imaginary surfaces include the following and are depicted in **Figure 6.3:**[104]

- **Primary Surface:** This surface is longitudinally centered on the runway. The length of the Primary Surface is determined by existence of a prepared hard surface on the runway.
- **Approach Surface:** The surface is longitudinally centered on the centerline of the runway. It then extends outward and upward from each end of the Primary Surface. The length and width of the Approach Surface is dependent upon the approach capabilities of that specific runway (visual approach, non-precision instrument approach, precision instrument approach).
- **Transitional Surface:** This surface extends outward and upward from the sides of Primary Surfaces and Approach Surfaces at a slope of 7:1 until it reaches the height of the Horizontal Surface.
- **Horizontal Surface:** This surface is positioned 150 feet above the established airport elevation. The perimeter of the Horizontal Surface is constructed by swinging arcs of specified radii from the center of each end of the Primary Surface of each runway. Tangents then connect the adjacent arcs to form the Horizontal Surface.
- **Conical Surface:** This surface extends outward and upward from the Horizontal Surface for a horizontal distance of 4,000 feet at a slope of 20:1.

[104] The surfaces depicted in **Figure 6.3** apply to civil airports only and do not apply to heliports. Heliports are regulated by their own set of imaginary surfaces.

Figure 6.3. Part 77 Imaginary Surfaces



Sources: 14 CFR Part 77, Kimley-Horn 2020

The following section analyzes the most common types of incompatible land uses within Part 77 surfaces at Illinois's system airports. Part 77 imaginary surfaces are three-dimensional spaces. Due to the nature of a desktop visual assessment, this analysis of Part 77 surfaces was two-dimensional. It should also be noted that the existence of the features identified within Part 77 surfaces does not mean the airports are not within state or federal compliance. For example, development may be under a Part 77 surface, but not penetrating. The intent of this analysis is to identify the extent to which airports should protect airspace. Additional development, especially vertical development, should be closely monitored to maintain safe airways.

The FAA's Notice Criteria Tool can be used to determine if proposed development or alteration of an existing structure may penetrate Part 77 imaginary surfaces and thus requires additional coordination with the FAA to determine if the structure poses a hazard to air navigation. Hazards recorded in this database require further evaluation to determine their actual impacts before action is taken. The Notice Criteria Tool is available online at ***https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm.***

6.3.1.1. Residential Development

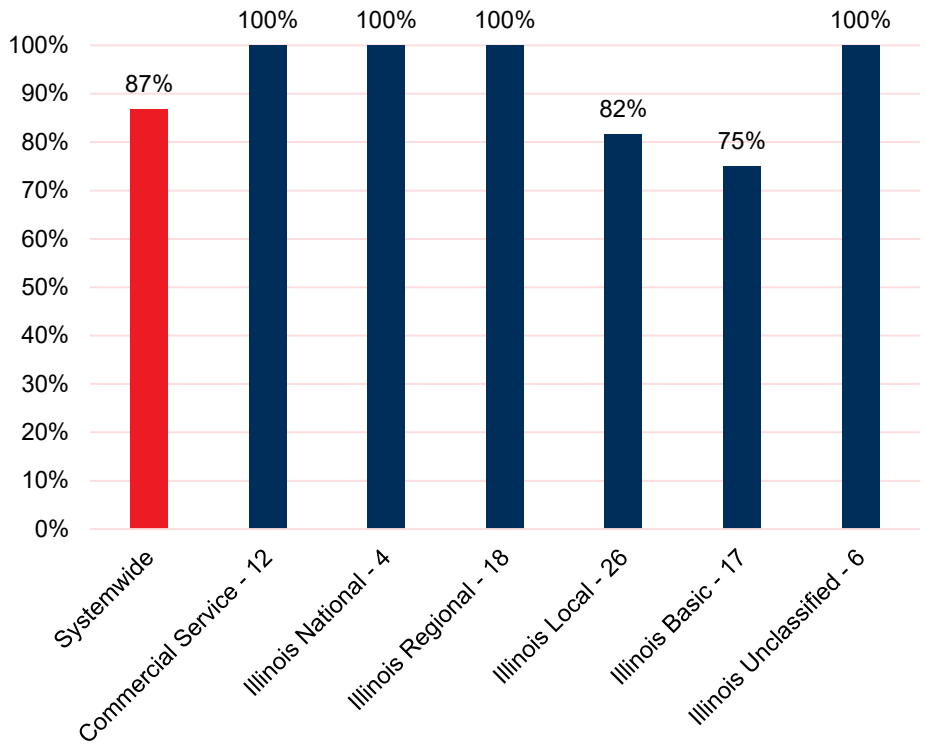
Residential development is one of the most recognized incompatible land uses near airports. Multi-level or multi-family structures or dense single-family neighborhoods create a large concentration of people in an area. When located within the boundary of a runway approach or an aircraft traffic pattern, the safety of residents can be threatened in the event of an aircraft incident. Furthermore, airport-related noises typically are a nuisance for local populations and can result in noise complaints to the airport manager or

local government officials. Although noise was not a factor considered in this study, it is a major component of land use studies in and around airports. Besides the commonly perceived annoyance factor that may interrupt conversation, sleep, and other normal activities, aircraft noise can also produce vibration that can adversely affect the daily life of people living and working near an airport. Airport noise compatibility planning is regulated by 14 CFR, Part 150, "Airport Noise Compatibility Planning." The FAA administers the Federal Aviation Regulation (FAR) Part 150 Noise Compatibility Program to assist airports in identifying incompatibilities and implementing mitigation measures to address the adverse impacts of aircraft noise in homes and schools near airports. Part 150 studies typically focus only on noise contours whose shape and size are determined based on aircraft operational activity, but in general are closer to the airport than the larger Part 77 surfaces when considered as a whole.

Given the size of Part 77 surfaces, it is common to have residential development located within the area as the airport typically does not control the entire area within the Part 77 surfaces. The primary and approach surfaces are most critical in terms of land use compatibility, while height penetration is most critical in the remaining surfaces. In general, the closer to the airport and aircraft activity such as traffic pattern airspace, the more essential the need to control land uses, as well as height.

As depicted in **Figure 6.4**, 87 percent of Illinois system airports have some sort of residential development that exists within the boundaries of airport Part 77 surfaces. All Commercial Service, Illinois National, and Illinois Regional airports have residential developments within their Part 77 surfaces. Eighty-two percent of Illinois Local, 75 percent of Illinois Basic, all Unclassified airports were identified as having residential development within the boundaries of their Part 77 surfaces.

Figure 6.4. Part 77 Analysis – Residential Development



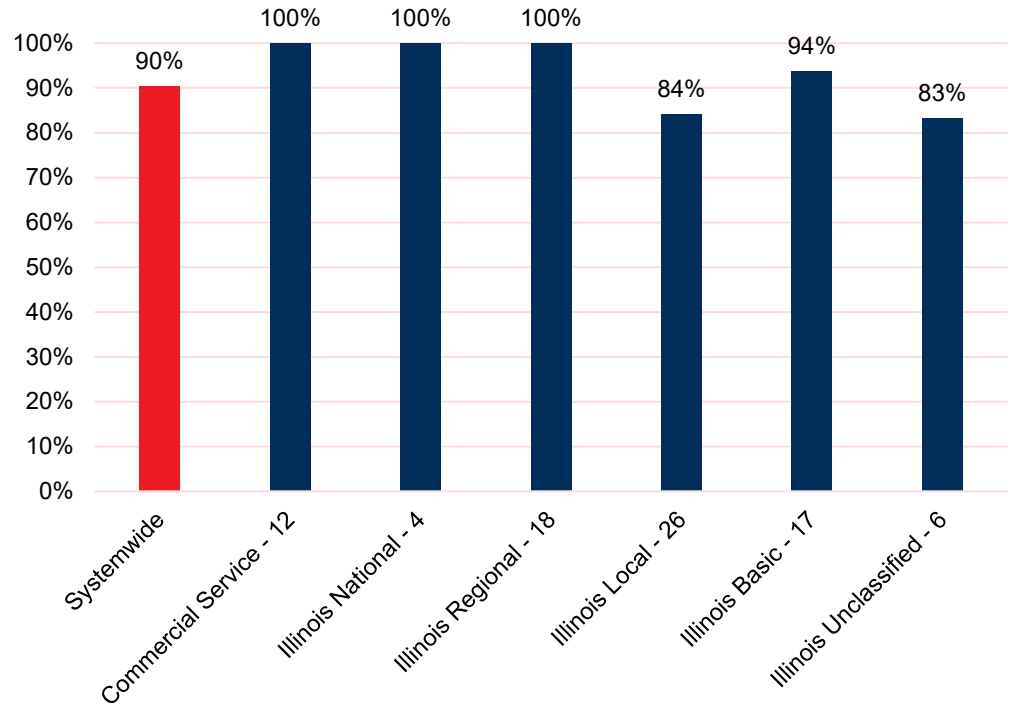
Sources: Kimley-Horn 2020, Google Earth 2020

6.3.1.2. Major Development

Limiting uses that attract higher concentrations of people near airports helps reduce the potential impacts of aircraft accidents should they occur. As such, this analysis focused on those that draw large concentrations of people, such as large malls, churches, schools, and stadiums. Note that some of these uses may have other characteristics resulting in incompatibility in conjunction with population density like tall structures, residential development, and noise-sensitive uses.

Systemwide, 90 percent of IASP airports were identified as having some form of major development within their Part 77 surfaces, as depicted in **Figure 6.5**. These developments are primarily affecting the state's largest airports, with all Commercial Service, Illinois National, and Illinois Regional airports having major development within their Part 77 surfaces. Eighty-four percent of Illinois Local, 94 percent of Illinois Basic, and 83 percent of Illinois Unclassified airports are similarly affected by land uses that are likely to have higher concentrations of people. These results for the largest airports make sense because Part 77 surfaces are dependent on each airport's runway type and visibility minima. Accordingly, busier airports that support more sophisticated and diverse uses generally have larger Part 77 surfaces with an inherently greater likelihood for incompatible development.

Figure 6.5. Part 77 Analysis – Major Development



Sources: Kimley-Horn 2020, Google Earth 2020

Large trucks and other mobile objects related to transportation facilities may also penetrate Part 77 imaginary surfaces, which would trigger FAA involvement should certain thresholds be exceeded. When calculating the height related to transportation facilities during Part 77 evaluations, the FAA requires that 17 feet be added to the road elevation of interstate highways, 15 feet added for other public roadways,

and 10 feet to private roads to determine the potential for Part 77 penetration. A 23-foot clearance over railroad lines is also required to be used in evaluating Part 77 penetrations.[105]

Similar to residential development, it is common to have other major developments within the Part 77 surfaces. The primary and approach surfaces are most critical in terms of land use compatibility and addressing potential large congregations of people. The presence of developments that attract large groups of people should be discouraged while in these two closer-in areas that are directly experiencing overhead aircraft activity.

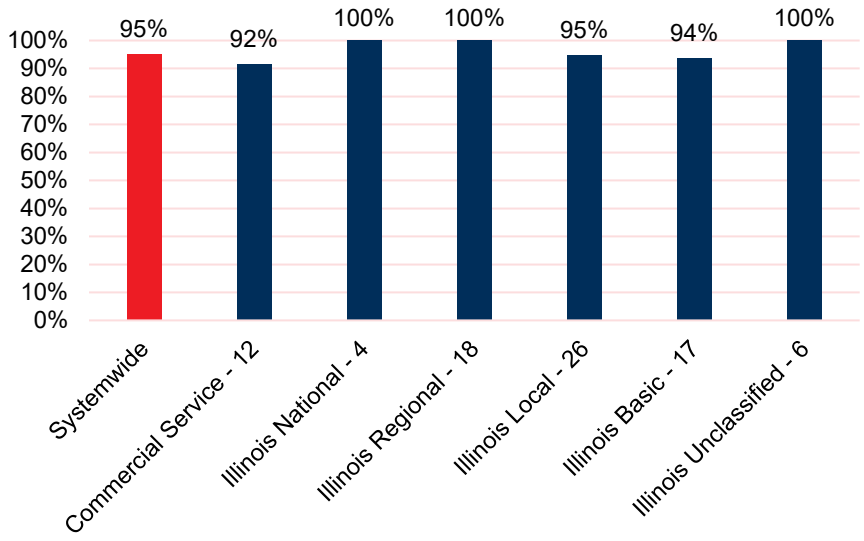
6.3.1.3. Water

Water features in Part 77 surfaces pose a multitude of safety risks for pilots, their passengers, and people and objects under their flight paths. Bodies of water can include lakes, reservoirs, rivers, and creeks, as well as smaller features, such as detention/retention ponds and open irrigation canals. Water causes glare, which reduces exterior and interior visibility. Additionally, water attracts wildlife, which poses a serious threat to safe aircraft operations due to potential collisions. Wildlife strikes can damage or destroy aircraft, resulting in human injury and even death. The FAA reported 287 human fatalities globally and 311 human injuries in the U.S. attributable to wildlife strikes between 1988 and 2017. The FAA's Wildlife Strike Database recorded 5,901 wildlife strikes in Illinois between 2009 and 2019. These strikes affected all types of aircraft—from small piston aircraft to large commercial jetliners and military aircraft. Birds accounted for most strikes, with killdeer, American kestrel, barn swallow, and mourning dove representing the most struck bird species in Illinois. Other types of animals involved in collisions in Illinois included deer, bats, coyotes, woodchucks, foxes, turtles, and others. Because of the frequency of incidents and the seriousness of the potential threat, it is critical to monitor wildlife activity and habitats on and near airports to identify areas of hazards. Depending on the type of wildlife concern, mitigation techniques like fence installation, elimination of standing water, prohibition of crops and other vegetation known to be attractive to wildlife, and more can be implemented to reduce the potential for wildlife incidents. For more information on wildlife at Illinois's airports, see **Section 6.4.2 Threatened or Endangered Species.**

Ninety-five percent of IASP airports have at least one lake, reservoir, river, or creek within their Part 77 surfaces. This includes 90 percent or more of airports in each airport classification and 100 percent of all Illinois National, Illinois Regional, and Illinois Unclassified facilities, as shown in **Figure 6.6**.

[105] State Department of California (2011). "California Airport Land Use Planning Handbook." Available online at https://dot.ca.gov/-/media/dot-media/programs/aeronautics/documents/californiaairportlanduseplanninghandbook-a11y.pdf (accessed July 2020).

Figure 6.6. Part 77 Analysis – Water Features



Sources: Kimley-Horn 2020, Google Earth 2020

6.3.1.4. Landfills

As noted in the section above, land use practices and habitats are key factors in determining the wildlife species and populations that are attracted to airport environments. Because wildlife strikes have resulted in "the loss of hundreds of lives worldwide, as well as billions of dollars in aircraft damage," the FAA released AC 150/5200-33C, "Hazardous Wildlife Attractants on or near Airports" (updated February 2020). This AC provides specific requirements for airports that receive Airport Improvement Program (AIP) funding, those that hold Part 139 Airport Operating Certificates, as well as voluntary recommendations for all other public-use facilities. Additionally, AC 150/5200-34A, "Construction or Establishment of Landfills Near Public Airports" provides additional guidance for Primary Nonhub and certain NPIAS GA airports that provide scheduled air carrier operations conducted in aircraft with less than 60 seats.

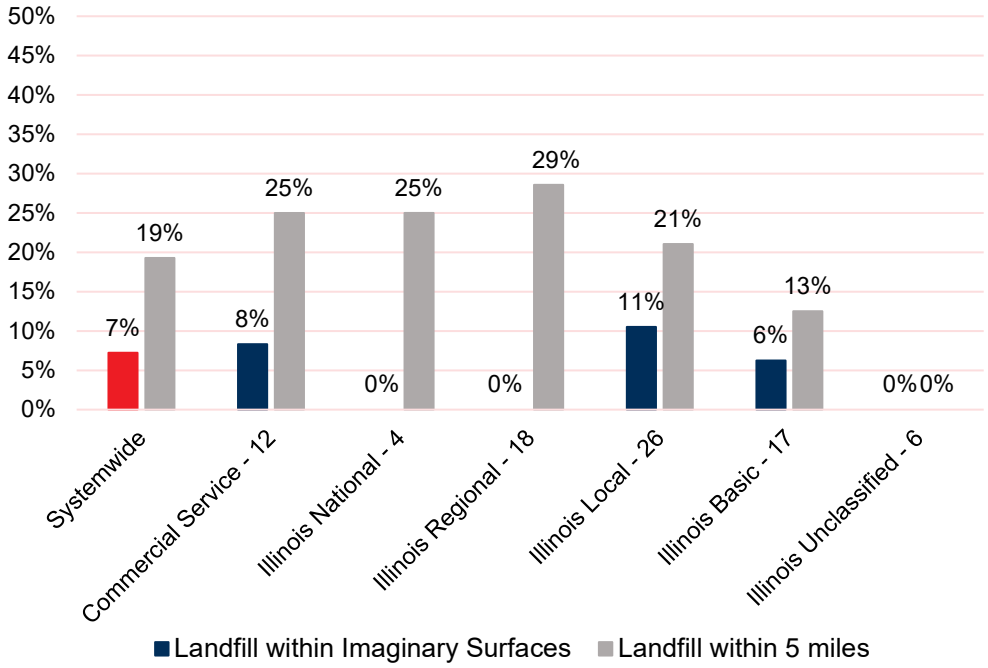
In both documents, the FAA recognizes landfills as one of the primary types of land uses that can provide wildlife with ideal locations for feeding, loafing, reproduction, and escape. As such, the FAA recommends a minimum separation distance of five statute miles between the farthest edge of an airport's air operations area (AOA) and known hazardous wildlife attractants, including landfills.[106] That distance is increased to six statute miles for some newly constructed municipal solid waste landfills and Primary Nonhub, Nonprimary Commercial Service, and certain NPIAS GA facilities that meet specific conditions (see AC 150/5200-34A and AC 150/5200-33C for more details).

To conduct this analysis, the IASP obtained information about the location of active landfills across the state from the Illinois Environmental Protection Agency (EPA). The data was then mapped to identify airports with a landfill within their Part 77 surfaces as well within five statutory miles of each airport's AOA.

[106] Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106–181) (AIR 21) prohibits the construction or establishment of a new municipal solid waste landfills within six statute miles of certain public-use airports.

As shown in **Figure 6.7**, this analysis revealed that six IASP airports (seven percent) have a landfill within their Part 77 surfaces and 16 airports (19 percent) have a landfill within five statutory miles of their AOA. Illinois Regional airports have the highest percent of landfills within five statutory miles of the AOA at 29 percent. None of the Illinois Unclassified airports are potentially affected by landfills in Illinois.

Figure 6.7. Part 77 Analysis – Landfills Within Part 77 Surfaces and Within Five Miles of an Airport



Sources: Kimley-Horn 2020, Google Earth 2020, Illinois Environmental Protection Agency 2020

6.3.2. RPZ Analysis

RPZs are imaginary trapezoidal areas located at each end of every runway designed to protect people and property on the ground. The dimensions of these areas are based on the airport approach category the airport is designed to serve, as well as approach visibility minimums to each runway end.[107] Ideally, the airport owner controls all two-dimensional runway end RPZs through sufficient property interest and properly maintains and clears these areas of any incompatible objects and activities. However, many airports do not fully own their RPZs and may only have partial or no control through fee simple ownership or easements. In such cases, the responsibility for airport compatible development within RPZs largely falls to local land use planners and zoning authorities.

RPZs differ from Part 77 surfaces in that FAA has the statutory authority to regulate under FAR Part 77. However, the FAA does administer, approve, and/or fund certain projects and planning studies that could result in the RPZ shifting or expanding in a manner that affects land use within its boundaries. For example, an airport could complete a runway improvement project and change its critical design aircraft; as a result, the dimensions of its RPZ would expand to now encompass an incompatible use. This would

[107] See AC 150/5300-13A, "Airport Design Standards" (consolidated change 1) for an interactive table to determine specific RPZ dimensional requirements.

be reviewed during the planning process and identified in an airport layout plan (ALP) that would require FAA approval (for NPIAS airports). During this process the approach to addressing the incompatible RPZ land use would need to be resolved.

To clarify its policies and procedures regarding compatible land uses in RPZs, the FAA released "Interim Guidance on Land Uses Within an RPZ" (Interim Guidance) in 2012.[108] This Interim Guidance was developed specific to new or modified land uses in an RPZ, not existing RPZ incompatibilities, and requires additional agency coordination for the following land uses:

- Buildings and structures
- Recreational land uses (e.g., golf courses, sports fields, amusement parks, and other places of public assembly)
- Transportation facilities
- Fuel storage facilities
- Hazardous materials storage
- Wastewater treatment facilities
- Above-ground utility infrastructure, including any type of solar panel installation

The FAA and airport sponsor must work together to conduct an alternatives analysis should a change occur that results in an above-mentioned land use entering the limits of the RPZ. It is important to note that RPZ guidance is specifically designed to protect people and property on the ground. This is different than Part 77 regulations, which primarily address threats to navigable airspace. In the sections that follow, the IASP evaluates incompatible land uses within all of the RPZs of Illinois's system airports. For the purposes of reporting this information, if even one RPZ on an airport was found to have an incompatible use, the entire airport was categorized as such. **Figure 6.8** provides an example of the analysis that was completed within airport RPZs.

Figure 6.8. RPZ Land Use Evaluation

Source: Kimley-Horn, 2020, ArcGIS Analysis

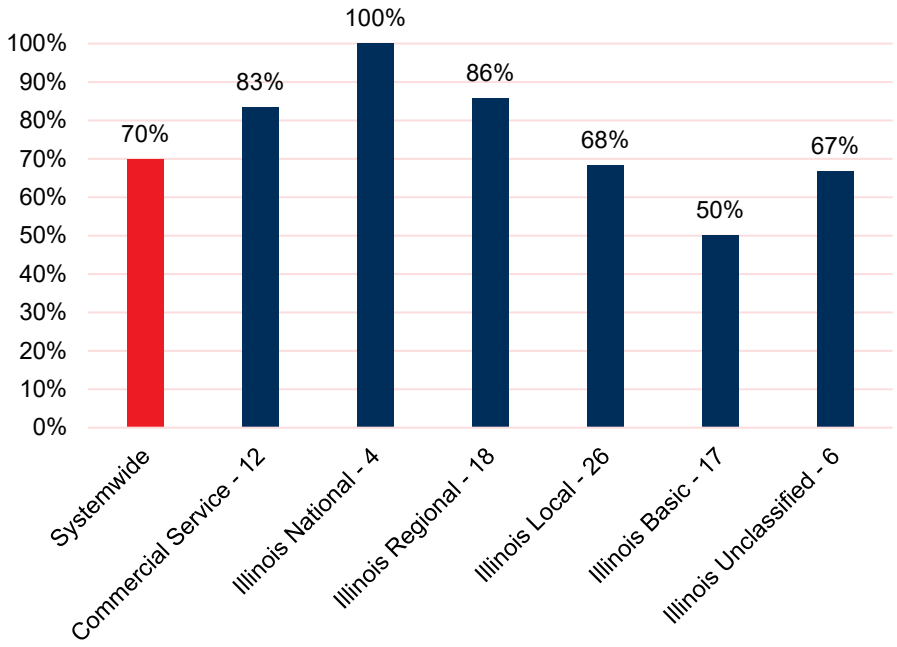
[108] The Interim Guidance is slated to be incorporated into a formal AC; publication is currently pending.

6.3.2.1. Buildings and Structures

Buildings and other tall structures are generally the most apparent type of incompatible development near an airport, particularly when located immediately off a runway end. Depending on their purpose, large structures can accommodate large numbers of people, who are all put at risk should an accident occur. The FAA's Interim Guidance notes residences, schools, churches, hospitals or other medical care facilities, and commercial/industrial buildings as examples of incompatible uses. These facilities also support noise-sensitive populations who require careful attention from a land use and zoning perspective.

As **Figure 6.9** illustrates, 70 percent of IASP airports were identified as having some form of building within at least one of their RPZs. These buildings mostly include private homes and businesses as well as airport related buildings. This includes 83 percent of Commercial Service, all Illinois National, and 86 percent of Illinois Regional airports. Sixty-eight percent of Illinois Local, 50 percent of Illinois Basic, and 67 percent of Illinois Unclassified airports have some form of building within at least one of their RPZs.

Figure 6.9. RPZ Analysis – Buildings or Structures



Sources: Kimley-Horn 2020, Google Earth 2020

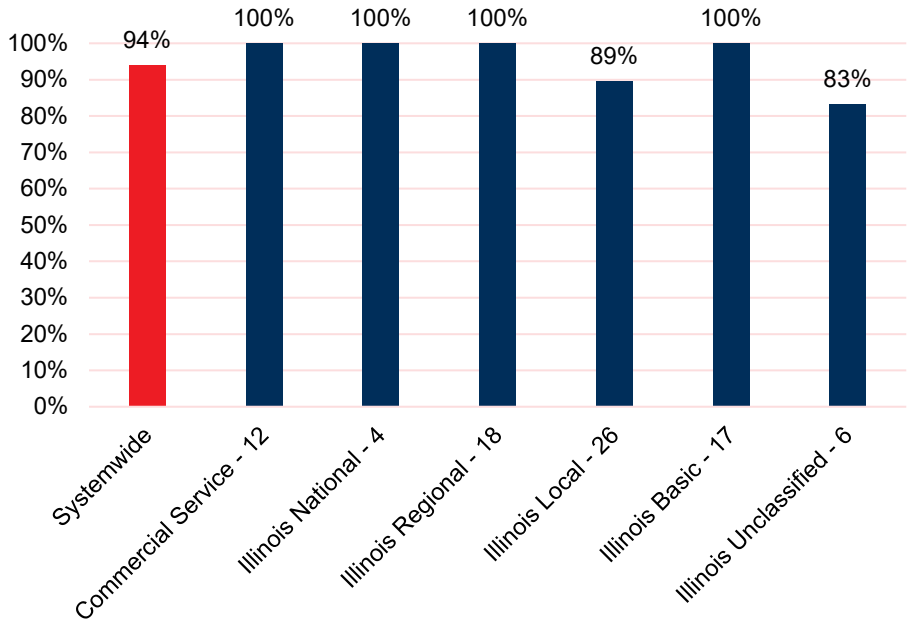
6.3.2.2. Public Roadways

Roadways are specifically identified by the FAA's Interim Guidance as an incompatible land use inside RPZs. High-traffic facilities and roads where traffic is frequently stopped deserve particular attention due to the number of people who could be impacted should an incident occur. Land use planners and airports must also consider the height of mobile objects traveling through RPZs to optimize safety for drivers and pilots.

Based on a desktop visual assessment using Google Earth imagery, 94 percent of airports have at least one public roadway traveling through an RPZ, as shown in **Figure 6.10**. This includes all Commercial Service, Illinois National, Illinois Regional and Illinois Basic airports, as well as 89 percent of Illinois Local and 83 percent of Unclassified airports. It is important to note that the FAA's RPZ guidance has changed

over time and that many of the roads were built prior to current guidance indicating a road was an incompatible land use. FAA is not requiring airports to specifically address the existing incompatibilities until a change is made to the airfield or there is additional study during planning efforts at the airport.

Figure 6.10. RPZ Analysis – Public Roadway(s)



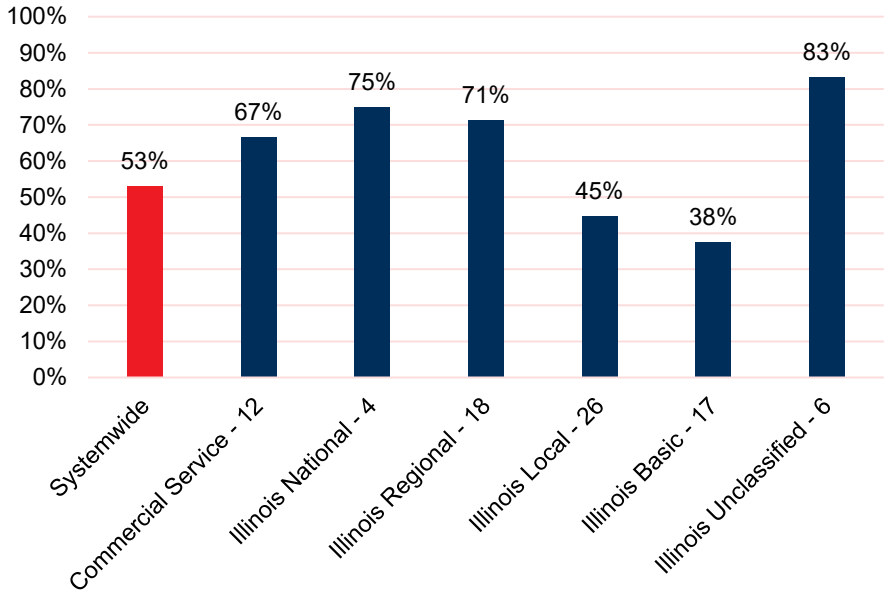
Sources: Kimley-Horn 2020, Google Earth 2020

6.3.2.3. Other Incompatible Uses

The Interim Guidance provides several other more unique uses that can result in high concentrations of people or significant threats in the case of an aircraft overrunning the runway end, landing prior to the runway threshold, or otherwise facing an incident immediately prior to or after a runway end. Fuel storage facilities and hazardous material storage may explode if struck by an aircraft. Utility infrastructure often exceeds height restrictions, and nearby populations could be severely affected should an aircraft impact electrical, water, natural gas, or other critical facilities. Solar installations can result in glare for pilots (see **Section 6.3.1.3** for more information about the impacts of glare on aircraft operations). Dense and/or tall vegetation can be a concern due to height and the fact that it may attract wildlife (see **Section 6.3.1.4** for details about wildlife attractants near airports).

Figure 6.11 reveals that 53 percent of system airports in Illinois have some other type of incompatible land use within their RPZs, beyond roadways or buildings/structures. Sixty-seven percent of Commercial Service, 75 percent of Illinois National, 71 percent of Illinois Regional, and 83 percent of Illinois Unclassified airports have some other type of incompatible land use within their RPZ(s). Illinois Local and Illinois Basic airports fare slightly better, with 45 percent and 38 percent, respectively, having some other type of incompatible land use within their RPZs.

Figure 6.11. RPZ Analysis – Other Incompatible Uses



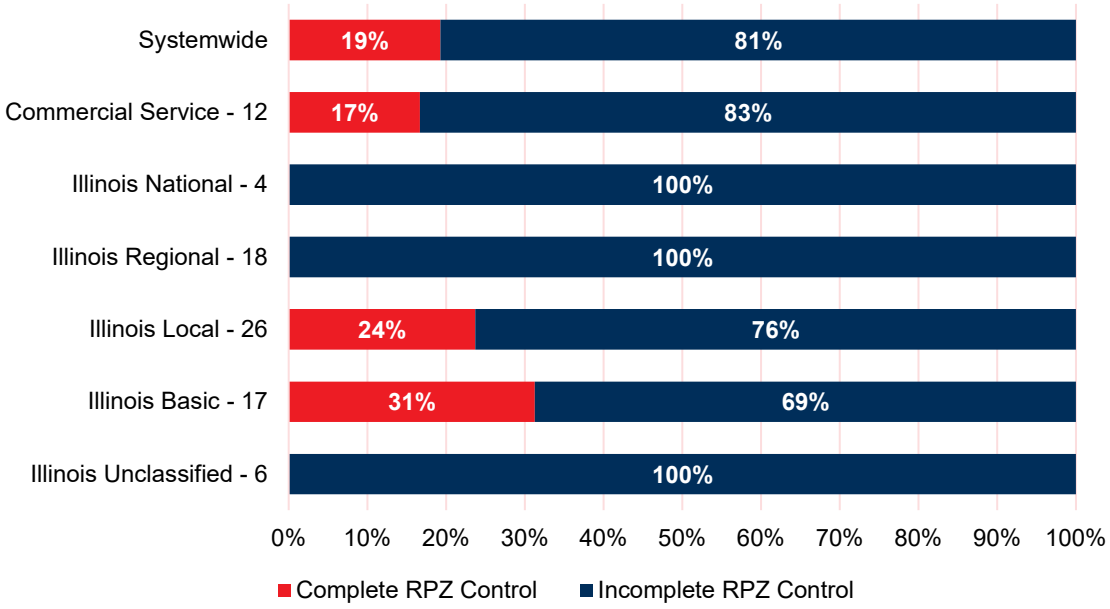
Sources: Kimley-Horn 2020, Google Earth 2020

6.3.2.4. RPZ Ownership and Control

As mentioned above, many airports do not fully own their RPZs and may only have partial or no control. According to the FAA AC 150/5300-13A, change 1, the RPZ's ability to enhance safety "is best achieved through airport owner control over RPZs. Control is preferably exercised through the acquisition of sufficient property interest in the PRZ and includes clearing RPZ areas (and maintaining them clear) of incompatible objects and activities".

To understand the condition of RPZ ownership in the state of Illinois, system airports were asked to identify the percentage of which each runway end's RPZ is controlled through either fee simple acquisition, avigation easement (or both), or uncontrolled. The RPZ analysis was conducted based on airport responses, reviews of available ALPs, and visual analysis using Google Earth and RPZ boundaries. In this analysis, complete RPZ control can only occur if an airport fully owns the land within the RPZ, has full avigation easement, or some combination of the two summing to 100 percent. As shown in **Figure 6.12**, 19 percent of system airports have achieved complete control over their RPZs for all runway ends. Seventeen percent of Commercial Service, 24 percent of Illinois Local, and 31 percent of Illinois Basic airports have achieved complete control of their RPZs. The Illinois National, Illinois Regional, and Illinois Unclassified airports do not have complete ownership over their RPZs.

Figure 6.12. RPZ Ownership



Source: Kimley-Horn 2020, IASP Inventory Form 2020, Google Earth 2020

6.3.3. Obstruction Analysis

According to the FAA, an obstruction is defined as "all fixed (temporary or permanent) and mobile objects or parts thereof that are located on an area intended for the surface movement of aircraft or that extend above a defined surface intended to protect aircraft in flight". The FAA defines an obstruction as any object higher than a height relative to:

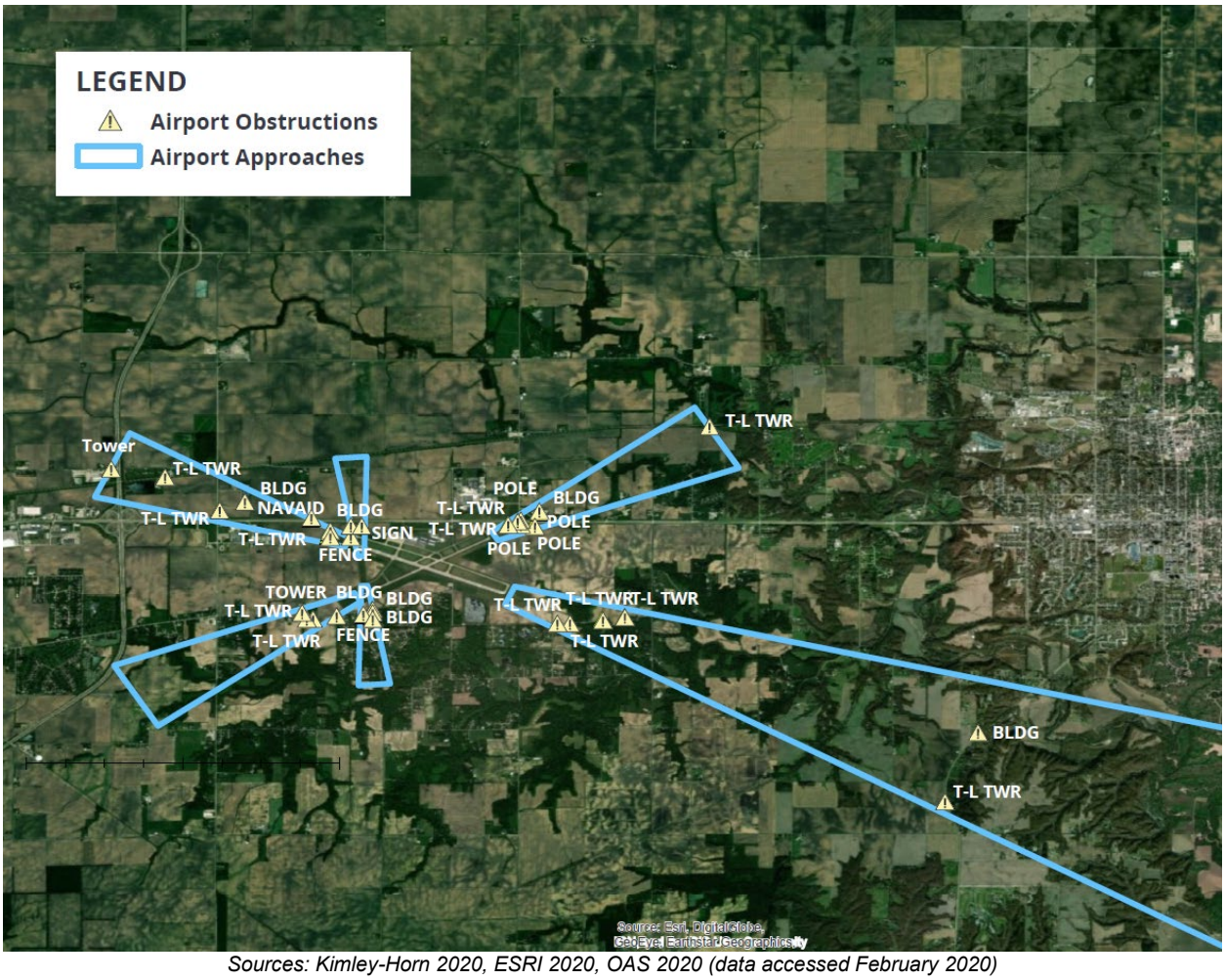
- Of 500 feet above ground level (AGL) at the site of the object
- Of 200 feet AGL or above the established airport elevation, whichever is higher, within three nautical miles of the established Airport Reference Point (ARP)
- That is within the terminal obstacle clearance area which results in the vertical distance between any point on that object and an established minimum IFR altitude within that area, being less than what is the required obstacle clearance
- Within an en-route obstacle clearance area of a federal airway or approved airway route, which would make the minimum obstacle clearance altitude increase

Obstructions are particularly problematic when visibility is poor or cloud ceilings are low. In these conditions, aircraft operate under instrument flight rules (IFR), which provide a strict set of procedures that allow pilots to operate with minimal visual connection with the runway. IFR is established in large part by the height of objects in approach and departures routes. If obstructions are tall enough, these procedures may need to be revised to compensate for the change in slope that an aircraft must use in ascent and descent to safely clear the obstacle. Even small changes to the slope of an approach can result in displaced runway thresholds, which provides less distance for aircraft to stop before reaching the runway end.

Because of the significant threat caused by tall obstructions as well as their adverse impacts to aircraft operations, the FAA maintain records of all man-made obstructions that penetrate Part 77 imaginary surfaces in the Obstacle Authoritative Source (OAS). This database includes records for all airports within the U.S. and its territories, the Caribbean, Mexico, Canada, and the Pacific. Data is verified by the FAA's Obstacles Team prior to being entered into the OAS. Once verified, obstructions are categorized into one of 22 potential types, and updates are posted every 56 days.

An obstruction analysis was conducted for IASP system airports using data collection from the OAS and existing geographic information system (GIS) information. OAS data was mapped into each airport's Part 77 approach surfaces to identify the number and type of man-made obstructions within each approach surface. An example map is presented in **Figure 6.13**. It is important to note that OAS only includes man-made structures. Trees and other high vegetation frequently occur within approach surfaces and are one of the most common close-in obstructions identified at airports. Airport must pay diligent attention to natural obstructions and implement appropriate mitigation measures to ensure the highest level of safety for aircraft operations. It should also be noted that obstructions identified in the OAS need verification and further evaluation prior to any mitigation by the airports.

Figure 6.13. Example Obstruction Analysis

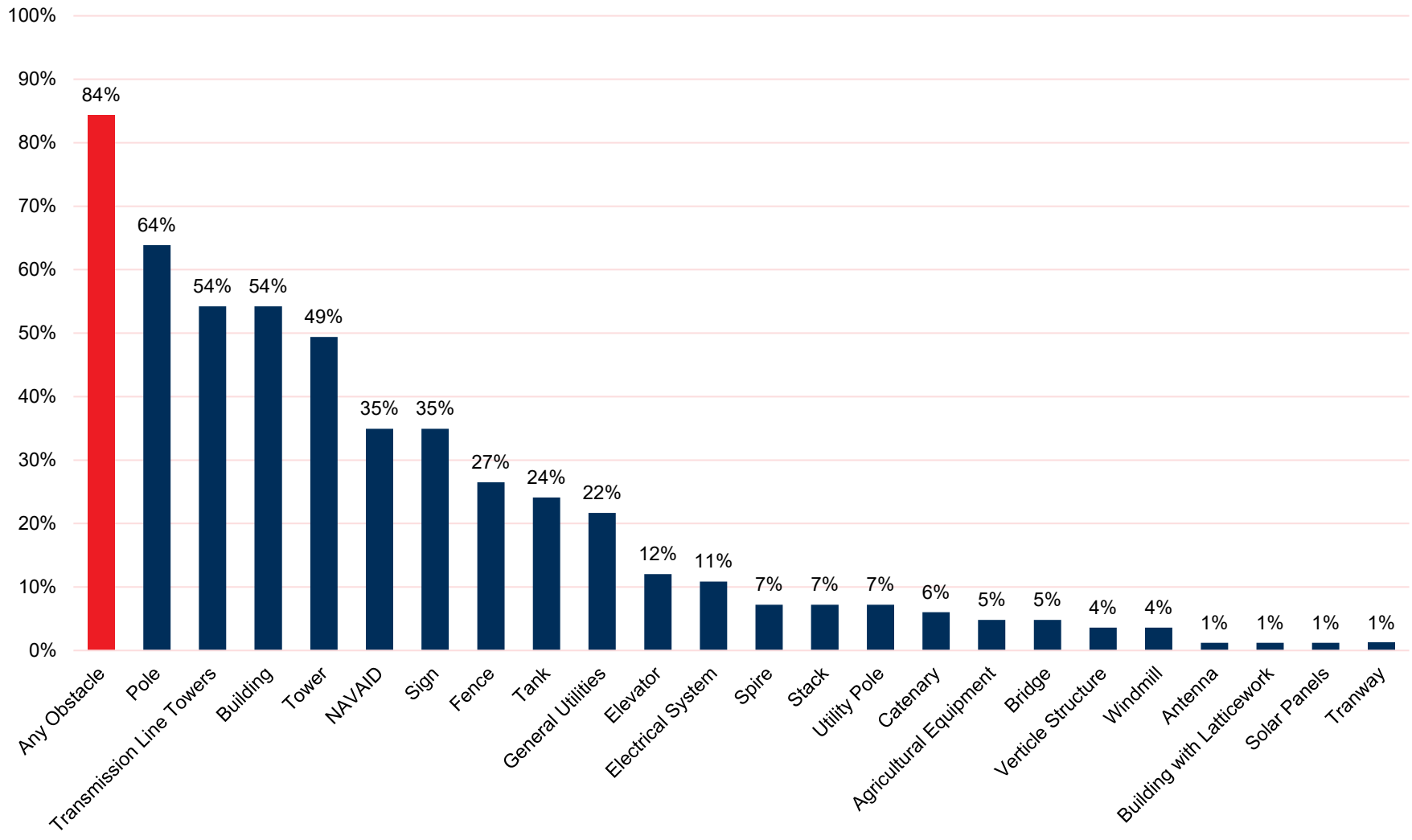


Sources: Kimley-Horn 2020, ESRI 2020, OAS 2020 (data accessed February 2020)

6.3.3.1. Findings

The OAS data reports 3,302 obstructions penetrating approach surfaces at Illinois's system airports. Poles represent the majority of obstructions in the state (64 percent), followed by transmission line towers (54 percent), buildings (54 percent), towers (49 percent), navigational aids (NAVAIDS) (35 percent), and signs (35 percent). As shown in **Figure 6.14**, 84 percent of airports systemwide have some sort of obstacle that penetrates the Part 77 Approach Surface.

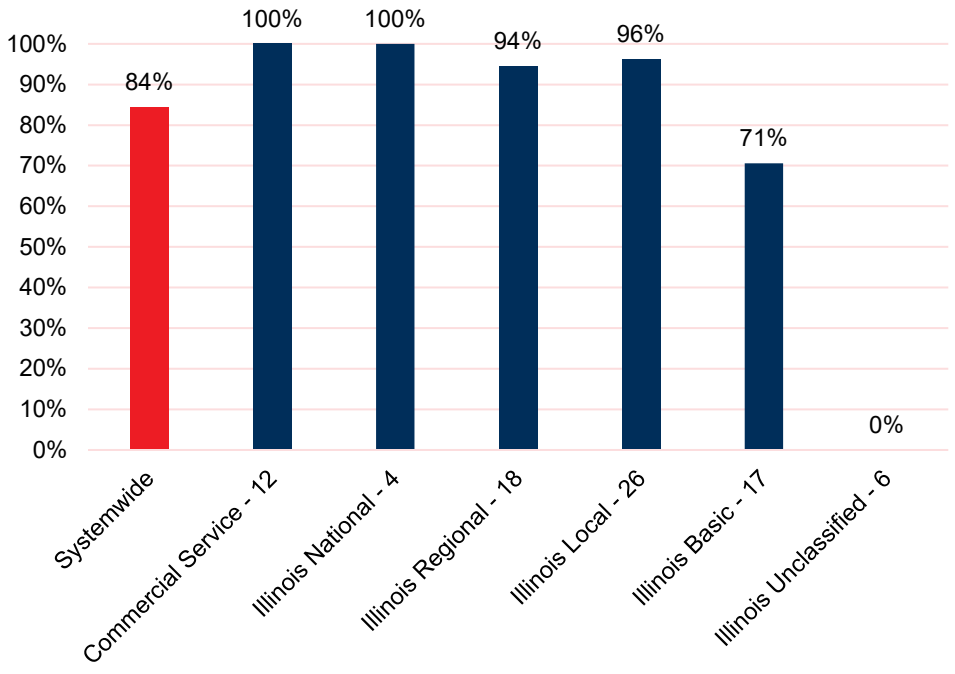
Figure 6.14. Obstacles with Part 77 Approach Surfaces at IASP Airports, by Type



Sources: Kimley-Horn 2020, ESRI 2020, OAS 2020 (data accessed February 2020)

As noted above, 84 percent of airports are affected by at least one obstruction penetrating an approach surface. This includes 100 percent of all Commercial Service, Illinois National, 94 percent Illinois Regional airports as well as 96 percent of Illinois Local airports, as shown in **Figure 6.15**. The state's smaller airports are less impacted, with 71 percent of Illinois Basic airports with verified obstructions penetrating imaginary surfaces. None of the Illinois Unclassified airports are impacted by obstructions penetrating imaginer surfaces. At the airport-specific level, Chicago O-Hare International has the most obstacles (1,085) followed by Chicago Midway International (474), Dupage (154), Decatur (117), Chicago Executive (106), and Chicago Illinois Regional (104). All other facilities have 90 or less obstacles. Twenty-six airports have between one and 10 obstacles, and 13 facilities have none. Airport-specific results are presented in **Table 6.4** at the end of this chapter.

Figure 6.15. Obstruction Analysis – Percent of Airports with Obstructions by Classification



Sources: Kimley-Horn 2020, ESRI 2020, OAS 2020 (data accessed February 2020)

6.3.4. Summary of Land Use Evaluation

This section of the IASP summarized the importance of land use compatibility in protecting navigable airspace and people and property in the vicinity of airports. To maintain the highest levels of safety for all parties, airports and sponsors must work with local land use planners and zoning authorities to implement and enforce zoning laws that support airport land use compatibility. While the FAA has jurisdictional authority over height obstructions that penetrate imaginary surfaces, airports themselves have little direct control over nearby land use. Proactive engagement with local officials and an ongoing educational campaign for land use planners are important to show these decisionmakers that airports can successfully coexist with residents and businesses. As noted previously, the results of each analysis are presented by airport in **Section 6.6**, see **Table 6.3. Part 77 and RPZ Land Use Evaluations**, by Airport, **Table 6.4. Number of Approach Surface Obstructions**, by Airport, and **Table 6.5. Environmental Impacts**, by Airport.

6.4. Environmental Considerations

As shown throughout the discussions above, airports are impacted not only by activities and actions occurring on-airport property but also by their surrounding environments. Proposed airport actions involving federal money must evaluate their potential impact on the environment through the NEPA process (see **Section 6.2** for an overview of NEPA). On a broader scale, natural features on or near an airport can influence its development potential, expansion opportunities, and the type and frequency of aviation activities best suited to the facility. Further, the presence of certain types of natural features may trigger environmental laws and regulations that need to be addressed during airport planning, design, and construction phases.

The IASP conducted a high-level evaluation of environmental features to better understand their potential impacts on Illinois airports. This evaluation focused on Illinois airports' Runway Safety Areas (RSAs) and a larger buffer area surrounding the RSAs. RSAs are rectangular areas surrounding the runway based on the Runway Design Code (RDC). These areas are designed to protect the safety of aircraft that undershoot, overrun, or veer off the runway, as well as provide access to emergency crews in the case of such incidents. For most airports, the dimensions range from 120 feet to 500 feet in width and 240 feet to 1,000 feet in length beyond the departure end of the runway. These standards are based on 90 percent of overruns being contained within the RSA.

For this evaluation, buffers of either 500 or 1,000 feet were mapped around each RSA, as depicted in **Figure 6.16**. These buffers were used to evaluate environmental features near the airfield that have the potential to impact development. The size of the buffer was determined by NPIAS classification. Commercial Service, Illinois National, and Illinois Regional airports were evaluated with a 1,000-foot buffer surrounding each RSA, while Illinois Local, Illinois Basic, and Illinois Unclassified airports were evaluated with a 500-foot buffer.

It must be noted that environmental features located beyond the RSA buffer have the potential to affect airport development and ultimately trigger federal and state regulatory requirements. It is for this reason that environmental reviews must be conducted at the airport-specific level for development projects. Environmental reviews should be conducted early to ensure projects are not delayed due to unforeseen regulatory or permitting requirements and so appropriate mitigation techniques can be incorporated into project design.

Figure 6.16. Example RSA Analysis

Source: Kimley-Horn 2020

GIS data were used for this environmental evaluation, as provided by both state and federal sources, including state agencies, the United States Department of Agriculture (USDA), and the EPA, dependent on the source with more recent data. Data for airport environmental features were downloaded and evaluated based on the FAA SOP 5.1 for Categorical Exclusion (CATEX) Determinations (SOP 5.1). SOP 5.1 outlines 25 categories of potential CATEX determinations which may impact on-airport construction. **Table 6.1** lists the 25 categories, notes which categories were applicable to a GIS analysis in Illinois, notes which categories had GIS data available, and notes which categories were found to be within the RSA buffers (if applicable).

Table 6.1. SOP 5.1 Analysis Summary

SOP Category	Applicable	GIS Data Available	Within RSA Buffer
5-2.b(1) National Historical Preservation Act (NHPA) resources	Yes	Yes	Yes
5-2.b(2) Department of Transportation Act Section 4(f) and 6(f) resources	Yes	No (data included as part of other SOP categories)	N/A
5-2.b(3) Threatened or Endangered Species	Yes	Yes	Yes
5-2.b(4) Other Resources			
a) Fish and Wildlife Coordination Act	Yes	No	N/A
b) Wetlands and Other Waters of the U.S.	Yes	Yes	Yes
c) Floodplains	Yes	Yes	Yes
d) Coastal Resources	Yes	Yes	No
e) National Marine Sanctuaries	Yes	No	No
f) Wilderness Areas	Yes	Yes	No
g) Farmland	Yes	Yes	Yes
h) Energy Supply and Natural Resources	No*	N/A	N/A
i) Wild and Scenic Rivers	Yes	Yes	No
j) Solid Waste Management	Yes	Yes	No
SOP Categories, Continued			
5-2.b(5) Disruption of an Established Community	No*	N/A	N/A
5-2.b(6) Environmental Justice	No*	N/A	N/A
5-2.b(7) Surface Transportation	No*	N/A	NA
5-2.b(8) Noise	No*	N/A	N/A
5-2.b(9) Air Quality	Yes	Yes	Yes
5-2.b (10) Water Quality	Yes	Yes	Yes
5-2.b (11) Highly Controversial on Environmental Grounds	No*	N/A	N/A
5-2.b(12) Inconsistent with Federal, State, Tribal or Local Law	No*	N/A	N/A
5-2.b(13) Light Emissions, Visual Effects, and Hazardous Materials			
a) Light Emissions and Visual Effects	No*	N/A	N/A
b) Hazardous Materials	Yes	Yes	Yes
SOP Categories, Continued			
5-2.b(14) Public Involvement	No*	N/A	N/A
5-2.b(15) Indirect/Secondary/Induced Impacts	No*	N/A	N/A

*Not applicable at a statewide level – needs to be evaluated on an airport-by-airport basis

Source: Kimley-Horn 2020, FAA Standard Operating Procedure 5.1

As shown in **Table 6.1**, of the 25 SOP categories, 15 are found to be applicable to a GIS analysis in Illinois. Some categories, such as 5-2.b(4) Other Resources e) National Marine Sanctuaries, are not applicable because these resources do not exist in Illinois. Other categories, such as 5-2.b(5) Disruption of an Established Community are not applicable because these resources are not quantifiable in GIS.

Of these 12 SOP categories, 12 had GIS data available for analysis. Only two category, 5-2.b(2) Department of Transportation Act Section 4(f) and 6(f) resources and 5-2.b(4) Other Resources a) Fish and Wildlife Coordination Act, had no available GIS data. Another category, 5-2.b(4) Other Resources g) Farmland, did have available GIS data, but in a format that is incompatible with the analysis used for the remaining ten categories. For this category, a different GIS analysis was performed, which will be described in a later section.

Of the 11 SOP categories which were applicable to a GIS analysis in Illinois and for which GIS data was available, eight were found within the RSA buffers. To summarize, these eight categories are:

- National Historical Preservation Act (NHPA) Resources
- Threatened or Endangered Species
- Wetlands and Other Waters of the U.S.
- Floodplains
- Farmland
- Air Quality
- Water Quality
- Hazardous Materials

A more detailed discussion on each of these topics is provided on the following pages.[109] Note that the information presented here is not designed to comply with the provisions of NEPA nor provide the same level of detail as an airport-specific study. Instead, the IASP environmental analysis provides insight into the types of environmental considerations that most commonly affect state system airports. IDOT can use this information to help airports understand their roles and responsibilities in the environmental review process and may consider draft specific guidance for airports based on the findings.

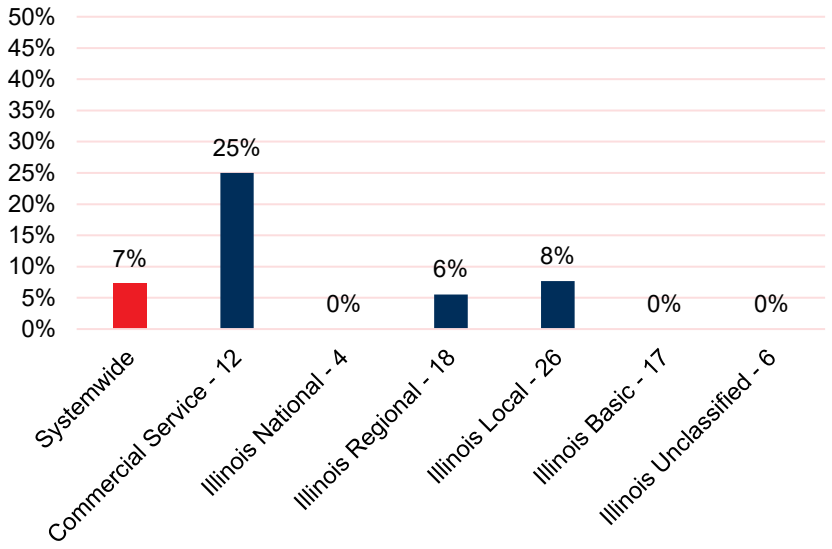
6.4.1. National Historical Preservation Act (NHPA) Resources

The National Historic Preservation Act of 1966 (NHPA) and the Archaeological and Historic Preservation Act of 1974 primarily regulate and protect historical, architectural, archaeological, and cultural resources at the federal level. These laws protect a range of sites, properties, and physical resources relating to human activities, society, and cultural institutions. These resources can include structures, objects, and districts considered important to culture or community, as well as aspects of the physical environment, natural features, and biota.

Section 106 of the NHPA specifically requires federal agencies to consider the effects of their actions on properties listed or eligible for listing on the National Register of Historic Places (NRHP or National Register). The SHPO is responsible for implementing this process in Illinois. SHPO consults with federal funding agencies (e.g., the FAA) and project applicants (e.g., airport sponsors) to conduct Section 106 reviews in compliance with the NHPA. A site only must be eligible for inclusion on the NRHP to trigger a Section 106 review, so it is critical that airports work with the SHPO early in the planning process to identify any potentially significant sites in their vicinities. **Figure 6.17** shows that seven percent of system airports have a historic or cultural resource listed in the National Register within their RSA buffer zones.[110] This includes three Commercial Service airports, one Illinois Regional airport, and two Illinois Local airports.

[109] **Table 6.5** at the end of this chapter presents the results of all features evaluated as part of the IASP by airport.
[110] Note that these data only include sites currently listed on the National Register, and does not include those *eligible* to be listed

Figure 6.17. RSA Analysis - National Historical Preservation Act (NHPA) Resources



Sources: Kimley-Horn 2020, ESRI 2020, NPS 2014

6.4.2. Threatened or Endangered Species

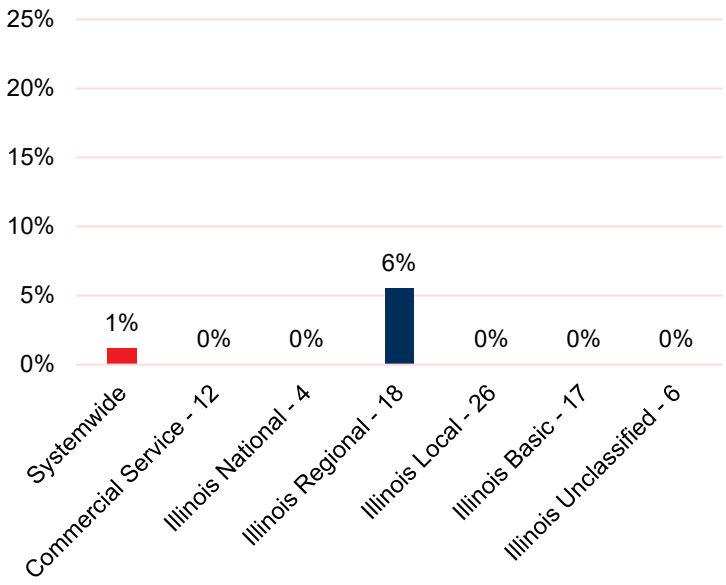
Proposed federal actions that may affect the nation's water resources and designated threatened and endangered species are subject to numerous laws and regulations designed to maintain healthy levels of flora (plants) and fauna (fish, birds, mammals, reptiles, amphibians, etc.) within the U.S. Federally designated threatened and endangered species are in danger of extinction now or within the foreseeable future. These species are of highest conservation priority and fall under the protection of the Endangered Species Act (ESA). Airports must evaluate any proposed development action for potential impacts on biotic resources or threatened or endangered species. These evaluations should be conducted in consultation with the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service, or both (as applicable). At the state level, the Illinois Endangered Species Protection Board under the Illinois Department of Natural Resources (DNR) is responsible for protecting plants and animals native to Illinois that are in danger of being "lost from the wild in Illinois".[111]

For this analysis, the IASP looked specifically at critical habitats located within the study area of each airport. Critical habitats are geographic areas that "contain the physical or biological features that are essential to the conservation or endangered and threatened species" that have been listed under the ESA.[112] A critical habitat designation does not mean that development cannot occur. Instead, this designation only affects actions that are likely to destroy or adversely modify critical habitat. In such a case, the USFWS works with the Federal agency proposing the action (i.e., the FAA) to amend projects to minimize harm. The spatial data in this analysis was obtained from the USFWS' Threatened and Endangered Species Active Critical Habitat Report (updated July 9, 2020).

[111] https://www2.illinois.gov/dnr/ESPB/Pages/default.aspx
[112] https://www.fws.gov/endangered/esa-library/pdf/critical_habitat.pdf

The results of this analysis, shown in **Figure 6.18**, revealed that Illinois Valley Regional Airport (VYS) is the only airport in the state with critical habitat within its RSA buffer area. This airport must closely coordinate with the FAA and USFWS to ensure any proposed development actions comply with NEPA, the ESA, and implementing state and federal regulations.

Figure 6.18. RSA Analysis –Threatened and Endangered Species (Critical Habitat)



Sources: Kimley-Horn 2020, ESRI 2020, USFWS 2020

6.4.3. Wetlands and Other Waters of the U.S.

According to the U.S. Department of Transportation's (USDOT's) Order 5660.1A, "Preservation of the Nation's Wetlands," wetlands are defined as "lowlands covered with shallowing and sometimes temporary or intermittent waters," including (but not limited to) swamps, marshes, wet meadows, river overflows, and shallow lakes and ponds with emergent vegetation. In general, wetlands are defined in terms of their hydrology, vegetation, and soil type. Wetlands can be non-jurisdictional or jurisdictional depending on whether they involve a navigable water of the U.S.; this distinction governs the agencies and procedures for actions affecting those ecosystems. In both cases, federally funded airport development projects must identify potential impacts on wetlands and avoid impacts when a practicable alternative exists. Examples of airport actions that could cause wetland impacts include new or expanded terminal and hangar facilities or access roadways, runway and taxiway construction or expansion, and the installation of NAVAIDs.

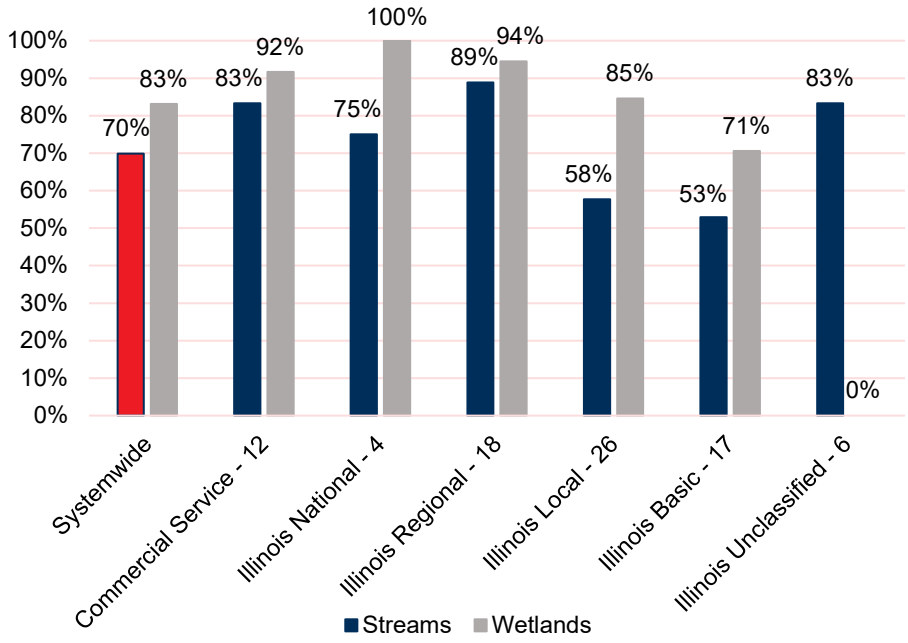
Wetlands and riparian habitations are essential habitats for many of Illinois's fish, wildlife, invertebrate, and plant species. According to Illinois Wildlife Action Plan (IWAP), "wetlands were historically a dominant feature of the Illinois landscape but have been reduced by more than 90 percent for agriculture, development, and other land uses (Dahl 2006). Of the remaining wetlands in Illinois, most have been highly degraded."[113] Wetlands are regulated under Section 401 of the Clean Water Act (CWA) at the

[113] https://www2.illinois.gov/dnr/conservation/IWAP/Pages/Wetlands.aspx

federal level and the Illinois Interagency Wetland Policy Act of 1989 (IWPA) and Rivers, Lakes, and Streams Act (RLSA) at the state level. The Illinois EPA receives its authority from Section 401 of the CWA to set water quality standards and administer the state's Section 401 certification program. The Illinois DNR receives its authority to regulate state-funded projects and activities that impact wetlands on public lands from the IWPA and RLSA. To improve wetland habitat in Illinois including the restoration, enhancement, and management of priority sites, the Illinois DNR administers the Wetland Campaign.[114]

It is important for IDOT and airports to coordinate with the appropriate state agencies to ensure proposed airport actions do not degrade existing wetland and riparian habitats. Not only do they provide essential biological services, but such areas are also attractive to many types of wildlife—including many which rank high on the FAA's list of hazardous wildlife species (see AC 150/5200-32, "Reporting Wildlife Aircraft Strikes," Table 1). Airports and projects need to be reviewed on a case-by-case basis to identify potential issues of concern, as many factors influence riparian areas' and wetlands' potentials to impact airport and aircraft operations, such as size, proximity to AOAs, canopy cover, and vegetation composition. The importance of considering such habitats and water sources cannot be understated; 70 percent of airports have streams and 83 percent of airports have wetlands within their RSA buffer zones. The percent of system airports by airport classification with wetlands and streams within RSA buffer zones is depicted in **Figure 6.19**.

Figure 6.19. RSA Analysis – Wetlands and Other Waters of the U.S.



Sources: Kimley-Horn 2020, ESRI 2020, National Wetlands Inventory 1987, U.S. Fish and Wildlife Service

[114] Ibid

6.4.4. Floodplains

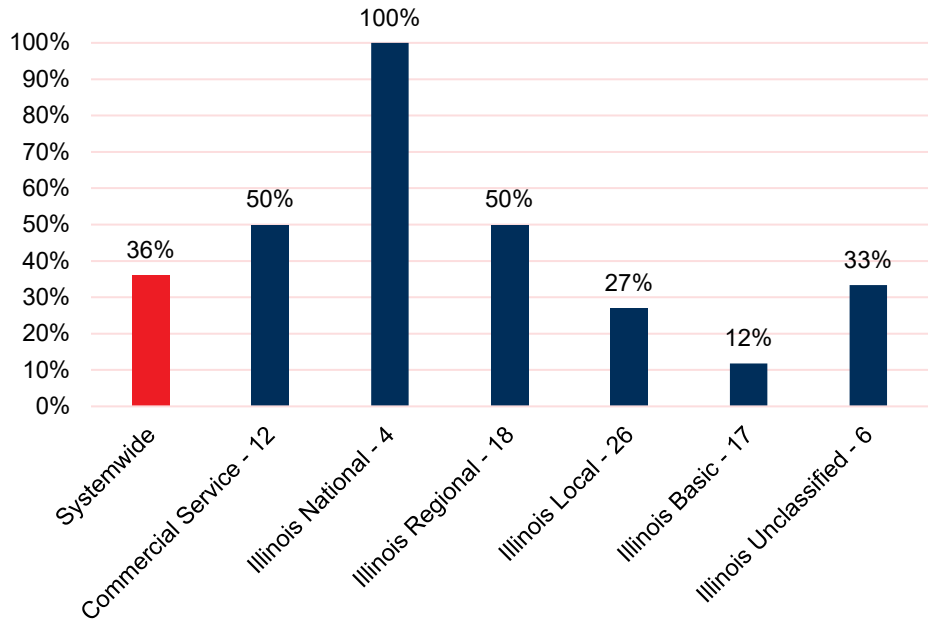
The Federal Emergency Management Agency (FEMA) was established to help the nation's communities manage their emergency management and disaster response and recovery activities. One of FEMA's primary directives is to assist with floodplain management. Floodplains is an area of land adjacent to a water body that is subject to frequent flooding. According to FEMA, floodplain management is a community-based effort to prevent or reduce the risk of flooding. FEMA has minimum floodplain management standards for communities participating in the National Flood Insurance Program (NFIP), although they advise that adopting higher standards will lead to stronger, safer communities.

FEMA provides flood hazard and risk data to help guide mitigation actions. One of the most important sources of these data are the FEMA flood maps. Flood mapping is an important part of the NFIP, as it is the basis of the NFIP regulations and flood insurance requirements. Flood maps are updated continually through a variety of processes, notably to reflect changes in flood likelihood in different areas.

It is important for airports to note their presence in a floodplain and to plan construction projects accordingly. Additional collaboration with FEMA and the NFIP may be warranted for certain construction projects, and construction plans may need to be altered to accommodate a propensity towards flooding.

As shown in **Figure 6.20**, 36 percent of airports statewide had a floodplain within their RSA buffer, including all Illinois National airports. These airports may need further coordination with FEMA and the NFIP to complete on-airport construction projects.

Figure 6.20. RSA Analysis – Floodplains



Sources: Kimley-Horn 2020, ESRI 2020, FEMA

6.4.5. Farmland

Farmland is a particularly important environmental resource in Illinois. According to the Illinois Department of Agriculture, the marketing of Illinois's agricultural commodities generates more than $19 billion

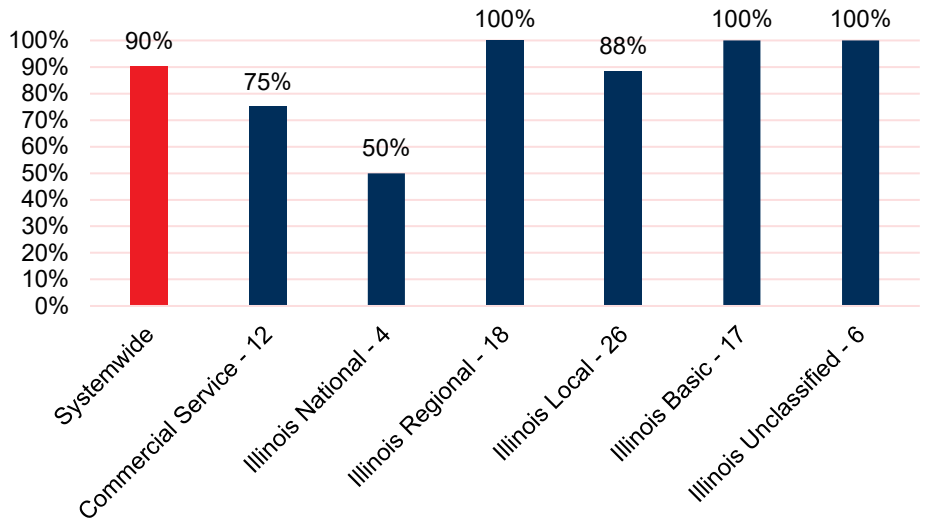
annually. Illinois is the leading producer of soybeans, corn, and swine, and the state's diverse climate and varied soil types enable farmers to grow and raise many other agricultural commodities, including cattle, wheat, oats, sorghum, hay, sheep, and poultry. There are over 75,000 different farm operators, and the larger food and fiber industry employs over a million people.

Farmland is dispersed throughout the state. According to ACRP Report 27, *Enhancing Airport Land Use Compatibility* (ACRP Report 27), while agricultural and open space land uses in the airport environment can be an incompatible land use, they are also recognized as the least serious of the incompatible land uses. Considering that many airports were also established on agricultural land, it follows that agricultural land uses are common in the airport environment.[115]

The proximity of farmland, particularly row crops and orchards, to airports can increase the likelihood of wildlife strikes. Crops and vegetation can act as a wildlife attractant and depending on where they are located in the airport environment, may lead to wildlife and bird strikes with aircraft. Coordination between airports, local communities, and local farmers is encouraged to decrease the likelihood of such strikes.

The farmland data available for this analysis was in a different format to the other GIS data included in this analysis. Because of this reason, the existence of farmland in the airport RSA buffers was determined through a visual analysis, similar to the Part 77 and RPZ analysis' detailed in earlier sections of this chapter. The data used in this analysis is cropland data as provided by the USDA and is based on a satellite assessment of land uses. **Figure 6.21** shows that based on this analysis, farmland is a common occurrence in the airport environment. Ninety percent of all system airports have farmland in their RSA buffer, with all Illinois Regional, Illinois Basic, and Illinois Unclassified airports having farmland in their RSA buffer. Airports typically located in more developed areas have fewer instances of farmland in their RSA buffers, including 75 percent of Commercial Service and 50 percent of Illinois National airports.

Figure 6.21. RSA Analysis – Farmland



Sources: Kimley-Horn 2020, ESRI 2020, USDA

[115] ACRP Report 27, *Enhancing Airport* Land *Use Compatibility* (ACRP Report 27)

6.4.6. Air Quality

The Clean Air Act of 1970 (CAA) is one of the cornerstone environmental laws in the U.S. Under the CAA, the EPA has established air quality standards known as the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants:

- Carbon monoxide (CO1)
- Nitrogen dioxide (NO2)
- Ozone (O3)
- Particulate matter (PM) including PM10 and PM2.5
- Sulfur dioxide (SO2)
- Lead (Pb)

Areas in compliance with the NAAQS are deemed safe for human health, public welfare, and the environment. While the federal government establishes standards, each state is responsible for designated areas that are in attainment, nonattainment, or maintenance for each of these criteria pollutants. State Implementation Plans (SIPs) are developed at the state level to identify the regulations, programs, policies, and procedures that state will employ to comply with the CAA.

The Illinois EPA Bureau of Air is responsible for ensuring clean and safe air in the state. The most current available Illinois Air Quality Report (2018) notes that air quality in the state was good or moderate 92 percent of the time in 2018. Air quality trends for most criteria pollutants are showing downward or stable trends below levels of the NAAQS.[116] Federally funded airports located in nonattainment or maintenance areas are required to complete an air quality analysis as part of proposed airport actions and development projects. Known as the General Conformity Rule, this requirement is designed so that aviation-related activities do not contribute to a new violation of the NAAQS, worsen existing violations, or delay attainment of the NAAQS. Airports within nonattainment areas must prepare an Airport Emissions Inventory to be included in their area's SIP. This can be challenging and difficult to quantify, as airport emissions come from a variety of sources that include aircraft engines and auxiliary power units, as well as various types of powered ground support equipment. Airports are also a source for automobile traffic and during construction have other powered equipment on site. To help airports understand this process and comply with the General Conformity Rule, ACRP developed Report 84: "Guidebook for Preparing Airport Emissions Inventories for SIPs" (2013).

In addition to the requirements that are specific to airports in nonattainment and/or maintenance areas, an air quality analysis may also be required for NEPA purposes in the following cases:

- GA airports with a total of 180,000 or more annual GA and air taxi operations
- Commercial service airports with more than 1.3 million annual enplanements
- Proposed projects that would increase automobile traffic congestion at off-airport road intersections to a level of service of D, E, or F

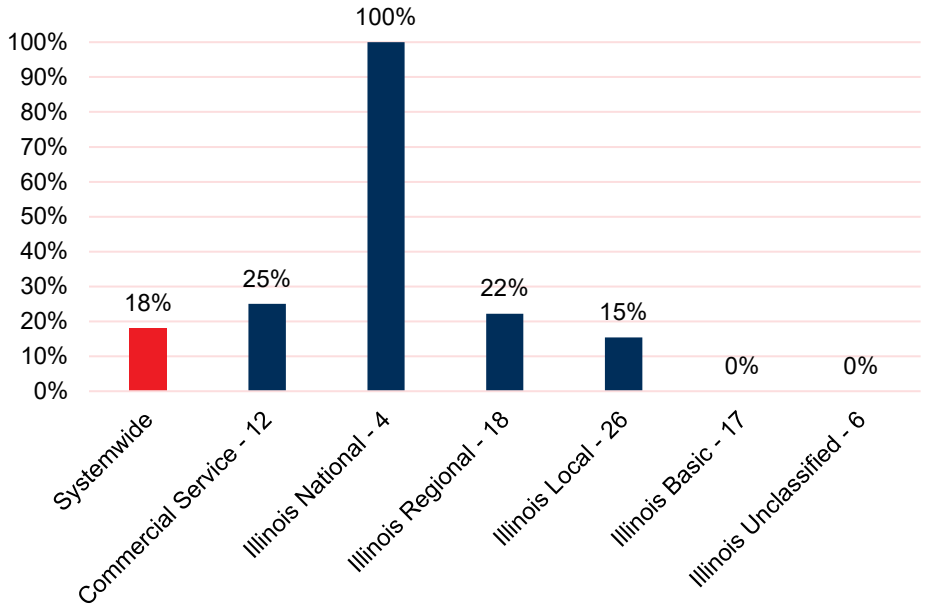
For more information on air quality policies and procedures, airports should consult FAA Order 1050.1F, "Environmental Impacts: Policies and Procedures" and FAA Order 5050.4B, "NEPA Implementing Instructions for Airport Actions". Other ACRP resources pertaining to airports and air quality include

[116] Illinois EPA (2018). "Illinois Annual Air Quality Report". Available online at https://www2.illinois.gov/epa/topics/air-quality/air-quality-reports/Documents/2018%20Annual%20Air%20Quality%20Report%20Final.pdf (accessed July 2020).

ACRP Report 11: “Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories,” Report 71: “Guidance for Quantifying the Contribution of Airport Emissions to Local Air Quality,” and Project 02-33: “Guidance for Estimating Airport Construction Emissions.”

As depicted in **Figure 6.22**, 18 percent of Illinois’ airports are located in nonattainment areas, including all four Illinois National airports. Airports in nonattainment areas will need to comply with the General Conformity Rule and should consider their location in a nonattainment area when planning for future growth.

Figure 6.22. RSA Analysis – Air Quality (Nonattainment Areas)



Sources: Kimley-Horn 2020, ESRI 2020, U.S. EPA

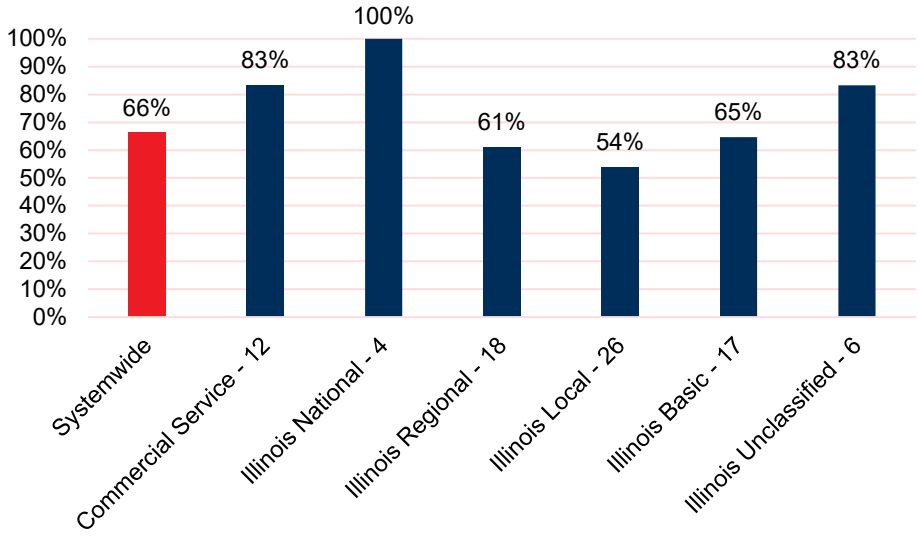
6.4.7. Water Quality

SOP 5.1 outlines several questions related to water quality, including whether water resources exist near the project area. Water resources include groundwater, surface water (lakes, rivers, etc.), sole source aquifers and public water supply. Illinois maintains a dataset of the source of water for 1224 municipalities throughout the state, which was used to address this SOP category. Municipalities rely on various sources of water to provide safe and clean drinking water to citizens. Water sources include lakes, groundwater, aquifers, and surface water. Municipal water sources serve additional functions beyond providing safe drinking water. Municipal water sources, such as lakes and rivers also serve important environmental functions.

Similar to the analysis done for wetlands and other water, it is important for IDOT and airports to coordinate with the appropriate state agencies to ensure proposed airport actions do not degrade municipal water sources. Similar to wetlands and other water, not only do municipal water sources provide potable water for communities and serve other important biological functions, but they may be attractive to wildlife. Airports and projects need to be reviewed on a case-by-case basis to identify potential issues of concern.

As shown in **Figure 6.23**, 66 percent of airports statewide have a municipal water source within their RSA buffer, including all four Illinois National airports. Eighty-three percent of Commercial Service, 61 percent of Illinois Regional, 54 percent of Illinois Local, 65 percent of Illinois Basic, and 83 percent of Illinois Unclassified airports have a municipal water source within their RSA buffer.

Figure 6.23. Water Quality (Municipal Water Source)



Sources: Kimley-Horn 2020, ESRI 2020, Illinois Geospatial Data Clearinghouse

6.4.8. Hazardous Materials

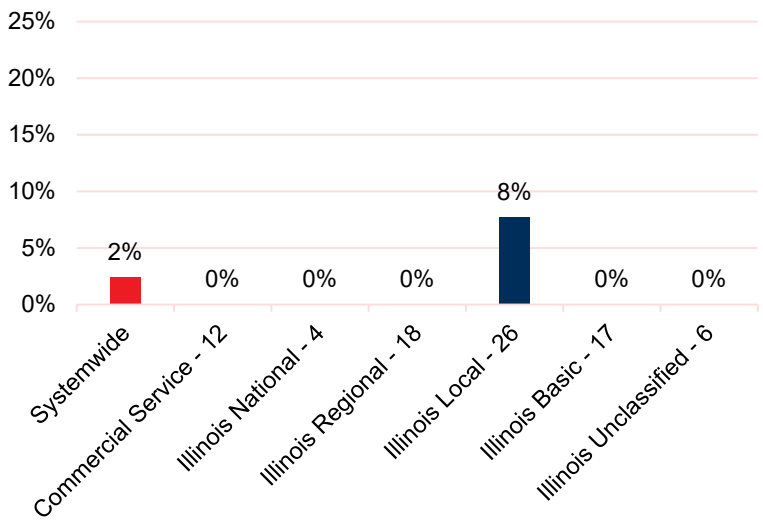
SOP 5.1 outlines several questions related to hazardous materials, including if potential construction will take place in an area that contains or previously contained hazardous materials. The term “hazardous materials” is sufficiently broad to cover a range of potential hazards. This analysis focused on data downloaded from the U.S. Environmental Protection Agency (EPA). EPA provides data on EPA-regulated facilities and cleanup sites.

EPA manages hazardous materials (hazardous waste) through a variety of programs and initiatives. EPA defines hazardous waste as waste that is dangerous or potentially harmful to human health or the environment. Hazardous wastes can be liquids, solids, gases, or sludges. They can be discarded commercial products, like cleaning fluids or pesticides, or the by-products of manufacturing processes. EPA regulates household, industrial, and manufacturing solid and hazardous wastes under the Resource Conservation and Recovery Act (RCRA). RCRA’s goals are to protect human health from the hazards of waste disposal; conserve energy and natural resources by recycling and recovery; reduce or eliminate waste; and clean up waste which may have spilled, leaked, or been improperly disposed of.[117] In any given state, EPA or the state's hazardous waste regulatory agency enforces hazardous waste laws. EPA encourages states to assume primary responsibility for implementing a hazardous waste program through state adoption, authorization, and implementation of the regulations.[118]

[117] https://www.epa.gov/regulatory-information-topic/regulatory-information-topic-waste
[118] https://www.epa.gov/rcra/resource-conservation-and-recovery-act-rcra-regulations

EPA maintains data on the cleanup progress profiles for several different categories of cleanup sites, including Superfund, RCRA Corrective Action, Brownfields, Emergency Responses, Incidents of National Significance, and Federal Facilities for which EPA collects/creates information. Cleanup sites may be subject to additional regulation under state and federal law, as well as posing a hazardous environment due to pollution or other environmental factors. It is important for IDOT and airports to coordinate with the appropriate state and federal agencies to ensure proposed airport actions do not impact or are not impacted by cleanup sites. In Illinois, only two percent of airports have a cleanup site within their RSA buffers, as shown in **Figure 6.24**. This percentage accounts for two Illinois Local airports.

Figure 6.24. RSA Analysis – Hazardous Materials (EPA Cleanup Sites)



Sources: Kimley-Horn 2020, ESRI 2020, EPA

6.4.8.1. Per- and Polyfluoroalkyl Substances (PFASs)

Per- and Polyfluoroalkyl Substances (PFAS) has entered the spotlight in the recent past due to its carcinogenic properties. PFAS is a chemical found in aqueous film-forming foam (AFFF) used to extinguish fires at airports. Recently, the impacts of PFAS entering the environment has become better understood and health concerns surrounding this issue resulted in regulatory changes to processes and procedures at airports with Airport Rescue and Fire Fighting (ARFF) operations. This has the potential to impact not just the 15 Part 139 airports that are required to have ARFF services, but all of the 19 airports with ARFF facilities across the state. (Please note, ALN and MVN previously were Part 139 certificated, but are now inactive.) The full impacts of the PFAS issue are still being discovered and mitigation options have not yet been widely implemented. To better accommodate and discuss this important issue, this topic will be covered in greater detail in **Chapter 4. Aviation Issues**.

6.4.8.2. Aircraft Fuel Types

Fuel availability and type is an important facility at airports as it is a driver of activity and revenue. Generally, airports provide AvGas (100LL [low lead]) used in piston-engine aircraft and/or Jet A, required by turbine engines that power jets. Jet A is becoming increasing popular as a result of increased global jet usage, but the need for AvGas remains.

The future of AvGas (100LL) is uncertain. Due to its harmful environmental effects, the FAA and US EPA have partnered to remove lead from aviation fuel. AvGas contains Tetraethyl Lead (TEL), an organic compound which is toxic if inhaled or ingested. Of the 83 airports in the IASP, 80 provide AvGas facilities. To further discuss AvGas, its impacts, and ongoing mitigation efforts, additional detail will be provided in **Chapter 4. Aviation Issues.**

6.4.9. Airport-Reported Environmental Issues

In addition to the environmental considerations and RSA buffer analyses noted above, airports were asked during the data collection process to identify the level of impact their airport experienced based on a number of environmental factors. Airports were asked to evaluate each environmental factor and determine the level of impact at or by their airport as “none,” “moderate,” or “significant.” For the basis of this analysis, an airport was counted as experiencing the impact if they reported a moderate or significant level of impact. Two Illinois Unclassified airports did not respond to this portion of the IASP Inventory Form. **Table 6.2** shows the number of system airports that reported being impacted by different environmental factors. Twenty-eight system airports reported experiencing some level of impact due to surrounding wetlands, 21 reported impacts due to floodplains, and twenty reported impacts due to incompatible land uses. Airports reported experiencing less environmental impacts due to noise (14 airports), water quality (10 airports), and solid waste (4 airports). No airports reported any impacts due to endangered species. As shown, the airport reported environmental impacts are fewer than the impacts determined by other analyses in previous sections of this chapter. The discrepancy between data highlights the level of unknown related to environmental impacts and land use incompatibilities at and surrounding system airports.

Table 6.2. Airport Reported Environmental Impacts

Environmental Factor	No. of Airports Impacted
Endangered Species	0
Floodplains	21
Incompatible Land Use	20
Noise	14
Solid Waste	4
Water Quality	10
Wetland	28

Source: Kimley-Horn 2020, IASP Inventory Form 2020

6.5. Summary

This land use and environmental overview was designed to provides airport managers, sponsors, and IDOT with a general understanding of the importance of airport compatible land use planning, environmental conditions affecting airports in the state, and their roles in ensuring that airports can safely and efficiently operate without causing undue impacts on their environs. Nearly all airports in Illinois are faced with a nearby land use that is not optimally aligned with aviation activities or an environmental consideration that requires additional environmental reviews and clearances. By identifying these issues during the system planning process, airports and IDOT can proactively identify actionable steps to resolve, mitigate, or otherwise address issues. In this way, issues can be optimally addressed instead of reacted to. The information presented in this chapter sets some initial groundwork for the

recommendations that will be developed as one final outcome of the IASP. The conditions presented reveal some specific constraints common to airports in Illinois. To mitigate the most intense effects of these constraints, IDOT may want to consider developing policy recommendations or guidance to address the most acute and severe challenges.

6.6. Airport-specific Detail Tables

The following tables provide airport-specific results for the land use and environmental analyses presented in the preceding pages. In **Table 6.3** and **Table 6.5**, a check-mark (✓) indicates the presence of that issue. In **Table 6.4**, the number of each obstruction type within the airport's RPZ buffer zone are provided.

Table 6.3. Part 77 and RPZ Land Use Evaluations by Airport

Associated City	Airport Name	FAA ID	Part 77 Surfaces				Landfill Within Five Nautical Miles	RPZ		
			Residential	Major Development	Water Feature	Landfill		Public Roadway	Building or Structure	Incompatible Land Use
Commercial Service										
Belleville	Scott AFB/MidAmerica	BLV	✓	✓	✓			✓		✓
Bloomington/Normal	Central IL Regional Airport at Bloomington-Normal	BMI	✓	✓	✓			✓		
Champaign/Urbana	University of Illinois-Willard	CMI	✓	✓	✓			✓	✓	✓
Chicago	Chicago Midway International	MDW	✓	✓	✓			✓	✓	
Chicago	Chicago O'Hare International	ORD	✓	✓	✓			✓	✓	
Chicago/Rockford	Chicago/Rockford International	RFD	✓	✓	✓	✓	✓	✓	✓	✓
Decatur	Decatur	DEC	✓	✓	✓			✓	✓	✓
Marion	Veterans Airport of Southern Illinois	MWA	✓	✓	✓			✓	✓	✓
Moline	Quad City International	MLI	✓	✓	✓		✓	✓	✓	
Peoria	General Downing-Peoria International	PIA	✓	✓	✓			✓	✓	✓
Quincy	Quincy Regional-Baldwin Field	UIN	✓	✓	✓			✓	✓	✓
Springfield	Abraham Lincoln Capital	SPI	✓	✓	✓		✓	✓	✓	✓
Illinois National										
Chicago/Aurora	Aurora Municipal	ARR	✓	✓	✓			✓	✓	
Chicago/Prospect Heights/Wheeling	Chicago Executive	PWK	✓	✓	✓			✓	✓	✓
Chicago/Waukegan	Waukegan National	UGN	✓	✓	✓		✓	✓	✓	✓
Chicago/West Chicago	Dupage	DPA	✓	✓	✓			✓	✓	✓
Illinois Regional										
Alton/St Louis	St Louis Regional	ALN	✓	✓	✓		✓	✓	✓	✓
Cahokia/St Louis	St Louis Downtown	CPS	✓	✓	✓			✓	✓	
Carbondale/Murphysboro	Southern Illinois	MDH	✓	✓	✓		✓	✓	✓	✓
Chicago/Lake In The Hills	Lake in the Hills	3CK	✓	✓	✓			✓	✓	✓
Chicago/Romeoville	Lewis University	LOT	✓	✓	✓			✓	✓	✓
Danville	Vermilion Regional	DNV	✓	✓	✓			✓		✓
DeKalb	DeKalb Taylor Municipal	DKB	✓	✓	✓	✓	✓	✓	✓	
Effingham	Effingham County Memorial	1H2	✓	✓		✓	✓	✓	✓	✓
Galesburg	Galesburg Municipal	GBG	✓	✓	✓			✓	✓	✓
Jacksonville	Jacksonville Municipal	IJX	✓	✓	✓			✓	✓	
Kankakee	Greater Kankakee	IKK	✓	✓	✓			✓	✓	✓
Macomb	Macomb Municipal	MQB			✓		✓	✓	✓	
Mattoon/Charleston	Coles County Memorial	MTO	✓	✓	✓			✓	✓	✓
Monee	Bult Field	C56	✓		✓					
Morris	Morris Municipal-James R Washburn Field	C09	✓	✓	✓	✓	✓			

Associated City	Airport Name	FAA ID	Part 77 Surfaces				Landfill Within Five Nautical Miles	RPZ		
			Residential	Major Development	Water Feature	Landfill		Public Roadway	Building or Structure	Incompatible Land Use
Mount Vernon	Mount Vernon	MVN	✓	✓	✓			✓	✓	✓
Peru	Illinois Valley Regional-Walter A Duncan Field	VYS	✓	✓	✓			✓		
Sterling/Rockfalls	Whiteside County-Jos H Bittorf Field	SQI	✓	✓	✓			✓	✓	✓
Illinois Local										
Bolingbrook	Bolingbrook's Clow International	1C5	✓	✓	✓			✓	✓	
Canton	Ingersoll	CTK	✓	✓	✓			✓	✓	✓
Carmi	Carmi Municipal	CUL	✓	✓	✓			✓	✓	✓
Casey	Casey Municipal	1H8	✓	✓	✓			✓	✓	
Centralia	Centralia Municipal	ENL	✓	✓	✓			✓	✓	✓
Chicago	Lansing Municipal	IGQ	✓	✓	✓			✓	✓	
Chicago/Schaumburg	Schaumburg Regional	06C	✓	✓	✓			✓	✓	✓
Dixon	Dixon Municipal-Charles R Walgreen Field	C73	✓	✓	✓			✓	✓	✓
Freeport	Albertus	FEP	✓	✓	✓			✓	✓	✓
Greenville	Greenville	GRE	✓	✓	✓			✓		
Harrisburg	Harrisburg-Raleigh	HSB	✓	✓	✓			✓	✓	
Joliet	Joliet Regional	JOT	✓	✓	✓		✓	✓	✓	✓
Kewanee	Kewanee Municipal	EZI	✓	✓	✓			✓		
Lacon	Marshall County	C75	✓	✓	✓			✓	✓	✓
Lawrenceville	Lawrenceville-Vincennes International	LWV			✓					
Litchfield	Litchfield Municipal	3LF	✓	✓	✓		✓	✓	✓	
Mount Carmel	Mount Carmel Municipal	AJG			✓			✓		
Olney-Noble	Olney-Noble	OLY			✓			✓		✓
Pekin	Pekin Municipal	C15	✓	✓				✓	✓	
Peoria	Mount Hawley Auxiliary	3MY	✓	✓	✓			✓	✓	✓
Pinckneyville	Pinckneyville-Du Quoin	PJY		✓	✓		✓	✓		
Pontiac	Pontiac Municipal	PNT		✓	✓	✓	✓		✓	
Robinson	Crawford County	RSV	✓	✓	✓			✓		
Rochelle	Rochelle Municipal Airport-Koritz Field	RPJ	✓	✓	✓			✓		
Shelbyville	Shelby County	2H0	✓	✓	✓			✓	✓	
Sparta	Sparta Community-Hunter Field	SAR	✓	✓	✓			✓	✓	✓
Illinois Basic										
Beardstown	Greater Beardstown	K06	✓	✓	✓			✓		✓
Benton	Benton Municipal	H96	✓	✓	✓			✓		✓
Cairo	Cairo Regional	CIR		✓	✓			✓		
Fairfield	Fairfield Municipal	FWC	✓	✓	✓	✓	✓	✓	✓	
Flora	Flora Municipal	FOA	✓	✓	✓			✓	✓	
Havana	Havana Regional	9I0		✓				✓		

Associated City	Airport Name	FAA ID	Part 77 Surfaces				Landfill Within Five Nautical Miles	RPZ		
			Residential	Major Development	Water Feature	Landfill		Public Roadway	Building or Structure	Incompatible Land Use
Lincoln	Logan County	AAA	✓	✓	✓			✓	✓	
Metropolis	Metropolis Municipal	M30	✓	✓	✓			✓	✓	✓
Monmouth	Monmouth Municipal	C66	✓	✓	✓			✓	✓	✓
Mount Sterling	Mount Sterling Municipal	I63	✓	✓	✓			✓		
Pittsfield	Pittsfield Penstone Municipal	PPQ		✓	✓			✓		✓
Paris	Edgar County	PRG			✓			✓		
Rantoul	Rantoul National Aviation Center-Frank Elliott Field	TIP	✓	✓	✓			✓	✓	
Salem	Salem-Leckrone	SLO	✓	✓	✓			✓		
Savanna	Tri-Township	SFY	✓	✓	✓			✓	✓	✓
Taylorville	Taylorville Municipal	TAZ	✓	✓	✓		✓	✓	✓	✓
Vandalia	Vandalia Municipal	VLA			✓			✓		
Illinois Unclassified										
Greenwood/Wonder Lake	Galt Field	10C	✓	✓	✓			✓	✓	✓
Harvard	Dacy	0C0	✓	✓	✓			✓		✓
Paxton	Paxton	1C1	✓		✓			✓	✓	✓
Poplar Grove	Poplar Grove	C77	✓	✓	✓			✓	✓	✓
Rushville	Schuy-Rush	5K4	✓	✓	✓			✓	✓	✓
Tuscola	Tuscola	K96	✓	✓	✓					

Note: Part 77 and RPZ land use assessments are only meant to provide context within the airport environs. The results of these analyses do not necessarily indicate there is a need for any action to be taken.

Sources: Kimley-Horn 2020, ESRI 2020

Table 6.4. Number of Approach Surface Obstructions by Airport

Associated City	Airport	FAA ID	Agricultural Equipment	Antenna	Building	Building - Tower	Bridge	Catenary	Electrical System	Grain Elevator	Fence	General Utilities	NAVAID	Pole	Sign	Solar Panels	Spire	Stack	Tank	Transmission Lines	Tower	Tramway	Utility Pole	Vertical Structure	Windmill	Grand Total
Commercial Service																										
Belleville	Scott AFB/MidAmerica	BLV												13			1				1					**15**
Bloomington/ Normal	Central IL Regional Airport at Bloomington-Normal	BMI			3					1		1	1	4	1					84	9					**104**
Champaign/ Urbana	University of Illinois-Willard	CMI			2								1	3	1					20	3					**30**
Chicago	Chicago Midway International	MDW			88						12		4	204	12		1	8	5	109	27	1	2		1	**474**
Chicago	Chicago O'Hare International	ORD		1	88	4	26		1		16		11	684	43	4	1	1	12	66	84		5	38		**1,085**
Chicago/ Rockford	Chicago/Rockford International	RFD			6							3	2	1	1				1	25	9					**48**
Decatur	Decatur	DEC			4								10	3	1		1	1		93	4					**117**
Marion	Veterans Airport of Southern Illinois	MWA			3						5	2		9	3				1	9	3					**35**
Moline	Quad City International	MLI			41								3	2	3					5	4					**58**
Peoria	General Downing-Peoria International	PIA			8					1	6	1	15	17					1	35	6					**90**
Quincy	Quincy Regional-Baldwin Field	UIN			1					2	4		1	4	1					25	1					**39**
Springfield	Abraham Lincoln Capital	SPI			1				1	1			2						1	1	15					**22**
Illinois National																										
Chicago/Aurora	Aurora Municipal	ARR			6						1		1							10	4					**22**
Chicago/ Prospect Heights/ Wheeling	Chicago Executive	PWK			17		8				4	4	1	41	9					12	7		1	2		**106**
Chicago/ Waukegan	Waukegan National	UGN			7								1	3												**11**
Chicago/West Chicago	Dupage	DPA			28			1	1		8		8	70	8			1	2	9	18					**154**
Illinois Regional																										
Alton/St Louis	St Louis Regional	ALN	2		2				1			1	3	7	1					7	1					**25**
Cahokia/St Louis	St Louis Downtown	CPS			8						3	3		14			1			33	6					**68**
Carbondale/ Murphysboro	Southern Illinois	MDH			5						10	4	1	2	1					14	5					**42**
Chicago/Lake in the Hills	Lake in the Hills	3CK												38						9						**47**
Chicago/ Romeoville	Lewis University	LOT			3			1					3	5	1				2	30	2		4			**51**
Danville	Vermilion Regional	DNV			13					5			2	2						11	2					**35**

Associated City	Airport	FAA ID	Agricultural Equipment	Antenna	Building	Building - Tower	Bridge	Catenary	Electrical System	Grain Elevator	Fence	General Utilities	NAVAID	Pole	Sign	Solar Panels	Spire	Stack	Tank	Transmission Lines	Tower	Tramway	Utility Pole	Vertical Structure	Windmill	Grand Total
DeKalb	DeKalb Taylor Municipal	DKB			2									1					1	13	4				6	**27**
Effingham	Effingham County Memorial	1H2			2										3					1	1					**7**
Galesburg	Galesburg Municipal	GBG			1								1	1						3						**6**
Jacksonville	Jacksonville Municipal	IJX																								
Kankakee	Greater Kankakee	IKK												3											1	**4**
Macomb	Macomb Municipal	MQB			1								4							3	1					**9**
Mattoon/ Charleston	Coles County Memorial	MTO			7						2		2	4	1					15	3					**34**
Monee	Bult Field	C56			1									1												**2**
Morris	Morris Municipal	C09			4		1								1				1		1					**8**
Mount Vernon	Mount Vernon	MVN			1										1					1	2					**5**
Peru	Illinois Valley Regional-Walter A Duncan Field	VYS			1						1		2	54	1						1					**60**
Sterling/ Rockfalls	Whiteside County	SQI												1						8	10					**19**
Illinois Local																										
Bolingbrook	Bolingbrook's Clow International	1C5			2										1											**3**
Canton	Ingersoll	CTK								1		2		3												**6**
Carmi	Carmi Municipal	CUL							2			1		1												**4**
Casey	Casey Municipal	1H8			8								1	7	1				1	1						**19**
Centralia	Centralia Municipal	ENL			1									1						5						**7**
Chicago	Lansing Municipal	IGQ			4						1			1	1				1		2					**10**
Chicago/ Schaumburg	Schaumburg Regional	06C			9									45							1			1		**56**
Dixon	Dixon Municipal	C73			5						1			2												**8**
Freeport	Albertus	FEP											4							4	3					**11**
Greenville	Greenville Airport	GRE								1		1														**2**
Harrisburg	Harrisburg-Raleigh	HSB			1															4						**5**
Joliet	Joliet Regional	JOT			6									18	4			1		4						**33**
Kewanee	Kewanee Municipal	EZI							1	1			2	1	1				1		3					**10**
Lacon	Marshall County	C75																								
Lawrenceville	Lawrenceville-Vincennes International	LWV	4					2				1		1												**8**
Litchfield	Litchfield Municipal	3LF			9			2			1	5		9	1			1	1	20						**49**
Mount Carmel	Mount Carmel Municipal	AJG								1		1								1	1					**4**
Olney-Noble	Olney-Noble	OLY							1			1	1	1							2		1			**7**
Pekin	Pekin Municipal	C15	3		1															13						**17**
Peoria	Mount Hawley Auxiliary	3MY			1						1			1						1	1					**5**

Associated City	Airport	FAA ID	Agricultural Equipment	Antenna	Building	Building - Tower	Bridge	Catenary	Electrical System	Grain Elevator	Fence	General Utilities	NAVAID	Pole	Sign	Solar Panels	Spire	Stack	Tank	Transmission Lines	Tower	Tramway	Utility Pole	Vertical Structure	Windmill	Grand Total
Pinckneyville	Pinckneyville-DuQuoin	PJY									2			2												**4**
Pontiac	Pontiac Municipal	PNT			4		1							3						1			22			**31**
Robinson	Crawford County	RSV											2		1				1	3						**7**
Rochelle	Rochelle Municipal Airport	RPJ			1					1			2	3						4	1					**12**
Shelbyville	Shelby County	2H0			1						3			3												**7**
Sparta	Sparta Community-Hunter Field	SAR			1			1						8	1				1	6	1					**19**
Illinois Basic																										
Beardstown	Greater Beardstown	K06																	1							**1**
Benton	Benton Municipal	H96									1	2		23	4				1							**31**
Cairo	Cairo Regional	CIR										1		1	3						2					**7**
Fairfield	Fairfield Municipal	FWC									2			9					1		1					**13**
Flora	Flora Municipal	FOA																								
Havana	Havana Regional	9I0																								
Lincoln	Logan County	AAA										1		2			1			5	1					**10**
Metropolis	Metropolis Municipal	M30											2	3												**5**
Monmouth	Monmouth Municipal	C66												1												**1**
MountSterling	Mount Sterling Municipal	I63																		2						**2**
Paris	Edgar County	PRG																								
Pittsfield	Pittsfield Penstone Municipal	PPQ																								
Rantoul	Rantoul National Aviation Center	TIP																		8						**8**
Salem	Salem-Leckrone	SLO																								
Savanna	Tri-Township	SFY	2																	2						**4**
Taylorville	Taylorville Municipal	TAZ			4				1		1			2					1	1	1					**11**
Vandalia	Vandalia Municipal	VLA							3		1			2												**6**
Illinois Unclassified																										
Greenwood/ WonderLake	Galt Field	10C																								
Harvard	Dacy	0C0																								
Paxton	Paxton	1C1																								
Poplar Grove	Poplar Grove	C77																								
Rushville	Schuy-Rush	5K4																								
Tuscola	Tuscola	K96																								
Statewide Totals			**11**	**1**	**412**	**4**	**36**	**7**	**12**	**15**	**86**	**35**	**93**	**1,344**	**111**	**4**	**6**	**13**	**37**	**736**	**254**	**1**	**35**	**41**	**8**	**3,302**

Note: Obstructions are only meant to provide context within the airport environs. Airports should verify the existence of the obstructions and conduct further evaluation prior to mitigation.
Sources: Kimley-Horn 2020, ESRI 2020, OAS 2020 (data accessed February 2020)

Table 6.5. Environmental Impacts by Airport

Associated City	Airport	FAA ID	NHPA Resources	Threatened or Endangered Species	Wetlands and Other Waters of the U.S	Floodplain	Farmland	Air Quality	Water Quality	Hazardous Materials
Illinois Commercial Service										
Belleville	Scott AFB/MidAmerica	BLV			✓	✓		✓	✓	
Bloomington/Normal	Central IL Regional Airport at Bloomington-Normal	BMI	✓		✓		✓		✓	
Champaign/Urbana	University of Illinois-Willard	CMI			✓		✓			
Chicago	Chicago Midway International	ORD			✓	✓		✓	✓	
Chicago	Chicago O'Hare International	MDW	✓					✓	✓	
Chicago/Rockford	Chicago/Rockford International	RFD			✓	✓	✓		✓	
Decatur	Decatur	DEC			✓		✓		✓	
Marion	Veterans Airport of Southern Illinois	MWA			✓		✓		✓	
Moline	Quad City International	MLI			✓	✓	✓		✓	
Peoria	General Downing-Peoria International	PIA			✓	✓	✓		✓	
Quincy	Quincy Regional-Baldwin Field	UIN			✓		✓			
Springfield	Abraham Lincoln Capital	SPI	✓		✓	✓	✓		✓	
Chicago/Aurora	Aurora Municipal	ARR			✓	✓	✓	✓	✓	
Chicago/Prospect Heights/Wheeling	Chicago Executive	PWK			✓	✓		✓	✓	
Chicago/Waukegan	Waukegan National	UGN			✓	✓		✓	✓	
Chicago/West Chicago	Dupage	DPA			✓	✓	✓	✓	✓	
Illinois Regional										
Alton/St Louis	St Louis Regional	ALN			✓		✓	✓	✓	
Cahokia/St Louis	St Louis Downtown	CPS	✓		✓	✓	✓	✓	✓	
Carbondale/Murphysboro	Southern Illinois	MDH			✓	✓	✓			
Chicago/Lake In The Hills	Lake in the Hills	3CK			✓	✓	✓		✓	
Chicago/Romeoville	Lewis University	LOT			✓	✓	✓	✓	✓	
Danville	Vermilion Regional	DNV			✓	✓	✓			
DeKalb	DeKalb Taylor Municipal	DKB			✓		✓		✓	
Effingham	Effingham County Memorial	1H2			✓	✓	✓		✓	
Galesburg	Galesburg Municipal	GBG			✓		✓		✓	
Jacksonville	Jacksonville Municipal	IJX			✓		✓			
Kankakee	Greater Kankakee	IKK			✓	✓	✓		✓	
Macomb	Macomb Municipal	MQB					✓			
Mattoon/Charleston	Coles County Memorial	MTO			✓		✓		✓	
Monee	Bult Field	C56			✓		✓	✓		
Morris	Morris Municipal	C09			✓	✓	✓			
Mount Vernon	Mount Vernon	MVN			✓	✓	✓		✓	
Peru	Illinois Valley Regional	VYS		✓	✓		✓		✓	
Sterling/Rockfalls	Whiteside County	SQI			✓		✓			

Associated City	Airport	FAA ID	NHPA Resources	Threatened or Endangered Species	Wetlands and Other Waters of the U.S	Floodplain	Farmland	Air Quality	Water Quality	Hazardous Materials
Illinois Local										
Bolingbrook	Bolingbrook's Clow International	1C5						✓	✓	
Canton	Ingersoll	CTK			✓		✓		✓	
Carmi	Carmi Municipal	CUL			✓		✓			
Casey	Casey Municipal	1H8					✓		✓	
Centralia	Centralia Municipal	ENL			✓		✓		✓	
Chicago	Lansing Municipal	IGQ	✓		✓		✓	✓	✓	
Chicago/Schaumburg	Schaumburg Regional	06C			✓	✓		✓	✓	
Dixon	Dixon Municipal	C73			✓		✓		✓	
Freeport	Albertus	FEP			✓		✓			✓
Greenville	Greenville Airport	GRE			✓		✓			
Harrisburg	Harrisburg-Raleigh	HSB			✓	✓	✓			
Joliet	Joliet Regional	JOT			✓	✓		✓	✓	
Kewanee	Kewanee Municipal	EZI			✓		✓			
Lacon	Marshall County	C75			✓		✓		✓	
Lawrenceville	Lawrenceville-Vincennes International	LWV			✓	✓	✓			
Litchfield	Litchfield Municipal	3LF	✓		✓		✓		✓	
Mount Carmel	Mount Carmel Municipal	AJG			✓		✓			
Olney-Noble	Olney-Noble	OLY			✓	✓	✓			
Pekin	Pekin Municipal	C15					✓			
Peoria	Mount Hawley Auxiliary	3MY			✓		✓		✓	
Pinckneyville	Pinckneyville-DuQuoin	PJY			✓	✓	✓			
Pontiac	Pontiac Municipal	PNT					✓		✓	
Robinson	Crawford County	RSV			✓		✓			
Rochelle	Rochelle Municipal Airport	RPJ			✓	✓	✓		✓	
Shelbyville	Shelby County	2H0			✓		✓			
Sparta	Sparta Community-Hunter Field	SAR			✓		✓		✓	
Illinois Basic										
Beardstown	Greater Beardstown	K06					✓		✓	
Benton	Benton Municipal	H96			✓		✓		✓	
Cairo	Cairo Regional	CIR			✓	✓	✓		✓	
Fairfield	Fairfield Municipal	FWC			✓		✓		✓	
Flora	Flora Municipal	FOA			✓		✓		✓	
Havana	Havana Regional	9I0			✓		✓			
Lincoln	Logan County	AAA					✓		✓	
Metropolis	Metropolis Municipal	M30			✓		✓			
Monmouth	Monmouth Municipal	C66			✓		✓		✓	
Mount Sterling	Mount Sterling Municipal	I63			✓		✓			

Associated City	Airport	FAA ID	NHPA Resources	Threatened or Endangered Species	Wetlands and Other Waters of the U.S	Floodplain	Farmland	Air Quality	Water Quality	Hazardous Materials
Paris	Edgar County	PRG			✓	✓	✓			
Pittsfield	Pittsfield Penstone Municipal	PPQ			✓		✓		✓	
Rantoul	Rantoul National Aviation Center	TIP					✓		✓	
Salem	Salem-Leckrone	SLO					✓		✓	
Savanna	Tri-Township	SFY					✓			
Taylorville	Taylorville Municipal	TAZ			✓		✓		✓	
Vandalia	Vandalia Municipal	VLA			✓		✓			
Illinois Unclassified										
Greenwood/Wonder Lake	Galt Field	10C			✓	✓	✓		✓	
Harvard	Dacy	0C0			✓	✓	✓		✓	
Paxton	Paxton	1C1			✓		✓		✓	
Poplar Grove	Poplar Grove	C77					✓		✓	
Rushville	Schuy-Rush	5K4			✓		✓		✓	
Tuscola	Tuscola	K96			✓		✓			

Note: Wetlands and other water bodies typically do not penetrate Part 77 surfaces, however, they can be a source of glare to pilots and increase wildlife that cause be hazardous to aircraft and should continue to be monitored.

Sources: Kimley-Horn 2020, ESRI 2020, NPS 2014, USFWS 2020, National Wetland Inventory 1987, U.S. Department of Labor, Mine Safety, and Health Administration 2002, USFS 2020, U.S. EPA 2016