

Rhode Island Airport Land Use Compatibility Guidebook

Abstract

Chapter 1 - Introduction to Airport Land Use Compatibility Planning

1.1 WHAT IS AIRPORT COMPATIBLE LAND USE?	1
1.2 WHY IS AIRPORT LAND USE COMPATIBILITY IMPORTANT?.....	2
1.3 WHAT ARE THE MOST COMMON LAND USE COMPATIBILITY CONCERNS?.....	7
1.4 WHAT LAND USES ARE MOST COMMONLY FOUND NEAR AIRPORTS?	12
1.5 CHAPTER SUMMARY	15

Chapter 2 - Airport Land Use Compatibility & the Rhode Island Airport System

2.1 WHY SHOULD RHODE ISLAND CARE ABOUT LAND USE COMPATIBILITY?.....	17
2.2 WHAT IS THE RHODE ISLAND AIRPORT SYSTEM?	20
2.3 WHAT ROLES DO RHODE ISLAND AIRPORTS PLAY IN THE NATIONAL AIRSPACE SYSTEM?	22
2.4 WHAT ARE RHODE ISLAND'S DEFINED POLICIES, OBJECTIVES AND STRATEGIES AIRPORT LAND USE COMPATIBILITY?	24
2.5 CHAPTER SUMMARY	27

Chapter 3A - Airport Land Use Compatibility Planning: Step-by-Step

3.1 WHAT ARE THE CURRENT PRACTICES THAT ARE UTILIZED IN ADDRESSING AIRPORT LAND USE COMPATIBILITY ISSUES?29

3.2 STEP ONE: GETTING STARTED AND GATHERING DATA31

3.3 STEP TWO: DELINEATE THE AIRPORT HAZARD AREA34

3.4 STEP THREE: IDENTIFY LAND USE COMPATIBILITY CONCERNS43

3.5 STEP FOUR: DEVELOP AIRPORT LAND USE COMPATIBILITY PLAN.....54

3.6 STEP FIVE: IMPLEMENTATION.....81

3.7 CHAPTER SUMMARY83

Chapter 3B - Airport Land Use Compatibility Planning: Planning Checklist

PLANNING CHECKLIST85

Chapter 3C - Airport Land Use Compatibility Planning: Planning Worksheets

WORKSHEET 1A - GOALS AND OBJECTIVES FOR COMPATIBILITY PLANNING95

WORKSHEET 1B - CHALLENGES TO AIRPORT LAND USE COMPATIBILITY PLANNING97

WORKSHEET 2 - AIRPORT DATA CHECKLIST: CONTEXT, FEATURES, AND ACTIVITY99

WORKSHEET 3A - COMPATIBILITY STATUS OF EXISTING LAND USES..... 105

WORKSHEET 3B - POTENTIAL NEW INCOMPATIBLE USES..... 109

WORKSHEET 3C - COMPATIBILITY CONCERNS BASED ON CURRENT POLICY 111

WORKSHEET 4A - CURRENT POLICY 113

WORKSHEET 4B - COMPATIBILITY POLICY FINDINGS 115

WORKSHEET 4C - ALTERNATIVES ANALYSIS 117

WORKSHEET 4D - AIRPORT HAZARD AREA ADJUSTMENTS 119

WORKSHEET 5 - IMPLEMENTATION CHECKPLANNING CHECKLIST 121

Appendix A – Glossary

Appendix B – Overview of the Rhode Island Airport System

Appendix C – Review of Federal, State and Local Airport Zoning Regulations and Guidelines

Appendix D – CFR Title 14 Part 77 Objects Affecting Navigable Airspace

Appendix E – Other State Airport Land Use Compatibility Programs

Appendix F – Sample Airport Compatible Land Use Analysis Checklist

Appendix G – Model Documents

Appendix H – Airport Hazard Area Zoning Ordinance Guidance

Appendix I – FAA Form 7460-1, Notice of Proposed Construction or Alteration

Appendix J – Airport Hazard Areas (February 2013)

Appendix K – Guidebook Coordination Effort - Meeting Minutes

Appendix L – Bibliography

This Page Intentional Left Blank

- TITLE:** *Rhode Island Airport Land Use Compatibility Guidebook*
- SUBJECT:** A Guidebook to help local communities plan and develop compatible land use around Rhode Island’s state-owned general aviation airports in accordance with their responsibilities under RI state law.
- DATE:** April 2013
- AGENCY:** Rhode Island Airport Corporation (RIAC)
TF Green Airport
2000 Post Road
Warwick, RI 02886-1533
- SOURCES OF COPIES:** Rhode Island Airport Corporation (RIAC)
TF Green Airport
2000 Post Road
Warwick, RI 02886-1533
(401) 737-4000
www.pvdairport.com
- PROJECT GRANT:** Federal Aviation Administration (FAA)
Airport Improvement Program (AIP) Grant
- NUMBER OF PAGES:** 122 pages (not including appendices)
- GUIDEBOOK CONTRIBUTORS:** RIAC was assisted in the preparation of this Guidebook by a Technical Advisory Committee (TAC). The TAC was composed of professional planners representing the following entities:
- RI Statewide Planning Program
 - Quonset Development Corporation (QDC)
 - RI Economic Development Commission (RIEDC)
 - Federal Aviation Administration (FAA).
- The Guidebook was coordinated with the Town Planners representing those communities that host one of the State’s general aviation airports.

ABSTRACT:

Land use planning in general is the responsibility of all Rhode Island municipal planners who are actively engaged in preparing their local Comprehensive Plans. Moreover, municipal officials are well aware the of the implications land use planning plays in making local decisions with respect to development proposals and other related issues. However, with respect to airports, experience has shown that the understanding of land use planning around these important transportation facilities is not as obvious. This is primarily attributed to the unique and less familiar parameters and tools associated with airport-related planning, including:

- Protection of navigable airspace and the Federal Aviation Regulations (FAR) designed to support it;
- Maintaining a safe operating environment on and around airports through the application of FAA airport design standards;
- The general operation of an airport as a transportation facility;
- The responsibility that host communities have in establishing and maintaining a safe operating environment around its airport; and
- The standards for developing airport noise contours around airports and their applicability to airports other than large commercial service facilities.

As a result, communities often experience some form of existing incompatible land use in proximity to a local airport. Therefore, it is important to develop strategies to mitigate existing and minimize future incompatibilities in order to maintain the safe and efficient use of airports, as well as protect the safety of local citizens on the ground.

In Rhode Island, airport land use compatibility is especially critical since municipalities are legally obligated under RI General Law to establish and enforce appropriate airport land use compatibility planning. The law also notes that it extends not just to the municipality in which the airport is physically located, but to all communities that contain associated Airport Hazard Areas (described in detail within the Guidebook).

ABSTRACT:
(continued)

With this in mind, RIAC has prepared this Guidebook as a service to those communities with the intent of providing their planners and officials with the tools to plan for and enforce land uses that are compatible with their local airports. Specifically, this Guidebook provides information to develop a greater awareness and understanding of:

- The municipalities' responsibilities to address airport land use compatibility under RI State Law;
- Compatible land use issues and concerns around airports;
- The Rhode Island laws and Federal regulations governing airport land use compatibility, and most importantly
- The planning tools to achieve it.

The Guidebook also contains some specific refinements designed to improve land use compatibility for Rhode Island's five state-owned, public use general aviation airports. In addition to this Guidebook, the RIAC Planning staff offers their assistance to the host community in working on their airport compatible land issues and any related zoning ordinances.

**DOCUMENT
STRUCTURE:**

This Guidebook has been designed for two primary purposes. First, it documents RIAC's current approach to the issue of airport land use compatibility. Second, it serves as a planning tool for local communities in addressing this issue. Specifically, this Guidebook has been effectively structured to provide the user with answers to the following questions:

- What is airport land use compatibility and why is it important? (See Chapter 1)
- Why is airport land use compatibility important for Rhode Island and its local communities? (See Chapter 2)
- What are RI communities' legal requirements with respect to this issue and how can they meet those obligations in an efficient and effective manner? (See Chapter 3A, Chapter 3B, and Chapter 3C.)

This Page Intentional Left Blank



Introduction to Airport Land Use Compatibility Planning

In This Chapter

- *What is airport compatible land use?*
- *Why is airport land use compatibility important?*
- *What are the most common land use compatibility concerns?*
- *What land uses are most commonly found near airports?*

1.1 What is airport compatible land use?

Airport compatible land uses can be defined as “those uses that can co-exist with an airport without constraining the safe and efficient operation of the airport or exposing people living or working nearby to unacceptable levels of noise or hazards.” This definition is intentionally broad since there are many variables that must be factored when considering whether a given land use is compatible with in an airport operational environment. For example, variables that can influence the compatibility of a given land use include how the



land is managed; the location of the land use relative to the airport, and specifically, its runways; the attributes of the land use; and the potential ancillary impacts associated with the land uses. Consequently, it is reasonable to infer that airport land use compatibility is highly fluid and very dependent on the individual circumstances present in any given environment. However, regardless of those variabilities, the underlying premise that must be addressed to identify and assess the degree of compatibility of the land use rests in two general questions:

1. **What conditions are required for the airport to operate safely and efficiently?** (Conversely, what land use characteristics can adversely affect airport operations?)
2. **What airport attributes could potentially compromise the safety and setting of people living or working in neighborhoods surrounding the airport?**

These two questions form the foundation of any evaluation of land use compatibility near airports. At the local level, answers to these questions should guide the development and implementation of compatible land use planning tools and techniques to promote both the safety of aircraft operations and the well-being of persons on the ground near an airport.

1.2 Why is airport land use compatibility important?

Aviation is a core element of the national transportation system and essential to the vitality of the national and state economies, accommodating over 1.5 billion U.S. passengers in 2012 alone. Utilized by billions more annually throughout the world, aviation is the vital linkage for the transportation of people and goods around the world. To illustrate the value of air transportation to the nation, the Federal Aviation Administration (FAA) 2011 study, *The Economic Impact of Civil Aviation on the U.S. Economy*, describes the dependency of the U.S. economy on the aviation industry, including its airports.

What the US Aviation Industry Generates Annually

- **\$1.3 trillion** = economic output (2009)
- **10.2 million** = aviation industry jobs (2009)
- **5.2%** = national gross domestic product (GDP) (2009)

As the aviation industry changes and demands for airport services advance, the industry is actively working to address the similarly evolving concern of incompatible land use development around airports. Incompatible land use development around airports is one of today's most important challenges that must be met in order to ensure the long-term viability of the aviation industry within the United States, as well as to maintain the livability of those communities that serve as a host to an airport. Plainly stated, incompatible land use development around airports threatens to undermine the long-term growth potential of the aviation industry and its value as a critical transportation asset to the country. Conversely, it is often argued that it is the airports that threaten the quality of life for the neighborhoods and communities that host these facilities. The contradiction of these positions underscores the fundamental importance and challenges associated with this issue.



Thus, incompatible land use is considered to be an issue of high importance for the FAA in its efforts to maintain the capacity and safety of the nation's aviation system. As the federal agency charged with the oversight of the nation's aviation system, the FAA recognizes that airport land use compatibility is not a new subject for airport planners and managers. Over the years the subject has been well-discussed and well-researched – it continues to be a growing and evolving issue for the aviation industry and the airport community.

Historically, many airports were built in undeveloped and unwanted areas located well away from population centers. Those airports that were constructed

Why is Incompatibility Occurring?

- General population growth and location trends continue to generate demand for development lands.
- Local airports tend to be sited in areas that are less developed and in close proximity to developable lands.
- Communities underestimate or do not fully understand the adverse impacts of incompatible land use development on airport operations.
- Although development has occurred around RI airports, there is still land available that should be controlled for development and redevelopment purposes.

near or in towns were often done to stimulate local economies by leveraging the burgeoning aviation industry. As economies developed, often related to airport activities, towns expanded and naturally grew around their centers of economic activity, including those same airports. Inevitably, conflicts over airport noise, safety, and airspace protection arose. Oftentimes these conflicts have resulted in operational and developmental limitations being directly or indirectly imposed on the airports as a result of encroaching incompatible land use development. Unfortunately for airports, these limitations can significantly retard their effectiveness as a transportation asset and their value to the community.

The pattern of an airport essentially being suffocated by the very community development that it had initially helped to spur is one that has been repeatedly experienced throughout the country. What has changed on a national level is that most airports are no longer open fields and turf landing strips – many are now multi-billion dollar transportation assets that are essentially irreplaceable.

What are the Consequences?

- Degraded airport operations.
- Limited current and future economic development opportunities.
- Impact on the quality of life for airport neighbors.
- Lost value of public investment.
- Decline in transportation access.
- Increased safety risk to aircraft and persons on the ground.
- Limits airport improvements resulting from demand and/or new technology.

Viable development sites where a new airport could be built are simply becoming much more difficult to find. As the number of federal, state, and local regulations and environmental restrictions continues to increase significantly, the cost of building becomes more prohibitive and the availability of buildable properties continues to decline. Moreover, communities themselves have become increasingly resistant to hosting airports, regardless of their economic value.

Beyond those difficulties, even when a new site is found and a new airport constructed, one of the fundamental qualities of an airport is that it will ultimately become an economic generator – attracting industries, development and people. Without proper land use management to ensure appropriate compatibility, the cycle likely will ultimately repeat itself. Essentially, without proper land use compatibility planning, a new airport is almost guaranteed to experience the same development patterns that may have caused their relocation in the first place.

These conflicts play out across the nation daily—within large urban areas as well as the smaller rural towns—as communities and airports struggle to find a balance between airport operations and compatible land use.

In order to help avoid these cycles, federal legislation and regulations related to compatible land use planning were initially developed with the advent of jet aircraft in the 1960s. As air travel continued to evolve into a primary mode of travel, federal interest in appropriate land use management has only increased. Specifically, noise and safety are two of the most important considerations in determining the affect of airport operations on the surrounding land use and vice versa. Since that time, the federal initiative to assure compatibility between airport operations and the surrounding environment has been promoted and advanced by the FAA.

Today, the FAA is an instrumental force in encouraging and promoting compatible land use planning, which it does through direct guidance and multiple support programs. However, the FAA by itself cannot specifically mandate appropriate land use around airports. Several of the most important airport-related regulations and design requirements produced by the FAA and other federal agencies that affect airport land use compatibility include the following:

- The FAA Advisory Circular 150-5300-13A, *Airport Design*, defines setback requirements and Runway Protection Zones (RPZ).
- The FAA Advisory Circular 150-5070-6, *Airport Master Plans*, defines guidelines in preparing and airport master plan, including land use planning.
- The *Aviation Safety and Noise Abatement Act of 1979* requires establishment of a single noise metric system to measure cumulative aircraft noise exposure and identification of compatible land uses.
- The *Federal Aviation Regulation Part 150 Noise Compatibility Program* is the primary federal regulation regarding noise related land use compatibility on and around airports.
- The *Airport and Airway Improvement Act of 1982* is the funding mechanism utilized by the FAA for improvement projects and which requires grant recipients to meet grant assurances.
- The *Airport Noise and Capacity Act of 1990* established the national aviation-related noise policy.

- The *National Environmental Policy Act (NEPA) of 1969* has a variety of environmental impacts related to airport land use and noise compatibility.

(See **Appendix C** for additional information on federal regulatory requirements).

The preservation of airports from the encroachment of incompatible land uses must be a priority for airports and their host communities. But in order to ensure the success of land use compatibility planning, it is critical that airports and local communities take active roles to develop, implement, and maintain land use compatibility programs at their airports. More than ever, it is imperative that a cooperative approach to airport land use compatibility planning be embraced. For that reason, the FAA actively encourages airport owners, state aviation officials, and local jurisdictions to work together to develop compatible land uses around airports to protect these important transportation and economic assets.



North Central Airport (SFZ)



Newport Airport (UUU)

With respect to the *Rhode Island Airport Land Use Compatibility Guidebook*, the primary data source utilized is Rhode Island State Guide Plan Element 640, *Rhode Island Airport System Plan*. Additionally, principle sources employed for this effort include two of the most recent and important publications on the issue of airport land use compatibility:

- (a) Airport Cooperative Research Program (ACRP) Report 27 - *Enhancing Airport Land Use Compatibility* (2010), and
- (b) Washington State Department of Transportation (WSDOT) *Airports and Compatible Land Use Guidebook* (2011).

(See **Appendix J** for a complete bibliography.)

1.3 What are the most common land use compatibility concerns?

While there are many specific concerns related to airport land use compatibility, they can be grouped into two broad categories: noise-related concerns and safety-related concerns. Each category is generally described below.

1.3.1 Noise-Related Concerns

Aircraft noise is a primary concern when addressing airport compatible land uses and is an important consideration that has the potential to significantly affect airport operations. Aircraft operations can create sound levels that produce annoyance in populated areas near airports, as well as additional effects such as speech interference, sleep disturbance, and affected classroom learning. These quality-of-life impacts are often directly related to the presence and location of population densities near an airport.

Noise Effects

- Annoyance
- House vibration
- Difficulty learning
- Non-auditory health effects
- Sleep disturbance

It should also be noted that noise-related concerns are most frequently associated with larger, commercial air service airports due to the size of their typical aircraft, the frequency of their operations, and their resultant noise signatures. Smaller general aviation airports (like those within Rhode Island, with the exception of T.F. Green) do not experience the same level of noise-related concerns. This is due to the smaller aircraft that typically operate at these types of airports and the lower frequency of their normal operations.

Some Facts about Airport Noise

Some of the factors impacting noise effects:

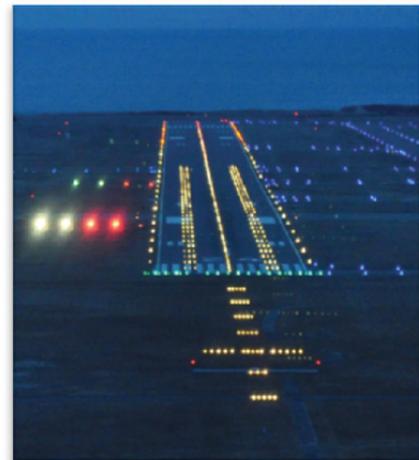
- Number of aircraft operations
- Type of aircraft using the airport
- Time of day of operations
- Airfield layout
- Percentage of time each runway/direction is used
- Location and frequency of use of flight tracks

Actions often taken to minimize the extent airport noise disrupts human activities:

- Reduce the number of people in high noise-sensitive areas
- Shielding or insulating people from noise
- Increase awareness of noise issues through educational programs
- Allow land uses that have relatively high ambient noise levels or are otherwise not particularly noise sensitive.

1.3.2 Safety-Related Concerns

Addressing the safety-related aspects of airport land use compatibility can pose a greater challenge than noise issues. Dealing with safety is primarily preventing possible problems, whereas noise is a mitigation of existing conditions. Safety-related concerns are particularly relevant for smaller general aviation airports since many lack the resources and support required to appropriately address these concerns. For land use compatibility planning purposes, safety-related concerns can be divided into two broad categories:



- (a) Land use characteristics that constitute hazards to flight and can cause or contribute an aircraft accident, and
- (b) Land use characteristics that can add to or limit the severity of aircraft accidents if and when they occur.

Within either of these two categories are several specific types of concerns.

Land Use Characteristics that can be Hazards to Airspace and Overflight

Land use conditions can contribute to aircraft accidents. Protecting against potential conflicts is essential to airport safety. Land use conditions that are hazards to flight impact the viability of airport operations and limit the ability of an airport to operate as designed. The following are general groupings and examples of the most prominent land use conditions.

• **Tall Structures**

There is an inherent understanding that tall structures such as buildings, towers, or trees located in close proximity to an airport could pose a direct hazard to air navigation. The fact is even structures not located near an airport can be hazards to flight if they are tall enough and in the right areas. Some typical structures include:

- buildings
- cell towers
- power lines
- wind turbine towers
- trees and other vegetation



In addition to the direct hazard these objects can pose, they can indirectly impact the airport airspace thereby reducing the utility of the airport. This fact is particularly important to aircraft that are operating near an airport during adverse weather conditions. During such conditions, the presence of tall structures in the vicinity of an airport can effectively reduce the usability of that airport and require the aircraft divert to another airport. This diversion introduces a potential safety risk for the airport and the aircraft.

- **Visual Obstructions and Electronic Interference**

Visual obstructions and electronic interference also can pose risks to flight. Since many aircraft operations are conducted under Visual Flight Rules (VFR), maintaining an unobstructed view for pilots is an important element in creating land use compatibility. Visibility can be obscured in a wide variety of ways (e.g. dust, glare, light emissions, smoke, steam, smog, etc.). To ensure safe aircraft operations, land uses that could obscure the pilot’s visibility must be avoided.



During periods when visibility is reduced due to weather or other factors, aircraft must operate under Instrument Flight Rules (IFR), when pilots must rely on their navigational instruments to guide them in controlling and navigating their aircraft. Therefore, during IFR conditions, pilots must be reasonably certain that their avionics systems have not been distorted by objects that can create interference like power grids, media broadcast stations, metal structures, and buildings, among others. Such objects that can create electronic interference for aircraft must be avoided in the proximity of an airport due to their potential impact on aircraft and airport operations.

- **Wildlife and Bird Attractants**

Aircraft wildlife strikes are a threat to human health and safety. According to the *FAA Wildlife Strikes to Civil Aircraft in the United States 1990-2005*, wildlife strikes (and in particular bird strikes) have resulted in more than 194 deaths and over 163 aircraft destroyed since 1988 – and the rate of incidents is increasing. Wildlife attractants are



defined in FAA AC 150/5200-33B, “*Hazardous Wildlife Attractants on or Near Airports*”, as any human-made structure, land-use practice, or human-made or natural geographic feature that can attract or support hazardous wildlife within the landing or departure airspace or an airport’s Airport Operations Area. Some of the most prominent wildlife attractants commonly located around airports include architectural features, landscaping, waste disposal

sites, ponds, wastewater treatment facilities, agricultural or aquaculture activities, surface mining, or wetlands.

Land Use Characteristics that Can Affect Accident Severity

Preventing potential hazards to air navigation is a critical component of land use compatibility, but that alone cannot guarantee that aircraft accidents will not occur. However, appropriate land use characteristics can greatly affect the consequences of accidents when they do occur. To minimize those potential consequences, controls for land use development are necessary and that degree of control varies depending upon the likelihood of aircraft accidents in any given part of the airport environs. The strictest land use controls are needed close to the ends of runways since this is where the risk of accidents is statistically the highest. Restrictions on uses that present very high consequences also may be appropriate relatively far away from a runway.

It should be recognized that the ideal circumstance for any airport is to maintain open lands in its immediate vicinity, particularly with respect to its runway ends. Open lands can serve two principle functions with respect to impacting the severity of an aircraft accident:



- Open land uses generally have few occupants, thus limiting the number of people potentially placed in harm's way; and
- Open land areas can potentially reduce the amount of aircraft damage and enhance the survivability for the occupants of an aircraft forced to make an emergency landing away from a runway.

If sufficiently large and clear of obstacles, open land areas can be valuable for light aircraft anywhere near an airport. Note that for large and high-performance aircraft, open land realistically has little value for emergency landing purposes and is most useful when it is associated with an extension of the Runway Safety Areas (RSAs) immediately adjoining a runway. (This value is evidenced by the FAA's establishment of RSAs at the ends of all airport runways as prescribed in FAA AC 150/5300-13A, *Airport Design*.)

When open lands are not available, the two typical land use characteristics that can most significantly impact the severity of an aircraft incident or accident near an airport include the following:

- **High Concentrations of People**

The land use characteristic tied most closely to the consequences of aircraft accidents is the density of people concentrated in the accident area. Criteria that discourages, if not limits, the number of dwellings or concentration of people in areas close to the airport is the most direct method of reducing the potential severity of an accident.



- **High Risk-Sensitive Uses**

Certain critical types of land uses pose high risks and should be avoided near the ends of runway regardless of the number of people on the site. Chief among these uses are ones in which the mobility of occupants is effectively limited (e.g. schools, hospitals, nursing homes, etc). Other uses to be avoided fall under the heading of critical community infrastructure, the damage or destruction of which could cause significant adverse effects to public health and welfare well beyond the immediate vicinity of the facility. This would include power plants, electrical substations, public communications facilities and other facilities. This could also include above-ground storage of large quantities of highly flammable or otherwise hazardous materials that may pose a significant community risk if they were to be involved in an accident.



1.4 What land uses are most commonly found near airports?

Land uses commonly found around and near airports can generally be categorized into seven common classifications. They are briefly described below. However, beyond their primary characteristic, such as “residential” or “commercial”, land

uses often have other attributes of development that can play a key role to increase the compatibility of a neighboring land use to an airport. For example, the types of buildings, the density of the development, the size of the development, and the geographic location relative to the runway environment can all be secondary considerations when evaluating a land use around an airport in terms of compatibility.

- **Residential Use**

Residential use is generally defined to include any dwelling used to house people. As population continues to increase, residential land use development often encroaches upon what was once open space surrounding airport property. Residential developments near airports should be discouraged or, at a minimum, planned and designed with care to address safety issues related to high concentrations of people and potential noise impacts.



Bing Maps

- **Commercial Use**

Commercial use is generally defined to include any use that involves the sale of products or services for profit. Due to the wide variety of commercial uses, commercial activities often require specific review and evaluation by relevant stakeholders and planners to determine compatibility with airport operational areas so that hazards are not created.



- **Industrial Use**

Industrial use is often defined as any use relating to, used in, or created by industry. Historically industrial areas are typically encouraged within a community as a means to attract business, increase the business tax base and employment levels, and enhance



economic benefits to the community. They have also generally been considered to be compatible with airports. However, industrial parks now are often a mix of industrial businesses, manufacturing facilities, office parks, and research and development complexes within the same geographic area. Thus, each use has potentially unique compatibility concerns and issues, which should be carefully considered.

- **Institutional Use**

Institutional uses are generally defined to include all uses related to an organization that is influential in the community. Typically, institutional land uses should not be located on or near airports due to noise sensitivity and the risk associated with high concentrations of people. Such land uses typically include places of worship, daycare, eldercare centers, hospitals, health care facilities, and educational facilities.



They could also include other facilities that could prove to be a potential hazard to aircraft operations such as detention basins, waste processing and disposal, lighted parking lots, etc.

- **Infrastructure Use**

Infrastructure generally can include a variety of land uses such as above ground utilities, cellular communication towers, water towers, and wind farms. Each of these types of land uses within the vicinity of an airport has potential compatibility concerns.



- **Agricultural Use and Open Space**

Agriculture and open space activities are most commonly defined as any use related to farming, including the use of both manmade and naturally occurring water resources. Compatibility considerations regarding these uses are often perceived as the least serious of the incompatible land uses; however, they can have significant wildlife and bird management concerns.



- **Parks and Recreational Use**

Parks and recreational land uses can generate a number of concerns with respect to airport compatibility. Uses can range from community baseball fields to a professional auto racing tracks, can be either indoor or outdoor, and typically utilize lighting that is high intensity, which can create visual obstructions for pilots. Most importantly, most uses promote the congregation of people in a limited area, even if for only relatively short periods of time. Like most uses, an evaluation of the uses' compatibility should be required on a case-by-case basis.



1.5 Chapter Summary

Airport land use compatibility is a critical issue that currently confronts one of the nation's most important transportation infrastructure assets: airports. As an industry that generates tremendous local, state, regional, and national economic activity, the aviation industry and the airports that support it must be protected from physical and operational erosion of its capacities. Specifically, incompatible land uses can result in the following consequences for neighboring airports:

- Degraded airport operations and economic impacts
- Limited current and future economic development opportunities
- Reduced quality of life for airport neighbors
- Lost value of public investment
- Decline in transportation access
- Increased safety risk to aircraft and persons on the ground
- Precludes airport improvements resulting from demand and/or new technology.

These incompatible land uses can result from noise-related factors and a wide variety of safety-related concerns. Therefore, it is critical that airports and local communities take active roles to develop, implement, and maintain land use compatibility programs in order to preserve those airports' transportation capabilities and their resultant economic benefits.

This Page Intentional Left Blank



Airport Land Use Compatibility & the Rhode Island Airport System

In This Chapter

- *Why should Rhode Island care about land use compatibility?*
- *What is the Rhode Island Airport System?*
- *What roles do Rhode Island airports play in the National Airspace System?*
- *What are Rhode Island's defined policies, objectives and strategies for airport land use compatibility?*

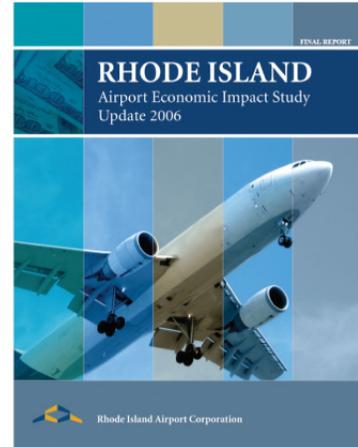
2.1 Why should Rhode Island care about land use compatibility?

In Chapter 1, we answered the questions *what is airport compatible land use, why it is important, what are common land use concerns, and what land uses are commonly found near airports?* In this chapter, the issue of airport compatible land use is directed specifically to the Rhode Island Airport System and the Rhode Island economy.

Incompatible land uses diminishes the overall utility of an airport, placing limitations on existing airport activity and future development. It impacts areas

defined for airport safety and navigable airspace. It creates issues for community official and planners in neighborhoods already impacted by incompatible land uses.

The Rhode Island Airport System has not been exempt to the national challenge of incompatible airport land use. Not all of Rhode Island’s six public use airports have experienced dramatic incompatibility issues. However, several have seen progressive commercial and residential development encroachment into land areas and airspace that are critical to their operation. T.F. Green Airport has the most serious incompatible land uses of the state airports and not surprisingly has also received the most attention to mitigate those impacts. But the challenges associated with T.F.



Green’s land use compatibility issues also brought awareness to the Rhode Island Airport Corporation (RIAC) that it needed to address potential land use incompatibility issues at the other five general aviation airports in the system. While it is fortunate that some of Rhode Island’s general aviation airports have not yet experienced such serious encroachment, it does not diminish the importance of this *Airport Land Use Compatibility Guidebook*. The Guidebook is a proactive measure for addressing existing incompatible land uses, as well as, protecting all Rhode Island system airports from future land use compatibility issues.

RIAC Goal

“Rhode Island’s airports will exist compatibly within their communities while providing air services appropriate to their roles.”

Goal 5
Rhode Island Airport System Plan

The aviation industry serves as the foundation of Rhode Island’s single largest economic driver. It is therefore essential to preserve the airport system infrastructure to ensure its long-term viability. The *2006 Rhode Island Airport Economic Impact Study Update* noted the aviation industry contributed over **\$2 billion** and **23,000 jobs** to the state’s economy.

In acknowledgement of the importance aviation has to Rhode Island, RIAC established a goal to address the issue of land use compatibility. It was adopted into the Rhode Island State Guide Plan in September 2011.

Land use compatibility around state airports has also been codified within the Rhode Island General Laws (RIGL), which includes provisions for “Airport Hazard Zoning.” Under this statute, RIAC has the legal responsibility to establish airspace plans that delineate “Airport Hazard Areas”. Similarly, the local host communities have a legal responsibility to adopt appropriate zoning intended to maintain safe approaches to the airports and specify land uses and heights of objects and structures in the Airport Hazard Areas defined by RIAC.

Specifically, Title 1 Aeronautics of the RIGL provides legislation pursuant to Chapter 1-2, *Airports and Landing Fields*, Chapter 1-3, *Airport Zoning*, Chapter 1-4, *Uniform Aeronautical Regulatory Act*, and Chapter 1-5, *Permanent Noise Monitoring Act*. It mandates that RIAC formulate airport approach plans for each state airport; additionally, municipalities that host a state airport are mandated to establish airport hazard areas under the police powers. The latter is detailed in Chapter 1-3, *Airport Zoning*, of the RIGL as of May 2011. Key excerpts are cited in **Table 2-1** below. Additionally, the Chapter 1-3 has been included in its entirety in **Appendix C**.

Table 2-1: Key Excerpts from Rhode Island Statutes relevant to Airports

Rhode Island General Laws Chapter 1-3 <i>Airport Zoning</i>	
Section 1-3-4 Airport Approach Plans	The Airport Corporation shall formulate, adopt and revise, when necessary, an airport airspace plan for each publicly owned airport in the state. Each plan shall indicate the circumstances in which structures and trees are or would be airport hazards, the area within which measures for the protection of the airport’s navigable airspace, including aerial approaches, should be taken, and what the height limits and other objectives of those measures should be. In adopting or revising any airspace plan, the airport corporation shall consider, among other things, the character of flying operations expected to be conducted at the airport, the traffic pattern and regulations affecting flying operations at the airport, the nature of the terrain, the height of existing structures and trees above the level of the airport, and the possibility of lowering or removing existing obstructions. The Airport Corporation may obtain and consider the views of the agency of the federal government charged with the fostering of civil aeronautics, as to the aerial approaches and other regulated airspace necessary to safe flying operations at the airport.

<p>Section 1-3-5 Zoning powers of political subdivisions</p>	<p>(1) In order to prevent the creation or establishment of airport hazards, every political subdivision having an airport hazard area wholly or partly within its territorial limits shall adopt, administer, and, enforce, under the police power and in the manner and upon the conditions prescribed, airport zoning regulations for that part of the airport hazard area which is within its territorial limits, which regulations may divide the airport hazard area into zones, and, within those zones, specify the land uses permitted and regulate and restrict the height to which structures and trees may be erected or allowed to grow.</p> <p>A political subdivision which includes an airport hazard area created by the location of a public airport shall adopt, administer, and enforce zoning ordinances pursuant to this chapter if the existing comprehensive zoning ordinance for the political subdivision does not provide for the land uses permitted, and regulate and restrict the height to which structures may be erected or objects of natural growth may be allowed to grow in, an airport hazard area.</p> <p>A political subdivision which includes an airport hazard area created by the location of a public airport shall adopt, either in full or by reference, the provisions of part 77 of title 14 of the code of federal regulations, entitled “Objects Affecting Navigable Airspace” hereinafter known as part 77.</p>
<p>Section 1-3-7 Airspace Plans to be Considered in Zoning</p>	<p>In adopting, administering, and enforcing any airport zoning regulations under this chapter, the political subdivision or subdivisions shall consider the airport airspace plan prepared by the airport corporation and the further considerations outlined in Section 1-3-4.</p>
<p>Section 1-3-8 Reasonableness of Zoning Regulations</p>	<p>...each political subdivision and zoning board shall consider the regulations or standards promulgated by the Federal Aviation Administration in zoning the use of land and structures in areas over which jurisdiction is assumed.</p>

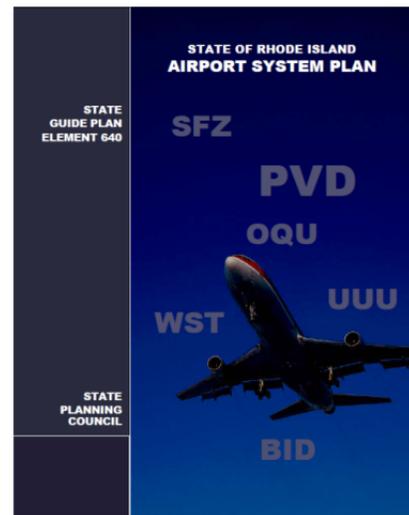
2.2 What is the Rhode Island Airport System?

Rhode Island’s system of public use airports is operated by the Rhode Island Airport Corporation (RIAC), a subsidiary of the Rhode Island Economic Development Corporation. Established in 1992, it is responsible for the design, construction, operation and maintenance the Rhode Island airport system, which

is comprised of six public-use airports: T. F. Green Airport, North Central Airport, Quonset Airport, Newport Airport, Westerly Airport, and Block Island Airport. Note that T.F. Green Airport serves as the state’s only primary commercial service airport. The remaining five Rhode Island airports are designed, operated and maintained primarily as general aviation airports. This airport system is an important contributor to the national and state transportation systems, as well as an significant part of the communities they serve.

Rhode Island Airport System Plan

In September 2011, Rhode Island adopted the Rhode Island Airport System Plan (ASP) as Element 640 in the Rhode Island State Guide Plan. The ASP is a strategic plan for the six state-owned airports that looks forward to the year 2021. It identifies the goals, policies, and strategies needed to ensure that Rhode Island maintains an airport system that is capable of meeting the state’s long-term transportation and economic needs. Additionally, the plan captured the strategic data required to enable the state to make informed decisions related to the planning and development of its airports. It also recognizes that airport operations in some cases will be carried out in densely populated and environmentally sensitive areas.



The ASP divides the public-use airports into four classifications (see **Table 2-2**) based on the standards established by the FAA in the National Plan of Integrated Airport Systems (NPIAS). These classifications are rooted in a variety of considerations focused on the typical types of airport operations as well as on their operational levels. The classification system defines the role that each airport should play within the system.

An overview of the system has been provided in **Appendix B** of this Guidebook.

Table 2-2: RI Airport System Plan - Airport Classification System

General Aviation (GA)	Airports that accommodate a variety of general aviation activities, such as private aircraft operations, business/corporate jet operations, charter operations, and flight training, among others. <i>(Newport Airport)</i>
Reliever (R)	General aviation airports designed to attract general aviation flight activity away from the congested, primary commercial service airport. <i>(North Central Airport and Quonset Airport)</i>
Commercial Service (CM)	Airports that accommodate scheduled passenger service with annual enplanement totals that are greater than 2,500 but less than 10,000. <i>(Westerly Airport and Block Island Airport)</i>
Primary Commercial Air Service (P)	Airports supporting major commercial airline activities that carry scheduled passenger traffic with annual enplanements greater than 10,000. <i>(T.F. Green Airport)</i>

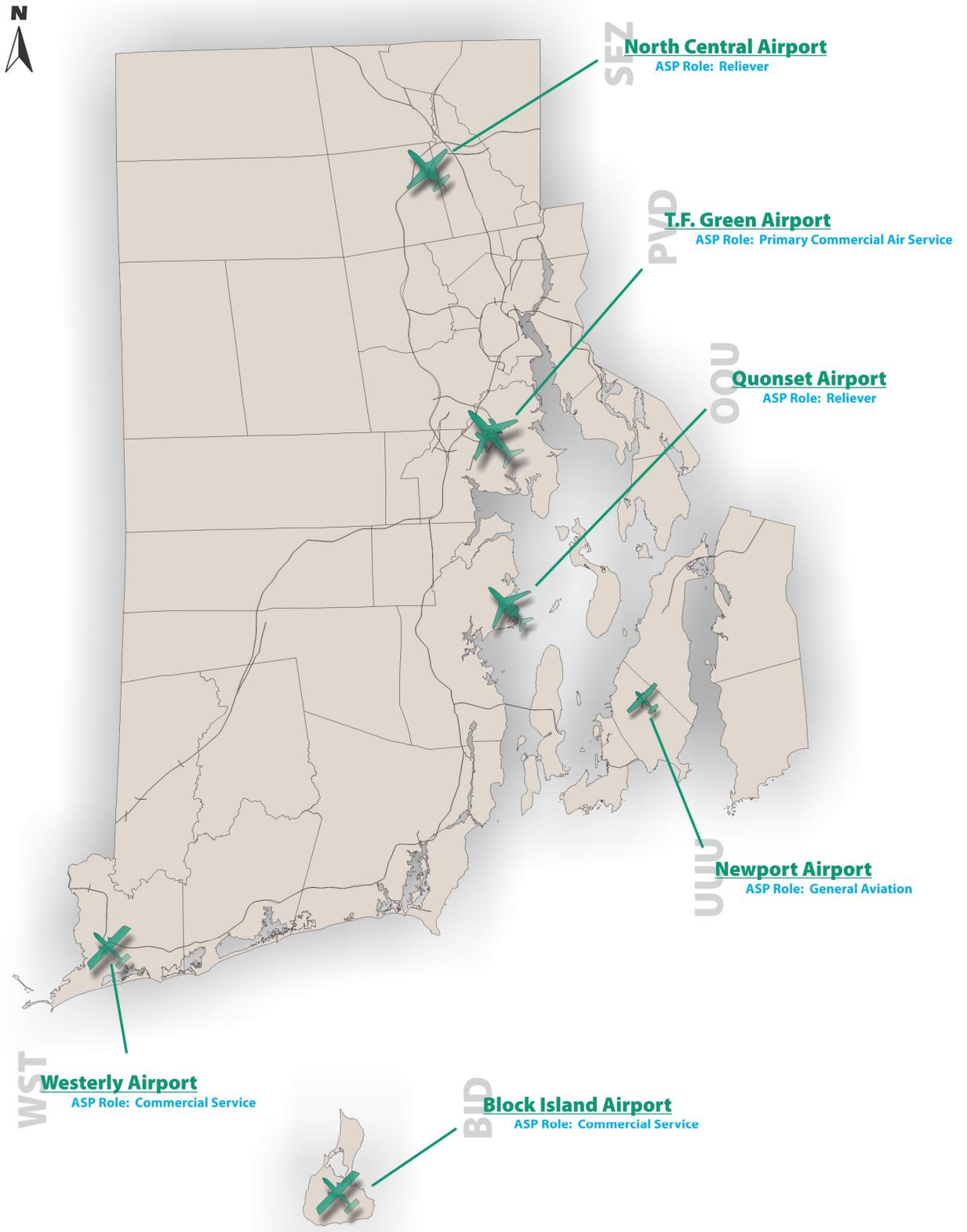
2.3 What roles do Rhode Island airports play in the National Airspace System?

The National Plan of Integrated Airport Systems (NPIAS) is the FAA’s national plan for airports that have been identified as being essential to the National Airspace System (NAS). All six of Rhode Island’s publicly-owned airports are included in the FAA’s NPIAS, indicating their importance to the national system. Inclusion in the NPIAS also makes the airports eligible to receive FAA Airport Improvement Program (AIP) grants for airport development.



An additional component of the NPIAS is that all airports included in the plan are given a classification based on the types of their current aircraft operations and on the number of their annual passenger enplanements, where appropriate. **Figure 2-1** below shows the overall Rhode Island public-use airport system as well as how each of its publicly-owned airports is classified within the NPIAS and within the ASP.

Figure 2-1: Rhode Island’s Public-Owned, Public-Use Airport System



2.4 What are Rhode Island’s defined policies, objectives and strategies airport land use compatibility?

One of the key achievements of the ASP was the creation of achievable goals for the airport system. Of particular relevance to airport compatible land use is Goal 5: **“Rhode Island’s airports will exist compatibly within their communities while providing air services appropriate to their roles.”** The ASP goes on to identify the policies, objectives and strategies to support that goal. The steps are important, since they are the underlying principles in formulating this Guidebook. The policies, objectives and strategies are provided in the tables below.



Quonset Airport (OQU)

Table 2-3: ASP Goal 5 Policies, Objectives, and Strategies

<i>Goal 5 Policies</i>	
A	Promote land use planning principles that limit incompatible land uses; further safety, security, and viability and preserve opportunities for reasonable future enhancements of the airport system.
B	Maintain continuing and cooperative planning processes with host communities that encourage responsible land use practices in and around airports. Encourage multi-disciplinary participation in airport master and system plans; regional aviation planning efforts and local comprehensive planning.
C	Minimize noise impacts to the extent possible.
D	Develop land in the immediate vicinity of airports in a manner that will be compatible with airport operations. Promote re-use of vacant airport land with priority to airport purposes and consistent with state approved municipal comprehensive plans and the requirements of 14 CFR Part 150. Minimize adverse impacts, if any, to pre-existing land uses.
E	Promote protection of property and rights of way to secure the long- term transportation needs of the state.

Table 2-3: ASP Goal 5 Policies, Objectives, and Strategies (continued)

<i>Goal 5 Objectives</i>	
F	Maintain and update the Noise Exposure Map at T.F. Green as operations warrant and in accordance with FAA Guidelines. Use the Integrated Noise Model to identify those areas beyond airport property that have incompatible residential land uses. Comply with RIGL 1-5 Permanent Noise Monitoring Act. Notify carriers of non-weather or safety related diversions from Part 150 operating procedures.
G	Ensure that landside airport plans and projects are consistent with state approved local comprehensive plans and the State Guide Plan.
H	Maintain adequate height zoning and Part 77 Surfaces with no penetrations.
I	Identify Airport Hazard Areas around each airport (RIAC) and work with host communities to adopt appropriate zoning (host communities), consistent with RIGL § 1-3-5.
J	Maintain current airport master plans and Airport Layout Plans (updated every 5 years) and a current state system plan (reevaluated and amended as needed and updated every 10 years).

Table 2-3: ASP Goal 5 Policies, Objectives, and Strategies (continued)

Goal 5 Strategies									
K	Host communities, the Division of Planning and RIAC are to formally engage and assist one another in community comprehensive plan development and update efforts.								
L	<p>When RIAC plans to pursue a project that will convert the use of land as identified in the following table, the chairperson of RIAC, in the exercise of the authority vested under § 42-64-14, will submit a written request for a determination of such project’s conformance to the state guide plan with the secretary of the state planning council and the council shall act within forty-five (45) days and provide the written determination to the corporation.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><u>Current Use</u></th> <th style="text-align: center;"><u>Future Use</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1. Open Space, Recreational</td> <td style="text-align: center;">Residential, Commercial, Business, Office Industrial or Manufacturing</td> </tr> <tr> <td style="text-align: center;">2. Residential</td> <td style="text-align: center;">Commercial, Business, Office Industrial or Manufacturing</td> </tr> <tr> <td style="text-align: center;">3. Commercial, Business, Office</td> <td style="text-align: center;">Industrial or Manufacturing</td> </tr> </tbody> </table>	<u>Current Use</u>	<u>Future Use</u>	1. Open Space, Recreational	Residential, Commercial, Business, Office Industrial or Manufacturing	2. Residential	Commercial, Business, Office Industrial or Manufacturing	3. Commercial, Business, Office	Industrial or Manufacturing
<u>Current Use</u>	<u>Future Use</u>								
1. Open Space, Recreational	Residential, Commercial, Business, Office Industrial or Manufacturing								
2. Residential	Commercial, Business, Office Industrial or Manufacturing								
3. Commercial, Business, Office	Industrial or Manufacturing								
M	RIAC will comply with all applicable federal and state laws, statutes, rules and regulations.								
N	Continue to implement noise programs at T.F. Green to reduce the number of residents exposed to noise levels that exceed FAA standards.								
O	Work with the host communities to identify noise sensitive areas and/or flight patterns. Utilize data to promote flight operations that minimize impacts to those areas. At T. F. Green in cases where deviations to established patterns arise that are not related to weather or safety, RIAC will work with FAA ATCT and/or the carrier to resolve the issue.								
P	Educate local planning officials on the proper use of FAA’s Form 7460-1, <i>Notice of Proposed Construction or Alteration</i> , and include form on local development review checklists.								
Q	Work cooperatively with communities for responsible redevelopment of land made available from acquisition Programs.								
R	The State Planning Council recommends that the State consider establishing a non-airport revenue based funding mechanism to assist in replacing low or moderate income housing units, as defined by R.I.G.L. 45-53, that may be lost as a result of airport expansion or noise related acquisition and removal.								
S	The State Planning Council recommends that the State review the Airport Impact Aid Formula contained in Article 1 of the annual Budget Appropriations Act to determine if the applicable communities are being appropriately compensated for hosting the associated facilities.								

2.5 Chapter Summary

This chapter provides an overview of the importance of airport land use compatibility with respect to Rhode Island and its system of airports. In general, airport land use compatibility is a critical issue that confronts the nation's airport system and threatens its long-term capabilities and viability. As an industry that generates significant local, state, regional, and national economic activity, the future of the aviation industry and the airports that support it must be protected from the physical and operational erosion of its capacities.

Recognizing this challenge and in keeping with ASP Goal 5 (*"Rhode Island's airports will exist compatibly within their communities while providing air services appropriate to their roles"*), RIAC has chosen to develop the *Rhode Island Airport Land Use Compatibility Guidebook* to establish tools to assist in the development of an airport compatible land use program that meets the goals established for the Rhode Island airport system and the requirements of the Rhode Island General Laws.

The material presented in this chapter sets the stage for the next chapter that will answer the following two questions:

- 1. *What legal responsibilities do Rhode Island's local municipalities have with respect to airport land use compatibility?***
- 2. *How can Rhode Island's local municipalities specifically address the issue of airport land use compatibility to meet their obligation under the law?***

This Page Intentional Left Blank



Airport Land Use Compatibility Planning: Step-by-Step

In This Chapter

- *What are the current practices that are utilized in addressing airport land use compatibility issues?*
- *A Step-by-Step Process to Develop Airport Land Use Compatibility in Rhode Island:*

3.1 What are the current practices that are utilized in addressing airport land use compatibility issues?

Land uses that are incompatible with airport operations are a challenging concern and can take a wide variety of forms. Airports have addressed the spectrum of this issue through a number of approaches with varying degrees of success. Through an examination of these approaches, it is evident that the task of preventing or mitigating incompatible land uses is one that often requires the use of multiple techniques. (**Appendix E** presents an assessment of other state land use compatibility programs, including their primary program elements.)

Airport land use compatibility has also been the subject of increased attention by the FAA and the aviation industry. Most recently, the Transportation Review Board's (TRB) Airport Cooperative Research Program (ACRP) published *ACRP Report 27 – Enhancing Land Use Compatibility* published in 2010. It is an overview of the current “state-of-the-industry” practices for addressing airport land use incompatibility issues. The report summarizes the generally accepted tools and techniques for avoiding and mitigating incompatible land uses so that they can be employed by individual states, airports and communities.

Because land use decisions can be influenced by an array of criteria, it is important to understand the intricate relationships among land uses, airports, and communities. While an “airport” is often considered to be just the airfield and immediately associated facilities, it also has a general “area of influence” that typically includes areas related to airspace, noise impacts, and safety concerns. Within that area of airport influence, it is important that all coordinate efforts to preserve and protect land use compatibility in the airport's environs. So, effective communication among all entities involved is crucial to the development, implementation, enforcement, and maintenance of compatible land uses.

To address these land use issues in Rhode Island, the Rhode Island Airport Corporation (RIAC) has developed the *Airport Land Use Compatibility Planning Guidebook*. The Guidebook was designed as a collaborative effort requiring active participation and mutual support by RIAC, the local planning department and the Rhode Island Division of Planning. (**Appendix K** contains the meeting notes of the formally established project meetings.)

To present an effective and efficient process, this chapter has been designed to follow a step-by-step process of identifying, evaluating and ultimately addressing airport land use compatibility issues. To further facilitate this process, the tasks to be completed have been incorporated into a formal checklist (**Chapter 3B**, *Airport Land Use Compatibility Planning: Checklist*) and supported by a series of associated supporting worksheets (**Chapter 3C**, *Airport Land Use Compatibility Planning: Worksheets*).

The following sections present RIAC's step-by-step approach to airport land use compatibility planning. It has been designed to make airport land use compatibility resources easy to use and understand. The process also reflects the

industry's current best management practices (*ACRP Report 27*) and directs the user of the Guidebook to more detailed reference materials.

3.2 Step One: Getting Started and Gathering Data

Step One lays the foundation for airport land use compatibility planning by identifying the relevant airport stakeholders and their roles on an airport land use study committee. This step also involves collecting the relevant data necessary to conduct this effort. Answering the questions listed here will enable the Guidebook user to define and understand the objectives of the process and who should be involved. The other major task in this step is to gather the airport and land use data that enables the user to appropriately address airport land use compatibility issues. Successful completion of this task will:

- Identify the applicable state laws;
- Establish a process to help stakeholders work together;
- Describe the airport's role, features, and activities; and
- Develop an inventory of the existing land uses around the airport.

3.2.1 Applicable State Laws

Rhode Island General Law (R.I.G.L.) has created specific airport zoning and compatibility controls to protect those who utilize the airport, as well as those who live in the vicinity of the airport. Specifically, R.I.G.L. - Title 1 *Aeronautics*, Chapter 1-3 *Airport Zoning*, establishes planning and zoning requirements for RIAC and airports' host communities. A summary of the law is presented in Section 3.5 and a complete transcript of the law is provided in **Appendix C, Review of Federal, State and Local Airport Zoning Regulations and Guidelines**. In addition, www.rilin.state.ri.us/statutes/ contains the full content of the R.I.G.L.. It is important for the user to verify that the state law is current.

3.2.2 Stakeholder Groups

Airports have a variety of potential stakeholder groups with an interest in compatible airport land use. To ensure the success of an airport land use compatibility program, it is important that the relevant stakeholders are integrated into the planning process, possibly through participation in an active advisory committee. In Rhode Island, the primary stakeholders will include RIAC, the Town Planner, the RI Division of Planning and the FAA. Other interested airport stakeholders may include the airport users, fixed-base operators (FBO), airlines, air

taxi operators, military units, local residents, local business leaders, and chambers of commerce, among others.

Depending on the particular circumstances and requirements of a given airport, an advisory committee can be a helpful tool for jurisdictions planning for airport land use compatibility in that it provides a means for integrating diverse stakeholder interests. The group can be used to give input on relative advantages and disadvantages of various approaches, provide an opportunity to hear the respective viewpoints of each stakeholder and communicate the progress of work. At a minimum, coordination must be undertaken by RIAC, RI Division of Planning and officials of the host community that have authority for zoning and land use planning.

3.2.3 Airport Information

In order to achieve airport land use compatibility, it is important that all have an understanding of the key airport characteristics. This can be accomplished only by collecting essential airport data. Decision makers need this information to understand the role of the airport in the region and state for transportation and economic development. Collecting and communicating these airport facts is an essential part of the compatibility planning process. **Table 3-1** provides a listing of questions that planners should be able to answer when developing airport compatible land use plans. (Note that depending on the individual circumstances of a particular airport, there may be additional questions that planners may need to be able to answer.)

Table 3-1. Essential Questions in the Compatibility Planning Process

Airport Context	
	<ul style="list-style-type: none"> • Who owns and operates the airport? • What is the role of the airport in the Rhode Island Aviation System? • What previous planning studies have been done for the airport? • Who uses the airport? • How does the airport relate with other transportation modes? • What is the airport’s economic contribution to the community?
Airport Activity	
	<ul style="list-style-type: none"> • What types of aircraft use the airport and how often? • How many passengers does the airport serve? • What routes do aircraft fly as they approach and depart the airport? • Are there airport noise issues?

Airport Features	
	<ul style="list-style-type: none"> • What are the characteristics of the landing surface? • What types of approach capabilities does each runway end have? • Which design standards apply to the airport and does the airport meet these standards? • What is the plan for future development at the airport?

It is important to note that RIAC maintains nearly all relevant data to Rhode Island airports that could be required for this compatible land use process. Additional sources of information that are required for answering other questions are available through a variety of other sources. **Table 3-2** provides a listing of those sources and the relevant documents.

Table 3-2. Additional Airport-Related Data and their Sources

Documentation Relevant to Airports	
RIAC	<ul style="list-style-type: none"> • Airport Master Plans • Airport Layout Plans (ALP) • Rhode Island State Aviation System Plan (RIASP) • Rhode Island Airport Economic Impact Study
FAA	<ul style="list-style-type: none"> • National Plan of Integrated Airport Systems (NPIAS) • New England Regional Aviation System Plan (NERASP) • General Aviation Airports: A National Asset
Rhode Island State Government	<ul style="list-style-type: none"> • Rhode Island Guide Plan • Corridor Plans • Transportation Improvement Plans (TIP)
Local Governments	<ul style="list-style-type: none"> • Local Comprehensive Plans • Local Zoning and Land Use Documentation
Land Use Maps/Resources Relevant to Airports	
Various Sources	<ul style="list-style-type: none"> • Individual parcel maps • Topographic maps (i.e. USGS maps and ArcGIS applications) • Existing Local or Airport Land Use maps • Relevant Environmental maps (e.g. wetlands, endangered species, natural heritage, etc.) • Comprehensive Plan Maps • Applicable zoning ordinances and zoning maps, including airport overlay

3.2.4 Step One Outcomes

Completion of **Step One** should result in:

- Establishing an effective forum for communicating with interested airport stakeholders, such as an advisory committee.
- Identifying airport land use compatibility planning requirements per R.I.G.L.
- Understanding an airport’s role in the Rhode Island and national airport systems.
- Inventorying airport facilities, activities, and services.
- Summarizing airport compatible and incompatible land use data.

3.3 Step Two: Delineate the Airport Hazard Area

Step Two defines the area around the airport required under R.I.G.L. in order to maintain safe operational environments both on airport property, as well as within the community surrounding the airport. It is also important to recognize that a safe airport operational environment encompasses both land use and height considerations. One of the primary factors in determining land use compatibility often relates to the proximity of a specific land use to an airport and more specifically the runways. Identification of zones that delineate specific geographic areas of interest is an important part of the land use planning process. It is necessary to define types of land uses that are **not** compatible, limited, or allowed within the designated geographic areas surrounding an airport. In addition to land uses, height restrictions (airspace) are also a critical contributor to ensuring a safe airport operational environment. Under Code of Federal Regulations (CFR) Title 14, Part 77, *Objects Affecting Navigable Airspace*, the FAA has defined specific airspace surfaces that should remain clear of ground-based objects (e.g. trees, buildings, towers, etc.) to ensure that the airspace remains clear of hazards for air navigation. Ultimately, those land uses considerations and height restrictions must be then incorporated into local comprehensive plans and/or airport zoning ordinances.

Under R.I.G.L. Title 1, *Aeronautics*, these areas and their associated requirements are collectively identified as the “Airport Hazard Areas”. As required under the law, RIAC is responsible for establishing and maintaining these “hazard areas” for each of the state-owned airports. (**Appendix J** contains the current Airport Hazard Area plans established by RIAC for the five state general aviation airports.)

For simplicity and convenience, these Airport Hazard Areas are based on the federal specifications detailed in CFR Title 14, Part 77 to which RIAC is also obligated to comply through the federal grant process. The R.I.G.L. also allow for other airport land use considerations to be factored into these Airport Hazard Areas. This can include the use of FAA’s standard land use planning tool, the Runway Protection Zone (RPZ). Finally, the R.I.G.L. specifically states that municipalities with an Airport Hazard Area must adopt the height provisions associated with Part 77. The following sections provide an overview of the Part 77 and RPZ standards and how these standards are employed as part of Rhode Island’s Airport Hazard Areas.

3.3.1 Airport Hazard Area Construction Elements

CFR Part 77 Airspace Surfaces

Part 77 can generally be described as a federal regulations utilized for identifying obstructions and/or hazards to the airspace surrounding an airport. The regulation provides standardized guidance by establishing three-dimensional airspace surfaces that exist on and around an airport. The primary function of these surfaces is to establish guidance on the height of objects on or around an airport to ensure that the surrounding airspace is protected for air navigation.

Note that these Part 77 airspace surfaces can also be used to assist in land use planning around the airport. Specifically, within this land use planning Guidebook, these airspace surfaces are utilized as the foundation of much of the airport land use compatibility recommendations because they:

1. Are specifically identified in R.I.G.L. as being required to be adopted (as well as their requirements) in part or in total into the zoning laws of municipalities having an Airport Hazard Area; and
2. Serve as a multi-purpose tool in that they are commonly recognized within the aviation industry and have clearly defined dimensions that are appropriate for addressing both height and land use concerns.

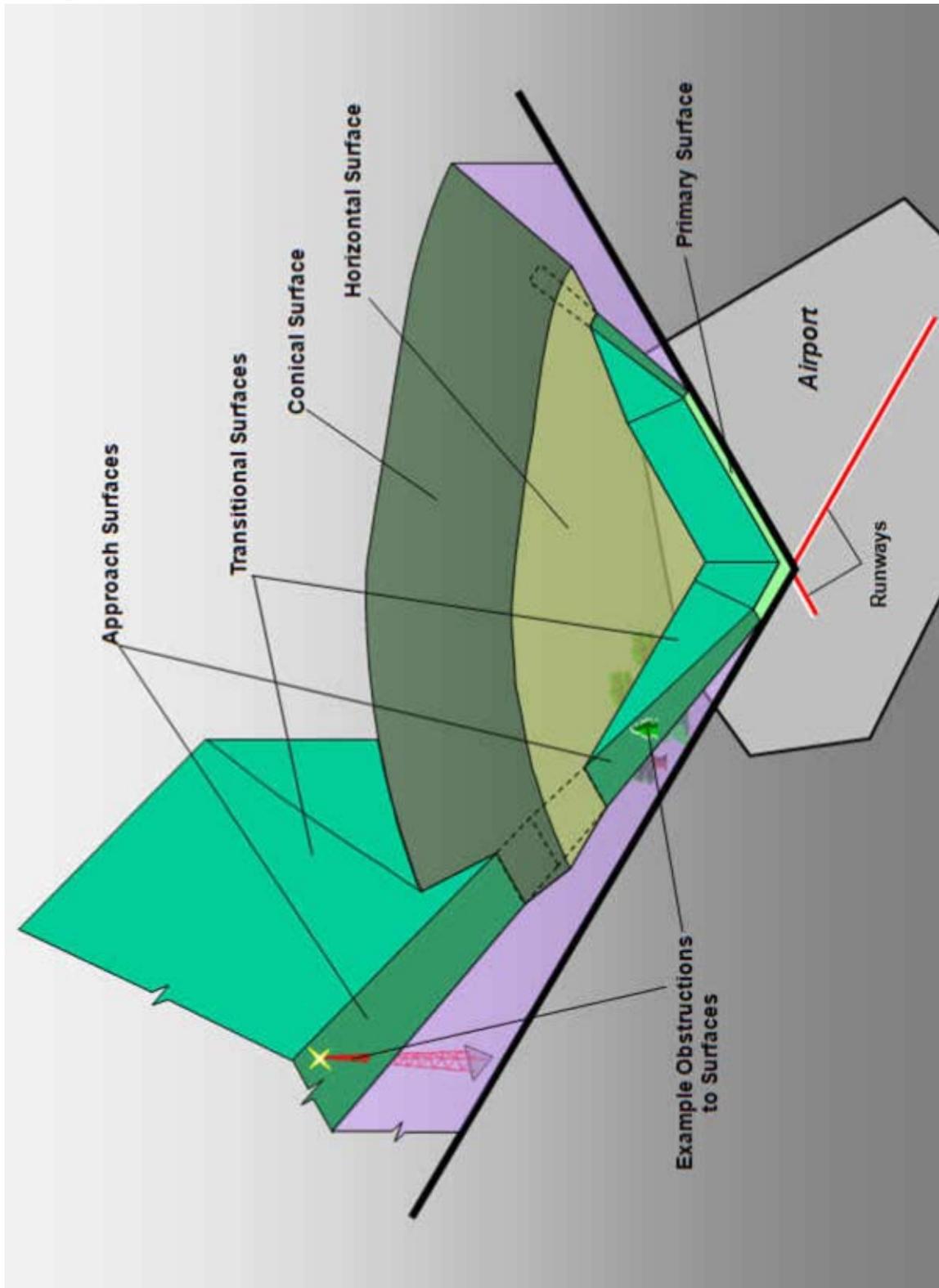
Part 77 surfaces incorporate a significant area around the airport that is considered as part of any airspace review conducted by the FAA to help ensure that airspace around the airport remains free of aviation hazards. However, although the FAA can determine if structures are obstructions or hazards to air navigation, the FAA is not authorized to regulate local land use. Under Part 77, an aeronautical study can be undertaken by the FAA to determine if a structure is a “hazard” to air navigation. The FAA acknowledges that state or local authorities control the appropriate use of property beneath an airport’s airspace. It is for that reason that

in 1999 Rhode Island formally adopted into the R.I.G.L. the requirement that communities containing a hazard area incorporate Part 77 into its local zoning. Note that in order to comply with federal requirements, RIAC is responsible for establishing and maintaining current Part 77 plans for all state airports.

The specific components that comprise the Part 77 airspace surfaces and that are utilized by the FAA to evaluate the proposed object include the five surface areas listed below. **Figure 3-1** shows these surfaces in a three-dimensional cross-section.

- **Primary Surface** – The primary surface is longitudinally centered on a runway and extends 200 feet beyond each end of a hard surfaced runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of a primary surface can be 250, 500 or 1,000 feet depending on the approach type.
- **Approach Surface** - The approach surface is longitudinally centered on the extended runway centerline and extends outward and upward from the end of the runway primary surface. Depending on the type of approach (Visual, Non-precision or Precision), the approach slope to the runway can vary (20:1, 34:1, or 50:1). Again, depending on the type of approach the length of the approach surface can vary from 5,000 to 50,000 feet.
- **Transitional surface** - The transitional surface extends outward and upward at right angles to the runway centerline and extends at a slope of seven feet horizontally for each one foot vertically (7:1) from the sides of the primary and approach surfaces. The transitional surfaces extend to the point at which they intercept the horizontal surface at a height of 150 feet above the established airport elevation.
- **Horizontal surface** - The horizontal surface is a horizontal plane located 150 feet above the established airport elevation and encompasses an area from the transitional surface to the conical surface. The perimeter is constructed by generating arcs from the center of each end of the primary surface and connecting the adjacent arcs by lines tangent to those arcs. The radius of the arc is 5,000 feet for all utility or visual runways and 10,000 feet for all other runways.

Figure 3-1. Part 77 Airspace Surfaces Cross-Section (example)



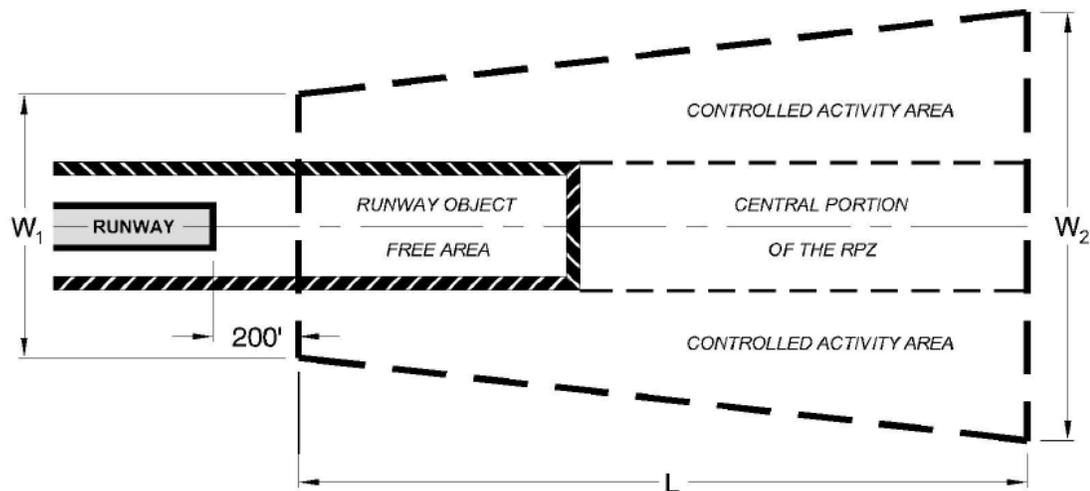
Source: CDM Smith

- **Conical surface** - The conical surface extends upward and outward from the periphery of the horizontal surface at a slope of 20 feet horizontally for every one foot vertically (20:1) for a horizontal distance of 4,000 feet.

Runway Protection Zone (RPZ)

In addition to Part 77 airspace surfaces, the FAA airport design criteria for the RPZ is utilized within the Land Use Guidebook to define critical areas located at the end of each runway. Per the criteria in FAA AC 150/5300-13A, *Airport Design*, it is desirable to clear all objects from the RPZ. The dimensions for RPZs are established based on the types of aircraft typically operating at a particular airport, as well as the types of instrument approaches at that airport. Some uses are permitted by the advisory circular provided they do not attract wildlife, are outside of the Runway Object Free Area (OFA), and do not interfere with navigational aids. Land uses which are prohibited in the RPZ include fuel storage facilities, residential buildings and places of public assembly. As sponsor for the state airports, RIAC is also responsible for maintaining the RPZ for each airport.

Figure 3-2. Runway Protection Zone Diagram



Source: FAA AC 150/5300-13A, *Airport Design*.

3.3.2 Airport Hazard Areas

To establish the standard for Rhode Island’s Airport Hazard Areas, the Part 77 surfaces and RPZ has been combined to create an overall “area of airport influence,” as required by the R.I.G.L. The area of airport influence is comprised of five specific zones, creating a comprehensive region focused on maintaining compatible land use around the airport. The combined five zones cover approximately a three-mile radius from each runway end. Each zone has a

compatible land use recommended based on their location and proximity to the airport. The specific size for each zone depends upon the classification of each runway and the associated approaches. In general, an airport that is more active and accommodates larger aircraft will typically require a larger approach zone area and RPZ. Consequently, these will have a greater area of land that requires land use compatibility compliance.

It is important to note that while the Part 77 surfaces are being utilized as a convenient tool for land use planning, their primary purpose of protecting airspace around airports remains in effect. This fact is emphasized by the R.I.G.L. that mandates local municipalities containing an Airport Hazard Area also adopt the formal requirements specifically related to Part 77.

Table 3-3 provides a listing of the five land use zones utilized in the Rhode Island Airport Hazard Areas and their source of development. **Figure 3-3** shows an example of how these zones would typically be positioned around an airport, followed by a brief description of each zone, including their recommended land use compatibility standards. RIAC is responsible for establishing and maintaining the Airport Hazard Areas. (**Appendix J** contains the current Airport Hazard Area plans established by RIAC for the five state general aviation airports.)

Table 3-3. Airport Hazard Area Land Use Zones

Zone	Description	Source
A	Runway Protection Zone	AC 150/5300-13A, <i>Airport Design</i>
B	Approach Zone	CFR Title 14, Part 77
C	Transitional Zone	CFR Title 14, Part 77
D	Horizontal Zone	CFR Title 14, Part 77
E	Conical Zone	CFR Title 14, Part 77

Zone A – Based on the Runway Protection Zone (RPZ)

Zone A is the closest area to the runway end. The intent is to provide a clear area that is free of above ground obstructions and any structures. The dimensional standards for Zone A are the same as those defined for the RPZ (See FAA AC 150/5300-13A, *Airport Design*). RIAC maintains the current Zone A design standards.

Land uses within Zone A should be limited, where possible. Best management practices should be used when determining compatible land uses such as parking lots (with restrictions), roadways, and open spaces in proximity to an airport’s

environs. Construction of new structures should be prohibited and existing structures, buildings and vegetation should be removed through the use of land acquisition and/or the purchase of avigation easements, when practicable.

Zone B – Based on the Part 77 Approach Surfaces

Zone B is a critical airport zone that reflects the approach and departure areas for each airport runway. The size of Zone B is predicated upon the type of runway instrument approach (visual, non-precision, or precision) and the type/size of aircraft utilizing the runway. Note that when applied as defined by the FAA, the inner segment of the Part 77 approach surfaces (the basis of Zone B) actually overlaps the RPZ (the basis of Zone A). However, for the purposes of establishing a formal Airport Hazard Area within this Guidebook, the length of Zone B is actually considered to begin at the outer edge of the RPZ or Zone A. Again, RIAC maintains the current Zone B dimensional standards for each airport.

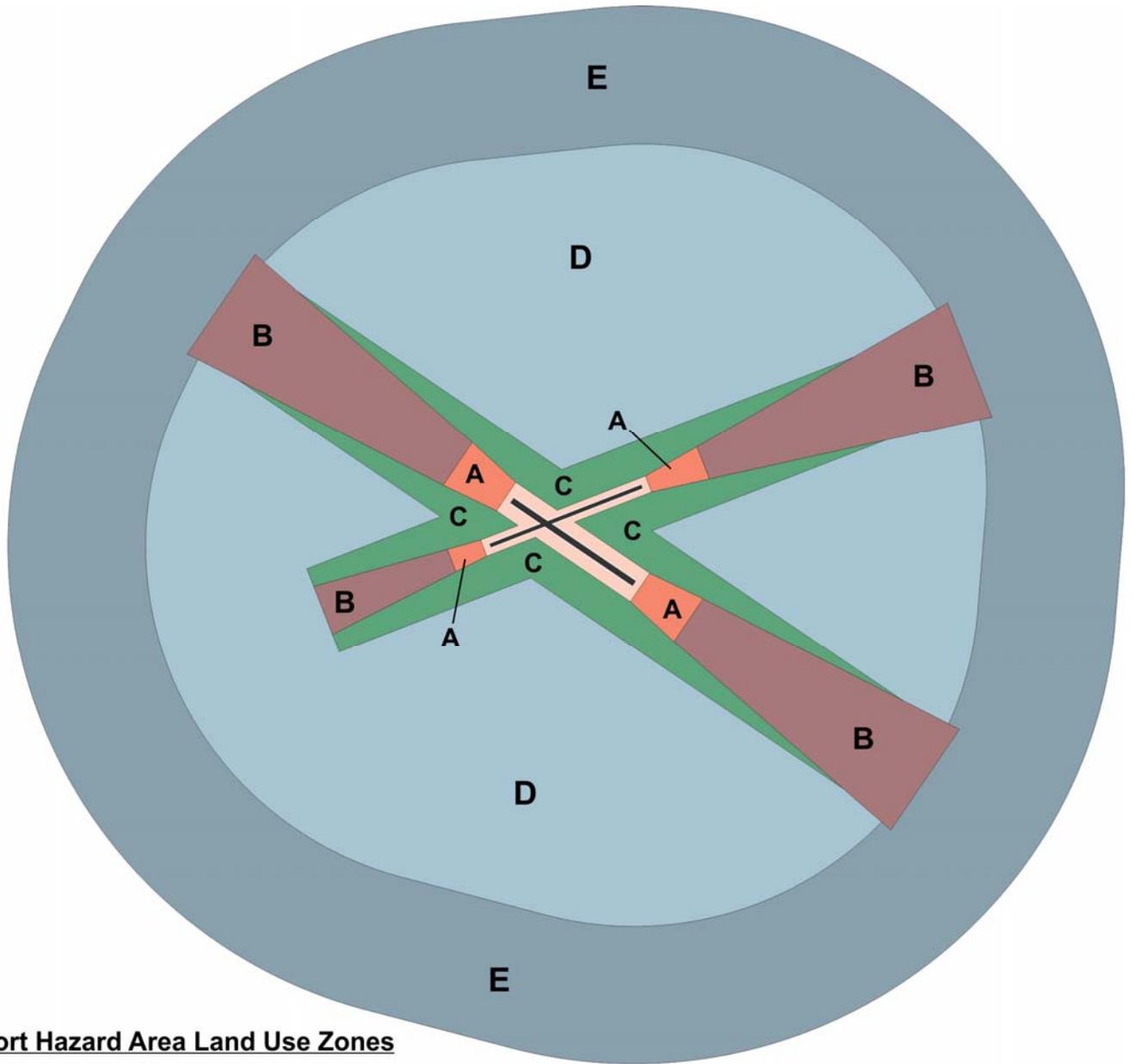
Land uses allowed in Zone B typically require additional review to maintain compliance with land use guidelines that limit concentrations of people, wildlife attractants, visual obstructions, tall structures, and noise sensitive developments. For example, residential developments should be precluded from this area. However, some single family developments, if low in density, may be permitted with additional review by the local planning authority to determine if they are not inconsistent with airport compatibility requirements.

Zone C – Based on the Part 77 Transitional Surfaces

Zone C includes those areas that are abeam of the runway pavement and extend specific distances based on the types of operations at that particular airport and its instrument approaches. RIAC maintains the current Zone C dimensional standards.

The purpose of this zone is to provide an area relatively free of obstructions that is in closest lateral proximity to the runway environs. This is essentially the area between the runway and the standard airport traffic pattern. Within this area consideration should be given to the potential for aircraft incidents such as engine out or aircraft stalls during approach or departure. Land uses allowed in Zone C should not congregate people, generate visual obstructions, attract wildlife hazards, or create tall structures. Noise sensitive developments should be discouraged as well because this area could experience noise from engine-run-up and from aircraft in the traffic pattern.

Figure 3-3. Airport Hazard Area Land Use Zones - A-E Diagram



- Runway
- Primary Surface Zone
- A** Runway Protection Zone
- B** Approach Zone
- C** Transitional Zone
- D** Horizontal Zone
- E** Conical Zone

Source: CDM Smith

Zone D – Based on the Part 77 Horizontal Surface

Zone D is typically elliptical in shape, depending upon the runway types and configurations at individual airports. RIAC maintains the current Zone D dimensional standards.

Zone D experiences a number of aircraft over-flights within its boundary during approach or departure at an airport. This zone should be clear of all uses that may generate visual obstructions, wildlife attractants, or tall structures because aircraft typically operate at lower altitudes and slower air speeds in this area. If a pilot is distracted by visual obstructions, potential safety concerns can arise. Depending on their location within the zone, land uses that encourage congregations of people or involve development of tall structures should also be limited. Noise sensitive development in Zone D should also be discouraged, particularly if it is in close proximity to a runway end. (It should also be noted that for the Rhode Island general aviation airports, the potential impact from noise in these areas would not meet typical FAA thresholds for noise mitigation.) If possible, residential development or outdoor uses should be minimized in Zone D.

Zone E – Based on the Part 77 Conical Surface

Zone E is the outermost zone of the airport overlay zoning areas and has the least number of land use restriction considerations. RIAC maintains the current Zone E dimensional standards. This zone is intended to preclude the development of any land uses that may generate concerns related to significant height limitations, wildlife attractants, and visual obstructions. Concentrations of people and noise sensitive land uses should also be evaluated to ensure compatibility within the airport's environs. Many land uses within Zone E can be compatible with the airport; however, appropriate consideration should be given to evaluate uses that may pose a potential hazard to the airport.

3.3.3 Airspace Height Restrictions Associated with Airport Hazard Areas

As noted above, Airport Hazard Areas as defined in the R.I.G.L. are designed to address both land use and height considerations. Section 3.3.2 specifically detailed how the Airport Hazard Areas are to be constructed (using a combination of Part 77 and RPZs) and how they should be applied for ensuring land use compatibility. With respect to airspace and height restrictions on and around an airport, the R.I.G.L. mandates that municipalities simply adopt either in full or by reference, the provisions of CFR Title 14, Part 77, *Objects Affecting Navigable Airspace*. In essence, this state requirement codifies these national airspace safety standards in each

municipality. Note that RIAC maintains current Part 77 plans for all state airports and can be helpful in applying these standards for the local planning office.

3.3.4 Step Two Outcomes

Completion of **Step Two** should result in an understanding of the:

- Requirement to establish and maintain Airport Hazard Areas for the state airports as detailed in the Rhode Island General Laws.
- Standard federal planning tools that have been utilized as the basis of the various zones that comprise the Airport Hazard Areas.
- Recommended land uses associated with the various zones included in the Airport Hazard Areas.
- Airspace height restrictions associated with the Airport Hazard Areas.

3.4 Step Three: Identify Land Use Compatibility Concerns

Step Three entails the review of specific land uses and an assessment of their compatibility relative to the each of the previously identified airport land use zones. It will provide the Guidebook user with an understanding of what current land uses are appropriate around an airport, where they can be located and why. It also requires the user to consider potential land use compatibility issues that could arise for airports over the long term.

3.4.1 Compatibility Assessment of Current Land Uses

Although a primary focus of the airport land use compatibility planning process is to prevent the creation of new incompatible land uses, having an understanding of the compatibility status of existing land uses is equally helpful. Sometimes it is essential to make sure that existing problems do not become worse. In other instances, infill development similar in character to the existing uses may be reasonable. Knowing the current compatibility status will help the user to look for opportunities where incompatible uses could be converted to more compatible ones through local policies

In this section, the various land use descriptions discussed in Chapter 1, *Introduction to Airport Land Use Compatibility Planning*, are evaluated for compatibility with respect to the five Airport Hazard Area Land Use Zones identified in the Step Two. That evaluation entails a determination of those land uses to be generally compatible, not compatible, or require additional review to

clearly assess the level of compatibility. These three designations are discussed below, while the summary tables that follow provide the results of this comparative analysis.

Airport Hazard Area Land Use Zone Chart Assessment

Tables 3-4 through **Table 3-10** provide a compatibility assessment for the general land use classifications introduced in Chapter 1. Not all land uses are identified, and each should be reviewed for applicability at individual airports. This evaluation process is significantly enhanced through use of GIS applications. There are several considerations that should be noted regarding this compatibility assessment:

- The tables below were generated through examination of three important industry sources with respect to airport land use compatibility: the *Iowa Airport Land Use Guidebook*, 2008; WSDOT's *Airports and Compatible Land Use Guidebook*, 2011; and ACRP Report 27 – *Enhancing Land Use Compatibility*, 2011.
- The individual assessments have been made based on the aforementioned aviation industry standard documents. Justification for each determination has not been provided.
- Each assessment intentionally utilizes nomenclature that is different than that typically employed at a local planning level. This has been done to emphasize that these assessments are strictly based on aviation requirements and should not be confused with other local conditions.
- These assessments are advisory and should be considered at the local level for those municipalities that contain an Airport Hazard Area.

With respect to the tables, it is important to note that Zones A, B, and C are areas where aircraft are operating in the approach and departure phases of flight and therefore fly at slower air speeds and at lower altitudes. It is critical that these areas remain free of obstructions in order to provide a safe airspace environment. To support safe aircraft operations, many lands uses and activities should be prohibited within Zones A, B, and C. Zones D and E generally require additional review for land uses, while other land uses are compatible in these areas. Areas of interest within these zones include structure height, visual obstructions, and wildlife attractants.

The following sections provide a review of the three designations (compatible uses, non-compatible uses, and additional review required) designed to provide an assessment of the level of compatibility for each land use.

Compatible Uses

Land uses considered “compatible” are identified as “**C**” within a specific zone. Compatible land uses are not foreseen to be hazardous to airport and aircraft operations and are generally considered to be safe for persons on the ground within proximity of an airport. Criteria for land use compatibility include the following:

- Will not attract congregations of people
- Will not exceed height standards
- Will not cause a visual distraction
- Will not cause a source of smoke/steam
- Will not cause an electrical, navigational, or radio interference
- Will not create wildlife and bird attractants
- Will not create large area of standing water
- Will not create storage of flammable substances or materials
- Will not cause a pilot to have difficulties distinguishing the airport from the surroundings, such as street lights, billboards, signs, and linear roads and street lighting

Non-Compatible Uses

Land uses considered “not compatible” are identified as “**NC**” within a specific zone. These land uses can endanger the health, safety, and welfare of those persons on the ground in proximity to an airport, as well as the aircraft, crew, and passengers. For example, multi-family residential structures should not be located on or near airport properties due to congregations of people, as well as the possible height concerns associated with tall structures, such as apartment buildings or condominiums. It is generally understood that those land uses identified as “**NC**” will create a problem for an airport.

Additional Review Required

A land use that needs “additional review” is noted as “**AR**”. It indicates that the land use may be permissible if certain conditions are met or applied. This designation builds in flexibility for planners, elected officials, and developers to allow for growth and development utilizing best management practices to provide compatible land uses within the jurisdictional boundary of the airport. This designation may allow a marginally acceptable land use to be located within a specific zone after a review has been completed by planners and developers to identify the best site location, while accounting for the safe operations at the airport.

For example, a manufacturing company may propose a plant within the vicinity of an airport and has acknowledged that the plant will produce steam and have emissions stacks that could impact that airport's Part 77 airspace surfaces. Under the 'AR' designation, the local community would have several options. First, the developer would have to file an FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, with the FAA (see **Appendix I**) in order to have the project reviewed with respect to its potential impacts to air navigation. Second, if the subsequent FAA findings result in a determination of impact (such as due to a penetration of an airspace surface or another conflicting condition such as smoke/steam), appropriate local representatives may work with the developer to reduce potential impacts associated with the identified issue such that it is deemed acceptable to the FAA. This may be done by changing location, changing the height of the emission stacks, or even changing manufacturing techniques. If these actions result in appropriate measures to reduce incompatibility, the local community may approve the use. If this exercise cannot limit the concern, the local community may determine the use to be "incompatible" and deny the use. This sort of assessment should be done with an understanding that specific criteria, as outlined within the compatible designation, as well as best management practices to provide the basis for decision making.

Table 3-4. Airport Hazard Area Land Use Zone Compatibility Assessment

Residential Activities					
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Single-Family Uses (1 dwelling per lot)					
<i>Detached Single Family Dwelling</i> (i.e. farm dwelling, detached single family house, manufactured/modular/mobile homes if converted to real property and taxed)	NC	AR	AR	AR	C
<i>Detached Zero Lot Line Dwelling</i> (i.e. condominium)	NC	AR	AR	AR	C
<i>Attached Single Family Dwelling</i> (i.e. townhouses)	NC	AR	AR	AR	C
Two Family Uses (i.e. two principal dwelling units within one building on the same parcel)					
	NC	AR	AR	AR	C
Multi-Family Uses (i.e. three or more principal dwelling units within a single building on the same parcel, apartments such as condominium, elder, assisted living, townhouse-style)					
<i>Low-Rise</i> (1-3 Levels)	NC	AR	AR	AR	C
<i>Mid-Rise</i> (4-12 Levels)	NC	AR	AR	AR	C
<i>High-Rise</i> (13+ Levels)	NC	AR	AR	AR	C
Group Living Uses (i.e. assisted living, group care facilities, nursing and convalescent homes, independent group living)					
	NC	NC	AR	AR	C
Manufactured Housing Parks					
	NC	NC	AR	AR	C
C = Compatible AR = Additional Review Required NC= Not Compatible					

Source: Adapted from Iowa Airport Land Use Guidebook, 2008; WSDOT Airports and Compatible Land Use Guidebook, 2011; and ACRP Report 27–Enhancing Land Use Compatibility, 2011

Table 3-5. Airport Hazard Area Land Use Zone Compatibility Assessment

Commercial Activities					
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Eating and Drinking Establishments <i>(i.e. restaurants, cafes, coffee shops, fast food restaurants, bars, nightclubs, taverns, cocktail lounges)</i>	NC	AR	AR	C	C
Quick Vehicle Servicing Uses (i.e. full-serve and mini-serve gas station, unattended card key service stations, car washes)	NC	AR	AR	C	C
Office Uses (i.e. business, government, professional, medical, or financial)					
<i>General Office (i.e. professional offices, financial businesses, government offices)</i>					
<i>Low-Rise</i> (1-3 Levels)	NC	AR	AR	AR	C
<i>Mid-Rise</i> (4-12 Levels)	NC	NC	NC	AR	C
<i>High-Rise</i> (13+ Levels)	NC	NC	NC	AR	C
<i>Medical/Dental Office (i.e. medical and dental clinics, chiropractic clinics, physical therapy clinics)</i>					
<i>Low-Rise</i> (1-3 Levels)	NC	AR	AR	AR	C
<i>Mid-Rise</i> (4-12 Levels)	NC	NC	NC	AR	C
<i>High-Rise</i> (13+ Levels)	NC	NC	NC	AR	C
Retail Uses (i.e. sale, lease, or rent of new or used products)					
<i>Sales-Oriented</i> (i.e. appliances, convenience stores, bakeries, electronics, furniture, garden supplies, gas stations, groceries, hardware, malls, strip malls, videos)	NC	AR	AR	AR	C
<i>Personal Service-Oriented</i> (i.e. retail service-banking establishments, laundromats/ dry cleaning, quick printing services, beauty/tanning salons, funeral homes)	NC	AR	AR	AR	C
<i>Repair-Oriented</i> (i.e. consumer goods-electronics, office equipment, appliances)	NC	AR	AR	AR	C
<i>Hospitality-Oriented</i> (hotels, motels, convention centers, meeting halls, event facilities)					
<i>Low-Rise</i> (1-3 Levels)	NC	AR	AR	AR	C
<i>Mid-Rise</i> (4-12 Levels)	NC	NC	NC	AR	C
<i>High-Rise</i> (13+ Levels)	NC	NC	NC	AR	C
<i>Outdoor Storage and Display-Oriented</i> (i.e. outdoor storage-lumber yards, vehicles sales, landscape material and nursery product sales, farm supply and equipment sales)	NC	AR	AR	AR	C
Surface Passenger Services (i.e. passenger terminals for buses, rail services, local taxi and limousine services)	NC	AR	AR	C	C
Vehicle Repair Uses (i.e. vehicle repair or service shops, alignment shops, tire sales)	NC	AR	AR	C	C
C = Compatible AR = Additional Review Required NC= Not Compatible					

Source: Adapted from Iowa Airport Land Use Guidebook, 2008; WSDOT Airports and Compatible Land Use Guidebook, 2011; and ACRP Report 27–Enhancing Land Use Compatibility, 2011

Table 3-6. Airport Hazard Area Land Use Zone Compatibility Assessment

Industrial/Manufacturing Activities					
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Industrial Service Uses (i.e. machine shops, tool repair, towing and vehicle storage, building supply yards, heating/plumbing/electrical contractors, exterminators, janitorial services, fuel oil distributors, solid fuel yards)	NC	AR	AR	AR	C
Manufacturing and Production Uses (i.e. manufacturing, processing, fabrication, packaging or assembly of goods)					
<i>Technical/Light Manufacturing</i> (i.e. electrical components, engineering, scientific and research, office, computer hardware/software, optical, pharmaceuticals, printing/photo facilities, publishing)	NC	AR	AR	AR	C
<i>General Manufacturing</i> (i.e. manufacturing, compounding, assembling or treatment of most articles, materials, or merchandise)	NC	AR	AR	AR	C
* <i>Heavy Manufacturing</i> (i.e. concrete and asphalt plants, etc.)	NC	NC	NC	AR	C
Mining and Extraction Uses	NC	NC	NC	AR	C
Salvage Operations (i.e. firms that collect, store, and dismantle damaged or discarded vehicles, machinery, appliances, and building material)	NC	AR	AR	C	C
Self-Service Storage Uses (i.e. mini-warehouses/ storage facilities)	NC	C	C	C	C
Warehouse and Freight Uses (i.e. major wholesale distribution centers, general freight storage, railroad switching yards, bus/rail car storage lots, parcel service, grain terminals)	NC	AR	AR	C	C
Waste-Related Uses (i.e. recycling centers, sanitary landfills, waste transfer stations, composting, energy recovery plants, sanitary and water treatment facilities, sanitary collection/pumping facilities, hazardous waste collection sites)	NC	NC	NC	AR	AR
Wholesale Sales Uses (i.e. sale, lease, or rental of products to retailers for industrial, institutional, or commercial business users)	NC	AR	AR	AR	C
C = Compatible AR = Additional Review Required NC= Not Compatible					

* Heavy Manufacturing typically has excessive smoke, dust, or hazardous waste.

Source: Adapted from *Iowa Airport Land Use Guidebook, 2008*; *WSDOT Airports and Compatible Land Use Guidebook, 2011*; and *ACRP Report 27–Enhancing Land Use Compatibility, 2011*

Table 3-7. Airport Hazard Area Land Use Zone Compatibility Assessment

Institutional Activities					
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Basic Utility Uses (i.e. utility substation facilities, electrical substations, water and sewer lift stations, water towers)	NC	AR	AR	AR	C
College and Universities (i.e. public or private colleges and universities, technical colleges, seminaries)	NC	NC	NC	AR	C
Community Service Uses (i.e. public, nonprofit, or charitable nature providing a local service to the people)					
<i>General Community Service</i> (i.e. libraries, museums, transit centers, park and ride facilities, senior/community/neighborhood centers, police and fire stations)	NC	AR	AR	AR	C
<i>Community Service-Shelter</i> (i.e. transient housing)	NC	AR	AR	AR	C
Daycare Uses (i.e. childcare centers, adult daycare, preschools after school programs)	NC	NC	NC	AR	C
Detention Facilities (i.e. prisons, jails, probation centers, juvenile detention homes, halfway houses)	NC	NC	NC	AR	C
Educational Facilities (i.e. public and private schools)					
<i>General Educational Facilities</i> (i.e. public and private elementary, middle, junior, and senior high schools including religious, boarding, military schools)	NC	NC	NC	AR	C
<i>Specialized Education Facilities</i> (i.e. specialized trade, business, or commercial courses, non-degree-granting schools)	NC	NC	NC	AR	C
Hospitals (i.e. hospitals, medical centers)	NC	NC	NC	AR	C
Religious Assembly Uses (i.e. churches, temples, synagogues, mosques, Masonic, eagles, moose, or elk lodges)	NC	NC	NC	AR	C
C = Compatible AR = Additional Review Required NC= Not Compatible					

Source: Adapted from Iowa Airport Land Use Guidebook, 2008; WSDOT Airports and Compatible Land Use Guidebook, 2011; and ACRP Report 27–Enhancing Land Use Compatibility, 2011

Table 3-8. Airport Hazard Area Land Use Zone Compatibility Assessment

Infrastructure Activities					
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Communication Transmission Facility Uses (i.e. broadcast, wireless, point to point, emergency towers and antennae)	NC	NC	NC	AR	AR
Parking Uses (i.e. ground lots, parking structures)	AR	C	AR	AR	C
Transportation Uses (i.e. highways, interstates, local and county roads)	AR	C	AR	AR	C
Utility Uses (i.e. solar power generation equipment, wind generators, wind farms)	NC	NC	NC	AR	AR
C = Compatible AR = Additional Review Required NC= Not Compatible					

Source: Adapted from *Iowa Airport Land Use Guidebook, 2008*; *WSDOT Airports and Compatible Land Use Guidebook, 2011*; and *ACRP Report 27–Enhancing Land Use Compatibility, 2011*

Table 3-9. Airport Hazard Area Land Use Zone Compatibility Assessment

Agriculture and Open Space Activities					
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Agricultural Uses (i.e. commercial cultivation of plants, livestock production)					
<i>Plant-related</i> (i.e. crop farming, vegetable, fruit, and tree, wholesale plant nurseries)	AR	AR	AR	C	C
<i>Animal-related</i> (i.e. livestock operations, dairy farms, horse farms)	AR	AR	AR	C	C
<i>Resident-related</i> (i.e. single-family home, mobile home if converted to real property and taxed)	NC	AR	AR	AR	C
<i>Facility-related</i> (i.e. fuel bulk storage/pumping facility, grain elevator, livestock/seed/grain sales)	NC	NC	NC	AR	AR
Floodplains	AR	AR	AR	C	C
Water Bodies (i.e. open bodies containing water)					
<i>Man-made resources</i> (i.e. mining and extraction, water detention ponds, wetlands)	NC	AR	AR	AR	AR
<i>Naturally occurring</i> (i.e. lakes, ponds, prairie pot holes, rivers, streams, wetlands)	NC	AR	AR	C	C
Wildlife Preservation Areas (i.e. petting zoos, wildlife rehabilitation centers, zoos)	NC	NC	NC	AR	C
C = Compatible AR = Additional Review Required NC= Not Compatible					

Source: Adapted from *Iowa Airport Land Use Guidebook, 2008*; *WSDOT Airports and Compatible Land Use Guidebook, 2011*; and *ACRP Report 27–Enhancing Land Use Compatibility, 2011*

Table 3-10. Airport Hazard Area Land Use Zone Compatibility Assessment

Parks and Recreation Activities					
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Commercial Recreational Uses (i.e. facilities used for physical exercise, recreation, or culture)					
<i>Outdoor</i> (i.e. campgrounds, tennis/swimming facilities, drive-in theaters, skating rinks, pavilions, amphitheaters)	NC	AR	AR	AR	C
<i>Indoor</i> (i.e. physical fitness centers, health clubs, bowling alleys, skating rinks, billiard halls, arcades, indoor theaters)	NC	AR	AR	C	C
<i>Golf</i> (i.e. golf driving ranges, outdoor miniature golf, 9+ hole courses)	NC	AR	AR	C	C
Utility Uses (i.e. amusement/theme parks, fairgrounds, racetracks, sports arenas)	NC	NC	NC	AR	AR
Parks (i.e. aquatic, mini, private, sports, neighborhood, school, community)	NC	AR	AR	C	C
Casino	NC	NC	NC	AR	C
C = Compatible AR = Additional Review Required NC = Not Compatible					

Source: Adapted from *Iowa Airport Land Use Guidebook, 2008*; *WSDOT Airports and Compatible Land Use Guidebook, 2011*; and *ACRP Report 27–Enhancing Land Use Compatibility, 2011*

3.4.2 Future Land Use Compatibility

Preventing incompatible land uses from being developed is the primary goal of this Guidebook. In order to accomplish that, the user must take a thoughtful and intensive look at the future development potential around airports. Data collected in Step One of this process (including the various long-term development plans from the airport, the host community and other relevant sources) will be extremely valuable. In assessing the potential for future incompatible land development, questions the user may ask could include:

- Where could land uses allowed by current plans (including comprehensive plans) and zoning be developed that are potentially incompatible with the airport?
- Are there plans to extend utilities, roads, and other infrastructure into an area to support development that would be incompatible with the airport?
- Are there locations within the Airport Hazard Area where redevelopment is planned? Will the redevelopment result in uses that would be incompatible because of density/intensity, noise, height, or other factors? Can the redevelopment be directed toward uses that are compatible with the airport?
- Are there vacant or underdeveloped sites that have infill development potential within these areas? Would such development be too

incompatible with the airport to consider or could it be acceptable given the character of the surrounding land uses?

- To what extent can reuse of existing buildings result in more intense occupancy? Can a vacant building shell be used in a manner that might be incompatible with the airport? For example, can an office or religious institution go into a building originally planned as industrial or warehouse space?
- What controls do you have over the heights of cell towers, antennas, and other buildings or structures that could be airspace obstructions?

Addressing airport land use compatibility is a long term process – it is critical that the Guidebook user reviews and answers these questions looking forward at least 20 years, if not further.

3.4.3 Airport Land Use Compatibility Issues

Once the existing and future conditions assessments have been completed, it is important to formally recognize and list out those issues that have been identified. These issues will form the basis of future planning and policy efforts to help mitigate their current and/or potential impacts.

3.4.4 Step Three Outcomes

Completion of **Step Three** should result in the following:

- An assessment and understanding of the current level of airport land use compatibility.
- An awareness and identification of potential future airport land use compatibility conflicts.
- List of specific current and future compatibility issues to be addressed in future planning and policy efforts.

3.5 Step Four: Develop Airport Land Use Compatibility Plan

The first three steps of this process have taken the Guidebook user through the research and analysis needed to describe and assess the interactions between the airport and surrounding land uses. This step encompasses the various compatibility strategies available for use in Rhode Island. It will ultimately result in a defined Airport Land Use Compatibility Plan for the airport. This section is broken down into two primary components:

- Airport land use compatibility requirements mandated by R.I.G.L.
- Industry standard tools and techniques available to prevent and/or mitigate incompatible land uses around airports.

3.5.1 Rhode Island General Laws Airport Compatibility Requirements

Rhode Island General Laws Title 1 *Aeronautics*, Chapter 1-3 *Airport Zoning*, establishes specific airport zoning and compatibility controls to protect those who utilize the airport as well as those who live in the vicinity of the airport. These laws were designed to help ensure the preservation of the state airport system and the significant public investments made to that system. R.I.G.L. Title 1 *Aeronautics* is provided in its entirety in **Appendix C**.

The following table provides a summary of each relevant section's content, including selected excerpts.

Table 3-11. Summary of Airport-Related Rhode Island General Laws

Rhode Island General Laws Chapter 1-3 <i>Airport Zoning</i>	
Section 1-3-2 Definitions	<p>This section defines the key terms included in this chapter. Of particular interest are the following terms:</p> <p><i>(2) "Airport hazard" means any electronic transmission device or structure, which, as determined by the federal aviation administration, interferes with radio communication between airport and aircraft approaching or leaving the airport, or any structure or tree or use of land which obstructs the airspace required for the flight of aircraft in landing or taking off at any airport or is otherwise hazardous to the landing or taking off of aircraft.</i></p> <p><i>(3) "Airport hazard area" means any area of land or water upon which an airport hazard might be established if not prevented as provided in this chapter.</i></p> <p>It is important to note that the size or shape of the "airport hazard area" is not specifically defined within this chapter.</p>
Section 1-3-3 Declaration of Policy	<p>This section establishes the Rhode Island policy with respect to airport hazards. As such, it serves as the foundation for the Guidebook.</p> <p><i>It is found and declared that an airport hazard endangers the lives and property of users of the airport and of occupants of land and other persons in its vicinity and also, if of the obstruction type, in effect reduces the size of the area available for the landing, taking off and maneuvering of aircraft, thus tending to destroy or impair the utility of the airport and the public investment in the airport. Accordingly, it is declared:</i></p> <p><i>(1) That the creation or establishment of an airport hazard is a public nuisance and an injury to the community served by the airport in question.</i></p> <p><i>(2) That it is necessary in the interest of the public health, safety and general welfare that the creation or establishment of airport hazards be prevented.</i></p> <p><i>(3) That this should be accomplished, to the extent legally by proper exercise of the police power, without compensation.</i></p> <p><i>(4) That the prevention of the creation or establishment of airport hazards, and the elimination, removal, alteration, mitigation, or marking and lighting of existing airport hazards are public purposes for which the state and its political subdivisions may raise and expend public funds, and acquire land or property interests.</i></p> <p><i>(5) That any obstructions to the use of navigable airspace destroy and impair the safe use of such airspace thereby endangering aircraft and are not in the interest of public health, public safety or general welfare.</i></p>

Table 3-11. Summary of Airport-Related Rhode Island General Laws,
continued

Rhode Island General Laws Chapter 1-3 <i>Airport Zoning</i>	
Section 1-3-4 Airport Approach Plans	This section instructs RIAC to “ <i>formulate, adopt and revise, when necessary, an airport airspace plan for each publicly owned airport in the state.</i> ” The intent of these RIAC plans is to protect the navigable airspace associated with each airport. As such, they are primarily focused on establishing height limits around a given airport, but could include other areas for the protection of that airport’s navigable airspace. It can be reasonably inferred that these plans serve as the basis of the “airport hazard areas.”
Section 1-3-5 Zoning powers of political subdivisions	<p>This section defines the zoning responsibilities and requirements of those communities that host an airport, including the following:</p> <ul style="list-style-type: none"> • <i>Adopting, administering and enforcing airport zoning ordinances within the airport hazard area that would include specifying the airport compatible land uses permitted and regulating/restricting the height to which structures and trees may be erected or allowed to grow.</i> • <i>Adopting either in full or by reference, the provisions of Code of Federal Regulations (CFR) Title 14, Part 77, Objects Affecting Navigable Airspace.</i> <p>(Note that Part 77 defines and describes the federal airspace clearance requirements for all public-use airports in the United States.)</p>
Section 1-3-7 Airspace Plans to be Considered in Zoning	When adopting, administering and enforcing their airport zoning ordinances, this section instructs host communities to consider the airport airspace plan prepared by RIAC, as well as any other considerations defined in that plan.
Section 1-3-8 Reasonableness of Zoning Regulations	This section notes that all zoning regulations be reasonable and consistent with the purpose of the chapter. Additionally, When adopting, administering and enforcing their airport zoning ordinances, this section instructs host communities to consider the regulations or standards promulgated by the Federal Aviation Administration in zoning the use of land and structures in areas over which jurisdiction is assumed.
Section 1-3-12 Incorporation in general zoning regulations	This section notes that while airports zoning regulations can be adopted within the host communities, those communities’ regulations cannot limit the airport zoning requirements defined within this ordinance. Additionally, Section 1-3-13 stipulates that when airport zoning requirements adopted by a host community conflict with another zoning requirement, the most stringent must be enforced.

Table 3-11. Summary of Airport-Related Rhode Island General Laws,
continued

Rhode Island General Laws Chapter 1-3 <i>Airport Zoning</i>	
Section 1-3-17 through Section 1-3-32	<p>Generally, sections 1-3-17 through 1-3-31 describes zoning administration and enforcement duties, as well as providing for the establishment of a board of appeals and associated processes related to this ordinance. Specifically, this board would have the following powers:</p> <p style="padding-left: 40px;"> <i>(1) To hear and decide appeals from any order, requirement, decision, or determination made by the administrative agency in the enforcement of this chapter or of any ordinance adopted;</i> <i>(2) To hear and decide special exceptions to the terms of the ordinances which the board may be required to pass under the ordinance; and</i> <i>(3) To hear and decide specific variances</i> </p> <p>This also includes a description of penalties for violations of this ordinance.</p>

Based on Rhode Island General Laws Title 1 *Aeronautics*, Chapter 1-3, *Airport Zoning*, the following actions are mandated to be undertaken under this ordinance:

1. RIAC must formulate, adopt and revise, when necessary, “airport airspace plans” as described in Section 1-3-4 for each publicly-owned airport in Rhode Island. It is also reasonably inferred that each airport plan should serve as the basis of that airport’s respective “airport hazard area.” (This requirement is reflected in Step Two above.)

2. Political subdivisions or those communities that host part or all of an airport hazard area must adopt, administer and enforce airport zoning regulations that comply with this ordinance. These communities must also consider RIAC’s airport airspace plans, as well as the land use and zoning regulations or standards promulgated by the FAA. Finally, these communities are required to adopt, either in full or by reference, the provisions of CFR Title 14 Part 77, *Objects Affecting Navigable Airspace*. (Part 77 is a reference in **Appendix D** or online at <http://ecfr.gpoaccess.gov>.)

The political subdivision must either establish a new board of appeals, or appoint the duties to an existing zoning board of appeals to:

- hear and decide appeals from any order, requirement, decision or determination made by the responsible administrative agency of those communities in relation to this ordinance;
- determine any special exemptions to the terms of the ordinance; and
- determine any specific variances.

This R.I.G.L. requirement is focused on ensuring that airspace required for safe airport operations is maintained and preserved as being obstruction-free. As such, height restrictions based on federal Part 77 airspace requirements are the primary focus. However, land use zoning and control elements are also stipulated in several locations of the ordinance and implied in others, albeit for the expressed purpose of controlling object heights around the airport. This is important in that land use controls are significant not just in enforcing height restrictions around airports, but are also critical in ensuring appropriate compatible land uses around an airport, which may or may not be directly height-related.

It is also important to note that as the airport sponsor and key stakeholder in ensuring compatible land use, RIAC is committed to serve as an active partner with local communities in assisting them to comply with the requirements of Rhode Island General Laws Title 1, *Aeronautics*.

3.5.2 Airport Land Use Compatibility Tools and Techniques

Preventing and mitigating incompatible land use is a challenging task that requires using multiple tools and techniques. With airports facing encroachment from various types of land uses, as well as political, environmental, and public pressures, it is necessary to evaluate each airport and its environs to assess their needs. It is also imperative to consider the interrelationship between land uses, airports, and host communities. This section summarizes the generally accepted methods which can be adapted to address the specific needs of Rhode Island airports for preventing, mitigating, and limiting incompatible land uses.

Table 3-12 provides a summary of those land use compatibility tools and techniques that have been identified for use at Rhode Island’s general aviation airports. Included in this table is a breakdown of those tools that are currently required under R.I.G.L., as well as those tools that are currently accepted in the aviation industry as being a “best management practice.” Also included in this table is an assessment for the applicability of these tools in relation to the five land use zones previously identified.

Table 3-12. Summary of Rhode Island Airport Land Compatibility Tools

	Zone A	Zone B	Zone C	Zone D	Zone E
Planning & Zoning Techniques					
Local Comprehensive Plans ¹	A	A	A	A	A
Other Regional/Area Plans (e.g. Corridor Plans, Joint or Regional Planning and Intergovernmental Agreements, etc.)	A	A	A	A	A
Airport Master Plan / Airport Layout Plan ²	A	A	A	A	A
Airport Land Use Compatibility Plan (including Airport Hazard Areas ¹)	A	A	A	A	A
Height Zoning Ordinance ¹	A	A	A	A	A
Site Plan Review	A	A	A	O	O
Plat Review	O	O	O	O	L
Natural Features Techniques					
Wildlife Management ²	A	A	A	O	O
Vegetation Management	A	A	A	O	O
Acquisition and Notification Techniques					
Fee Simple Acquisition	A	O	O	L	L
Avigation Easements	A	A	O	O	L
Conservation Easements	A	A	O	O	L
Transfer of Development Rights	A	A	O	O	L
Purchase of Development Rights	A	A	O	O	L
Non-Suit Covenants and Hold Harmless Agreements	A	A	O	O	L
Disclosure Notice	A	A	A	A	O
Noise Related Techniques					
Building Codes	A	A	A	O	O
Other Techniques					
Defined step-by-step airport land use compatibility process for local land use planning	A	A	A	A	A
Integrated GIS planning tools	A	A	A	A	A
A = Acceptable O = Optional L = Limited					

¹ Required under Rhode Island General Laws.

² As required by FAA with respect to individual airport circumstances.

Source: Adapted for application to RI from *Iowa Airport Land Use Guidebook, 2008*; *WSDOT Airports and Compatible Land Use Guidebook, 2011*; and *ACRP Report 27–Enhancing Land Use Compatibility, 2011*

Planning & Zoning Techniques

This section provides specific insight into planning and zoning airport techniques for promoting airport compatible land use. These techniques serve as the foundation for planning/zoning-based mitigation measures for airport compatible land use issues. Prior to discussing the individual elements, it is important to review the various tools in order to identify who is responsible for instituting them, as well as how they can relate to each other in the overall planning process. **Table 3.13** below provides a summary of the planning and zoning techniques identified in this section, as well as important details about each. The table also includes information regarding which agencies are generally responsible for administering the various planning tools. In many instances, other agencies may need to be involved or engaged in the development of these techniques to facilitate implementation.

Table 3-13. Summary of Planning and Zoning Land Use Compatibility Techniques

Technique	Description	Key Value	Primary Shortcoming	When to Use	Primary Responsibility
Airport Land Use Compatibility Planning	Typically a sub-section of the comprehensive plan or area plan that addresses airport land use compatibility goals and objectives	Provide structure and regulations pertaining to community development within the airport's environs; specifically addresses compatibility issues and sets compatibility criteria	Implementing and enforcing land use controls over multiple jurisdictions; agency preparing ALUCP may not be same as local land use jurisdiction	Should be completed for every jurisdiction impacted by an airport	RIAC; Local Unit of Government (i.e. municipality)
Local Comprehensive Plan	Long term techniques with goals, objectives, maps, charts and text	Provide for organized community growth and development including land use and (sometimes) airport elements	Airports and communities do not always plan growth together, thus allowing the encroachment of incompatible land uses into airport environs	Comprehensive plans must be completed by local communities and updated periodically, and preferably, in conjunction with the airport master plan/ airport layout plan	Local Unit of Government (i.e. municipality)
Other Regional/ Area Plan	Area specific techniques with goals and objectives	Address specific areas which require more detailed methods to guide land use regulations such as areas surrounding airports	Implementing and enforcing area specific criteria that control land uses near the airport	Area plans are typically completed as a follow-on element to the findings or recommendations of a comprehensive plan and may need to be updated to reflect changes or updates to an airport master plan/airport layout plan.	Local Unit of Government (i.e. municipality)

Source: ACRP Report 27 – Enhancing Airport Land Use Compatibility; Mead & Hunt, Inc.

Table 3-13. Summary of Planning and Zoning Land Use Compatibility Techniques,
continued

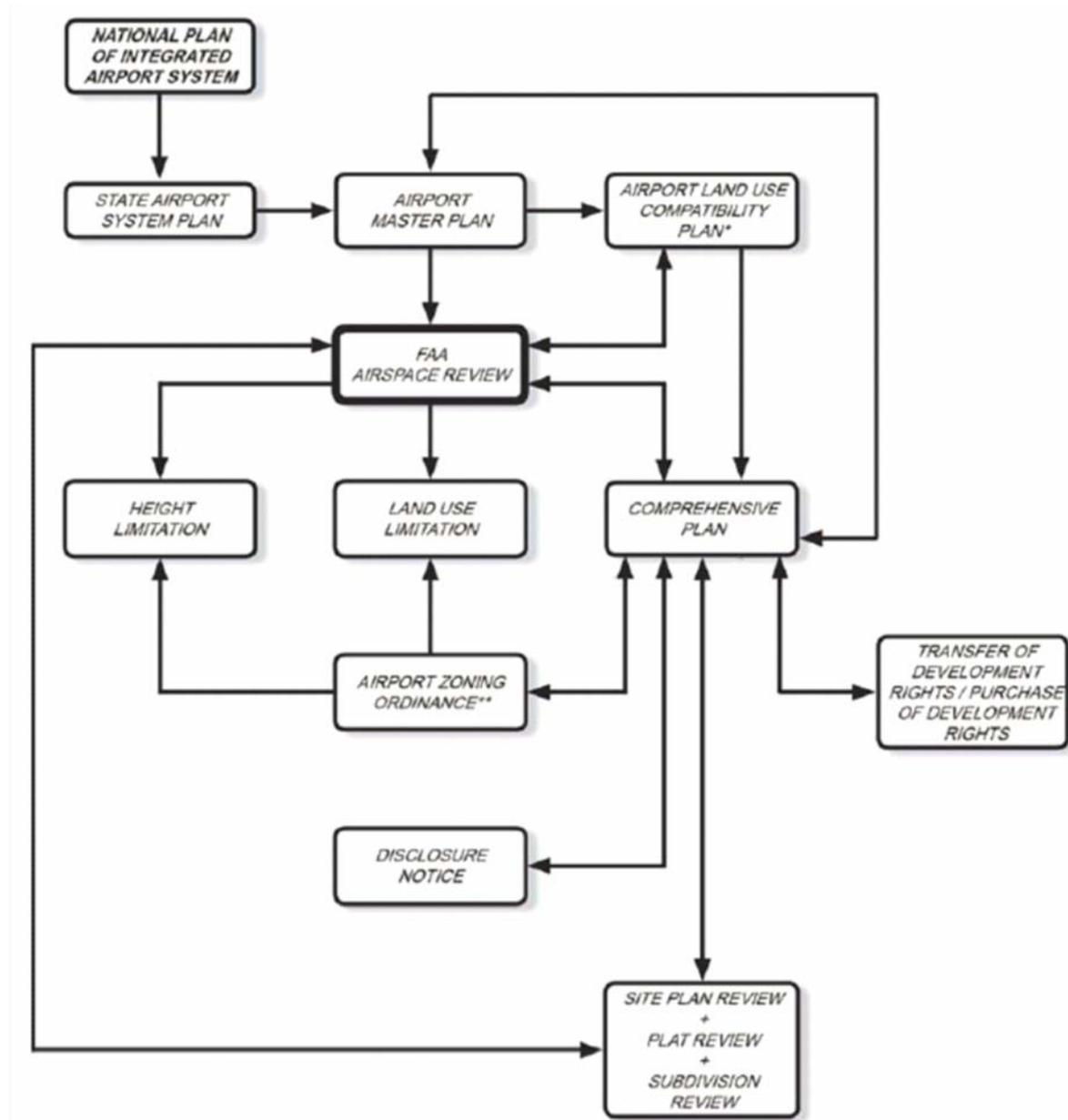
Technique	Description	Key Value	Primary Shortcoming	When to Use	Primary Responsibility
Airport Master Plan / Airport Layout Plan	Long term planning document with goals, objectives, maps, charts and text – typically has a twenty-year window for proposed development	Provide guidance for future growth and development of the airport	Addresses only airport growth and development and usually does not consider the growth and development happening in the surrounding communities	Should be utilized to coordinate organized growth and development for both the surrounding communities and the airport as well and should be evaluated every 5-years or after significant development has occurred to assess the progress of development and updated accordingly, if necessary	RIAC
Height Zoning Ordinance	Regulate the height of structures, objects, or natural vegetation within the airport’s environs	Eliminate hazardous conditions for aircraft utilizing the airport	Only regulates height concerns and does not address additional safety hazards such as visual obstructions, noise, wildlife and bird attractants, and concentrations of people	Should be utilized in conjunction with or as part of airport overlay zoning ordinance	RIAC; Local Unit of Government (i.e. municipality)
Site Plan / Plat Review	A set of plans that illustrates the type of development or amount of divisions a parent parcel of property will be divided	Plans that contain a detailed description of the parcel of property to be split and the type of proposed development/ expansion, location within the parcel of property, material being used, vegetation, etc.	Municipality may not address airport needs and concerns prior to approval of site plan/ plat review	Should be utilized for any development new or existing to ensure that development is airport compatible	Local Unit of Government (i.e. municipality); Local Planning Commission; Local Planning Staff

Source: ACRP Report 27 – Enhancing Airport Land Use Compatibility; Mead & Hunt, Inc.

Strong local leadership and support from elected officials is important to successful planning efforts at the airport and community level. Engaging and educating local citizens within the vicinity of an airport is essential to create an effective working relationship between elected officials, local airports, and residents. This greater understanding by all participants can enhance the implementation process of planning related strategies. **Figure 3-4** illustrates the relationship between the various planning techniques. The pages that follow

discuss the preventative tools that are available to local governments for regulation around airport property.

Figure 3-4. Relationship of Planning Strategies Diagram



Source: Adapted from ACRP Report 27 – Enhancing Airport Land Use Compatibility; Mead & Hunt, Inc

Planning techniques serve as the foundation from which preventative and corrective mitigation measures can be implemented for compatible land use issues that involve existing developments, future growth of the airport, and surrounding communities. These planning techniques are typically utilized in three forms:

plans, ordinances, and regulations. Planning documents (plans) provide the basis for the development of ordinances and regulations, which provide structure for the implementation of land use controls. Ordinances are legal documents that are developed by municipalities to regulate land uses and associated activities with designated locations to protect, preserve, and enhance the quality of life for residents. Regulations are the tools that provide authority for the day-to-day implementation of an ordinance. The combination of all three of these techniques is necessary for effective land use planning.

Ordinances reflect what is written in a community's comprehensive plan and are effective tools to reduce incompatible land uses surrounding airports. When a local municipality undertakes the development of a zoning ordinance for land use compatibility, consideration should be given to current zoning and approval actions required by state agencies. A legal review of the proposed airport land use and height overlay zoning ordinance is suggested to determine if the ordinance is consistent with local and state regulations.

Zoning ordinances are used to specify permitted, regulated, and/or restricted land uses that may endanger the health, safety, and welfare of citizens. Ordinances that regulate airport land use and height should be incorporated into a town's comprehensive zoning ordinance to protect the safe operation of airports and movement of aircraft, as well as the safety of people on the ground in proximity to airports.

1. Airport Land Use Compatibility Planning

Preservation of airports from incompatible land use can be enhanced through the development and implementation of proactive measures of airport land use compatibility planning. Such efforts provide airport sponsors, government officials, planners, and citizens the guidance necessary to address land use compatibility issues. This Guidebook represents RIAC's current efforts with respect to airport land use compatibility in Rhode Island. When actively employed, it will prove to be the key tool to ensuring that appropriate planning is conducted for land use compatibility around its airports. Through diligence in implementing these guidelines, RIAC and host communities can accommodate compatible growth and development of airports, as well as protect and allow for future growth and development of the community.

2. Local Comprehensive Plan

A local comprehensive plan is a strategic long-range document that addresses land use as it relates to growth and development of a municipality. With respect to airports that lie within a given community, it is critical that comprehensive plans acknowledge and address the issue of land use compatibility near airports. While subsequent sections below address specific airport land use compatibility planning and zoning techniques, it cannot be understated that the strength and value of those techniques for Rhode Island is almost always rooted in the local comprehensive planning process. Therefore, it can be rightly stated that sound local comprehensive planning serves as the foundation of appropriate airport land use compatibility.

In Rhode Island, local governments use comprehensive plans to guide the development of zoning ordinances, master plans, and airport land use compatibility plans in order to make coordinated decisions regarding compatible land use within the airports jurisdictional boundary established by the planning process. Comprehensive plans can look 40-50 years into the future, while airport master plans/layout plans, and airport land use compatibility plans use a 20-year planning time frame.

It is important to note that the establishment of this Guidebook is in part designed to help ensure that appropriate airport planning documentation is included in relevant comprehensive plans. As stated above, Rhode Island General Laws Title 1, *Aeronautics*, requires that municipalities that host part or all of an airport hazard area must:

- a) adopt, administer and enforce airport zoning regulations that comply with this ordinance;
- b) consider RIAC's airport airspace plans, as well as the land use and zoning regulations or standards promulgated by the FAA; and
- c) adopt, either in full or by reference, the provisions of CFR Title 14 Part 77, *Objects Affecting Navigable Airspace*.

These considerations must be addressed in the comprehensive plans of municipalities that host an airport. Rhode Island Statewide Planning also views the local comprehensive planning process as a key element to compliance with these General Laws. ***In short, municipalities that contain Airport Hazard Areas must appropriately consider the airport and land use compatibility in their local***

comprehensive plans in order to secure their approval from the State of Rhode Island.

If that planning document does not provide a foundation to support decision making regarding the development of compatible land use in the vicinity of a local airport, it is unlikely that an effective planning process can be accomplished. **As airport sponsor, RIAC must become involved early in the planning process to share the airport needs and future development plans with the local municipality.** This involvement should focus on educating the local municipality regarding the value the airport brings to the community, as well as the need to preserve its operational areas. Specifically, RIAC can become involved in the planning process in several ways:

- Have representation on the planning advisory committee.
- Provide comments during the public comment process.
- Provide comments to other representatives of the advisory / steering committee to present airport concerns and issues.
- Share airport master plans / airport layout plans with the municipality to inform them of planned airport development.
- Become engaged in the general planning process.
- Become involved on a regular basis during the site plan review process, not just throughout the comprehensive planning stages.

3. *Other Regional/Area Plans*

In addition to local comprehensive planning, communities may sometimes develop area plans (i.e. airport critical or sensitive areas, small area, neighborhood, or corridor plans) that identify and address specific needs. These area plans are intended to guide land use decisions that are appropriate within specified, limited locations in the community and usually provide greater detail than found in comprehensive plans. This level of detail and geographic focus makes these plans an excellent place in which to address airport land use needs and concerns, such as identifying noise-sensitive areas and safety-related areas.

It is essential that RIAC, as airport sponsor, be integrally involved in these efforts from an early stage to ensure that the state public use airports are appropriately acknowledged and represented. These plans should reflect both community growth and airport growth, which are essential to ensuring land use compatibility planning efforts protect the airport, the community, and its citizens. Area planning efforts and land use controls are not intended to stifle community growth and

development nor airport growth and development, but to allow the community and the airport to complement each other and grow together.

4. Airport Layout Plan (ALP)/Airport Master Plan

An airport layout plan/airport master plan is a long-range plan that details the planned growth and development of the airport. These plans are typically based on a 20-year planning time frame, and should be updated every five to 10 years. While this look into the future suits the shorter timeframes associated with aviation development and industry trends, it is generally understood to be inadequate for the longer term planning time frames associated with community comprehensive plans. (The contents of an airport master plan are governed by the FAA AC 150/5070-6B, *Airport Master Plans* - see www.faa.gov.)

Involvement of local municipalities in the airport master planning process is an essential element to ensure consistency with local planning initiatives and avoid potential impacts/conflicts with airport development. Typically, an airport master planning process will actively involve local planning departments (in addition to other interested airport stakeholders such as those mentioned in Step One) to both solicit community opinion on future on-airport development, and to provide those local planning departments with an understanding of the airport in terms of its operations, its limitations and its requirements, particularly with respect to off-airport land uses.

An airport master plan/ALP will provide local decision makers with information to help them guide compatible growth and development around the airport. It should be used as a resource for the development of a comprehensive plan or area plan. It should also be provided to local land use decision makers for use when evaluating projects near an airport for compatibility. Additionally, an airport master plan/ALP can assist local land use decision makers with planning for projected growth and development areas for municipalities surrounding airports, and allowing for adequate community growth without encroachment of incompatible land uses upon the airport(s).

In Rhode Island, RIAC is charged with the responsibility of maintaining and updating these plans for the state's public use airports. RIAC will provide the current plans to the local land use decision-makers when they are evaluating projects in proximity to an airport in order to maintain compatible land uses for ultimate airport development.

5. Height Zoning Ordinance

An airport height zoning ordinance is an extraterritorial tool that promotes compatible land use and height limitations within the vicinity of an airport. For Rhode Island, this is particularly important since Rhode Island General Laws Title 1, *Aeronautics*, mandate that those municipalities that host part or all of an airport hazard area adopt, administer and enforce airport zoning regulations that comply with the provisions of CFR Title 14 Part 77, *Objects Affecting Navigable Airspace*, the FAA’s general airport height-related restriction guidance document.

A height zoning ordinance focuses on the safety of the airport and the public by instituting height restrictions for developments beyond airport property lines. Note that it is understood that multiple jurisdictions can fall within an airport’s hazard area. Height restrictions preserve navigable airspace legally mandated by the FAA in Part 77 in which any object or structure that penetrates any of the “imaginary surfaces” is considered to be an obstruction to air navigation and should form the basis for height zoning ordinances.

Part 77 specifically requires that any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA prior to construction:

- Any construction or alteration exceeding 200 feet above ground level.
- Any construction or alteration:
 - Within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 feet.
 - Within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet.
 - Within 5,000 feet of a public use heliport which exceeds a 25:1 surface.
- Any highway, railroad, or other traverse way whose prescribed adjusted height would exceed that above noted standards.
- When requested by the FAA.
- Any construction or alteration located on a public use airport or heliport regardless of height or location.

Notification to FAA for off-airport development is done through web site, Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) that allows for electronic filing of the Notice of Proposed Construction or Alteration (FAA Form

7460-1). Instructions for filing notification for on-airport development can be found at the following web site: <https://oeaaa.faa.gov/oeaaa/external/portal.jsp> and **Appendix I** contains a printed copy of the data required for such a filing.

Also note that **Appendix H**, *Airport Hazard Area Zoning Ordinance Guidance*, provides general guidance to assist the sponsoring party with the development of an Airport Hazard Area Overlay Zoning Ordinance.

6. Site Plan Review and Plat Review

The site/plat plan review process can identify airport land use compatibility concerns, both existing and proposed, that could arise if current airport activities and land use development patterns persist into the future. Local zoning ordinances often require that individuals/developers requesting development approval submit a site plan of the proposed construction to the municipality to verify that the proposed development meets all zoning requirements. For Rhode Island's municipal governments, this review process is typically handled by local zoning officers and/or building inspectors, although application for the building permits, applications for zoning variances, site plan reviews, and subdivision/land development plans will generally be handled by different entities within a municipal government. (It is important to note that this process can vary greatly based on the individual municipality and the type of development being proposed.)

The site plan review process provides an important opportunity for these issues to be discussed between local officials and individuals/developers before the development is allowed to proceed. Plat review is also an important tool in preserving airport environs through the legal evaluation of parcel maps and subdivided parcels before development can begin. Additionally, this process could acknowledge the presence of an airport located within the vicinity if the municipality were to utilize an airport disclosure notice stamp on its plat maps (see disclosure notices section below).

It is critical to recognize that zoning requirements are typically established during local comprehensive planning efforts, because once a proposed development plan gets to (1) the site plan process, (2) the building permit process, (3) the subdivision process, or (4) the development process, the zoning has already been established through the comprehensive planning process. One may be able to identify, but cannot correct a municipality's zoning problems through any of these

four processes because by that point in the development process, land owners already have established rights for development. Therefore, development of effective review processes, such as consideration of high concentrations of people, development densities, and potential impacts to local airports, originates with the local comprehensive planning process. Beyond this, municipalities and RIAC should coordinate on development proposals where appropriate on an individual basis.

Natural Features Techniques

Natural features should be considered in airport zoning and land use planning. As tall trees or the presence of wildlife can threaten navigable airspace, effective planning is critical for safe aircraft operations. Techniques used to promote natural features compatibility with the airport include addressing wildlife hazards and vegetation concerns should be actively considered. These techniques are discussed in the following sections. Additionally, note that these techniques are summarized below in **Table 3-14**, which also identifies the agencies generally responsible for administering the various natural feature planning tools. In many instances, other agencies may need to be involved or engaged in the development of these techniques to facilitate successful implementation.

Table 3-14. Summary of Natural Features Land Use Compatibility Techniques

Technique	Description	Key Value	Primary Shortcoming	When to Use	Primary Responsibility
Wildlife Management	Specific planning tool which assesses wildlife hazards within airport environs	Inventories and identifies existing wildlife activity and habitats to determine potential wildlife hazards	Continuous monitoring and control measures must be used to reduce or eliminate wildlife attractants	Should be utilized to reduce or eliminate wildlife activities such as migratory bird patterns or other wildlife concerns and habitats on or near airport property and in conjunction with FAA wildlife strikes Form 5200-	RIAC; Various State Agencies; FAA; U.S. Department of Agriculture Animal and Plant Inspection Services Wildlife Services; U.S. Fish & Wildlife Services
Vegetation Management	Specific planning tool which assesses vegetation within airport environs	Inventories and identifies existing vegetation hazardous to airport operations and safe aircraft movement	Vegetation may not be on airport property, therefore, creating a challenge to remove, trim, or mark	Used in conjunction with easements or land acquisition to mitigate the height of vegetation which penetrate allowable heights within the critical flight paths	RIAC; Various State Agencies; FAA; U.S. Department of Agriculture Animal and Plant Inspection Services Wildlife Services

Source: ACRP Report 27 – Enhancing Airport Land Use Compatibility; Mead & Hunt, Inc.

1. Wildlife Management

Wildlife management is an important and growing point of focus for FAA. In 2009, the National Transportation Safety Board (NTSB) recommended that FAA verify that all federally obligated general aviation airports comply with the requirement to perform Wildlife Hazard Assessments. This recommendation resulted from the NTSB's investigation of aircraft accidents resulting from bird strikes. While important from an aircraft safety perspective, these assessments and any resulting recommendations can also have congruent benefits for airport land use compatibility.

A significant amount of research has been completed on issues pertaining to wildlife management and is consolidated in the FAA/Department of Agriculture, *Wildlife Hazard Management at Airports* manual. This manual was developed for airport personnel and provides a large amount of information related to wildlife hazards on or near airport environs. In order to further address this issue, ACRP recently completed Report 32, *Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports*, which provides guidance for general aviation airports to reduce hazards related to wildlife strikes.

The *Wildlife Hazard Management at Airports* manual should be consulted to develop site-specific wildlife management plans for the reduction or elimination of wildlife attractants on or near airport property. Implementation efforts to monitor wildlife activity are an important step to determine how to protect airports from wildlife hazards, such as aircraft strikes with deer and birds, based upon the specific wildlife concerns. (The *Wildlife Hazard Management at Airports* manual can be referenced at the following web site: www.faa.gov/airports/airport_safety/wildlife/guidance/.)

With respect to airport land use compatibility, it is important that wildlife management initiatives consider both their potential positive and negative impacts to the airport including limitations to vegetation heights and other wildlife attractants. Additionally, results from these wildlife assessments must also be considered with respect to any land use or zoning issues around an airport so that a new problem is not introduced or an existing problem is not exacerbated.

As airport sponsor, RIAC is responsible for the creation and maintenance of Wildlife Management planning documentation for any airports required in conformance

with FAA standards. RIAC will provide a copy of the latest Wildlife Management planning documentation for its airports, as needed.

2. Vegetation Management

In order to protect navigable airspace and the safe movement of aircraft, the establishment and maintenance of a Vegetation Management Plan (VMP) is recommended. This plan would contain an inventory of existing vegetation within the runway approach areas and RPZs, and should be designed to establish control measures to limit the height of trees, objects, and structures within these areas. Efforts should be made to limit the existence of vegetation in proximity to airport environs due to height and wildlife attractant hazards. Planting species of vegetation with short growth heights can be an effective management tool. As such, VMPs must be considered with respect to any land use or zoning issues around an airport so that a new problem is not introduced or an existing problem is not exacerbated.

As airport sponsor, RIAC is responsible for the creation and maintenance of any VMP for its airports. RIAC will provide a copy of the latest VMP for its airports, as needed.

Acquisition and Notification Strategies

Acquisition and notification techniques are fundamental components of most airport land use compatibility programs. Through raising awareness of the proximity of an airport through notifications, or by direct acquisition of lands or rights to land, land use compatibility is enhanced.

As a prevention and mitigation technique, land acquisition and notification techniques can be used to remove, lower, or control existing land uses within the RPZ and areas very close (i.e. “close” as defined by the requirements of the host community) to airport environs. As a preventive tool, acquisition or notification to property owners should take place prior to the development of a conflicting land use to limit future incompatible uses. Notification to a property owner will alert an owner of potential compatibility concerns and may define a compensation for an impact identified as part of an easement.

Table 3.15 below provides a summary of the acquisition and notification techniques identified in this section, as well as important details about each. The table also includes information regarding which agencies are generally responsible

for administering the various planning tools. In many instances, other agencies may need to be involved or engaged in the development of these techniques to facilitate implementation. Additionally, it should be noted that example documentation for these acquisition and notification categories has been provided in **Appendix G**, *Model Documents*.

1. *Fee Simple Acquisition*

Fee simple acquisition is the process by which an airport sponsor purchases property from the existing property owner in its entirety, including the structures and/or facilities on the property, as well as the air and mineral rights. Although often expensive, this is the most effective mitigation strategy to protect an airport since the airport assumes sole ownership of the property, thus allowing the airport sponsor to maintain the property in a compatible manner. The FAA recommends airport sponsors own, where practicable, the property within the RPZ and highly recommends ownership within the inner runway approach areas.

The federal process outlined in FAA AC 150/5100-17 Change 6, *Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects* (see www.faa.gov); the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) (see www.fhwa.dot.gov/realestate/act.htm), and the Federal Aviation Reauthorization Act of 1994 FAR Part 24 must be adhered to when property is purchased with federal funds.

2. *Avigation and Noise Easements*

An easement is a right or privilege that one party has over the property of another party and is often purchased by an airport sponsor to protect the surrounding air space from incompatible development or encroachment. An easement is a legal document, which is attached to the property title/deed and places existing and future property owners on notice that their property can be subject to noise impacts and other land use controls associated with the airport. Avigation easements can be utilized to mitigate existing incompatible land uses that are hazardous to airports and aircraft operations, such as trimming natural vegetation back to appropriate heights. (**Figure 3-5** illustrates a sample penetration to an approach surface, which an airport may work to remedy with an avigation easement.)

Table 3-15. Summary of Acquisition and Notification Land Use Compatibility Techniques

Technique	Description	Key Value	Primary Shortcoming	When to Use	Primary Responsibility
Acquisition / Easement Techniques					
Fee Simple Acquisition	Purchase of land and all land use rights	Complete control over future and pre-existing land uses is vested with airports; not reversible	Often very costly with possible legal opposition. Land removed from tax roles	Protection of RPZs and areas subject to high levels of noise impact. Effective to resolve existing problems and avoid future problems. FAA grant may be available for acquisition	RIAC
Avigation and Noise Easements	Obtain the rights to use or restrict use in a specified manner	Provides more positive control than zoning. Less expensive than fee simple acquisitions, land may remain on active tax roles. Attached to the title of the property	Does not completely alter existing incompatible land uses. Does not prevent political action to prevent airport expansion or future operational restrictions	Used to compensate land owner for impacts and to gain right to remove obstructions (i.e., trim trees) and limit future growth on the property	RIAC
Acquisition / Easement Techniques					
Conservation Easements	Obtain the rights to restrict the uses of a parcel of property which is attached to the deed / title of a parcel of property which follows the property in perpetuity	Restricts and preserves land at its current use best used for agriculture, forest, wetlands, scenic or open space land	Does not completely alter existing incompatible land uses. Does not prevent political action to prevent airport expansion or future operational restrictions	Used to preserve land within critical flight paths to mitigate or prevent incompatible land uses from encroaching on airport environs	RIAC
Transfer of Development Rights	Property development rights transferred to alternative geographic location	Less costly than fee simple acquisition; allows buildable value to be shifted to a different site, maintaining taxable property	Applicable in limited situations and requires creation of a TDR market. Requires coordination and local or state funding may be required	TDR opportunities may substantially differ between cities and states. Coordination with local authorities regarding the legality of the use of a TDR is suggested	RIAC
Purchase of Development Rights	Property development rights are purchased by local government and held in perpetuity	Less costly than fee simple acquisition; allows property owner to be compensated	Requires coordination and a funding mechanism, typically a local or state source	PDR opportunities may substantially differ between cities and states. Coordination with the local community and aviation agency is suggested	RIAC

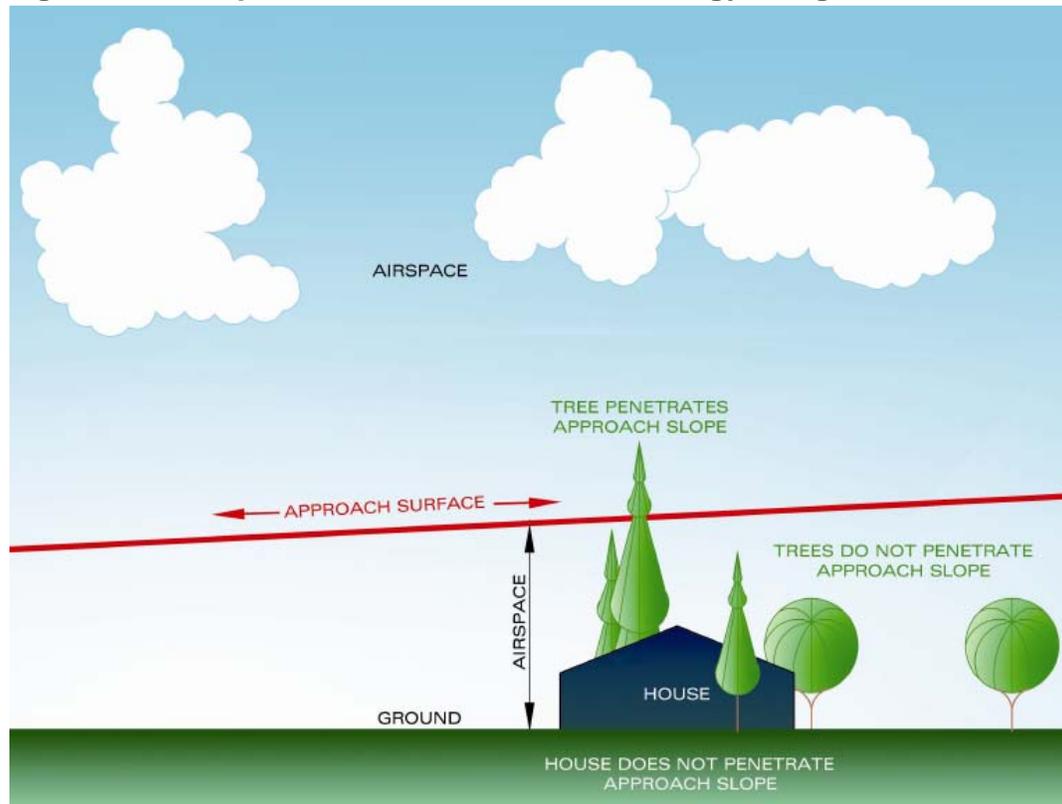
Source: ACRP Report 27 – Enhancing Airport Land Use Compatibility; Mead & Hunt, Inc.

Table 3-15. Summary of Acquisition and Notification Land Use Compatibility Techniques, *continued*

Technique	Description	Key Value	Primary Shortcoming	When to Use	Primary Responsibility
Agreement / Notification Techniques					
Non-Suit Covenants and Hold Harmless Agreements	Legal document between property owner and airport sponsor that is recorded with the property title	Typically used in conjunction with an avigation or noise easement, property owner agrees to NOT hold the airport liable for any land use issues	Does not alter existing incompatible land uses but merely acknowledges the existence of an issue. Does not limit future incompatibilities. Does not prevent political action to prevent airport expansion or future operational restrictions	Used to record impacts and notify a property owner of the potential impacts while removing liability for an airport	Local Unit of Government (i.e. municipality)
Disclosure Notice	Legal document between property owner and airport sponsor that is recorded with the property title	Informs the property owner of potential issues with developments near an airport and discloses the issues	Does not alter existing or future land issues; is an informative type tool only. Does not prevent political action to prevent airport expansion or future operational restrictions	Suggested for inclusion when a new subdivision or development is established near an airport	RIAC; Local Unit of Government (i.e. municipality)

Source: ACRP Report 27 – *Enhancing Airport Land Use Compatibility*; Mead & Hunt, Inc.

Figure 3-5. Acquisition and Notification Strategy: Avigation Easements



Source: Mead & Hunt

Avigation and noise easements should be used in conjunction with a broader land use plan and must be enforced to ensure their success. Easement acquisitions are governed by the same rules that apply to the fee simple process, including the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, *Federal Aviation Authorization Act of 1994 FAR Part 24*, and associated FAA advisory circulars.

Different forms of avigation easements may be acquired to address the specific needs in a geographic area or the condition of the existing property. For example, an avigation easement within an RPZ area may preclude any future development of structures, as well as limit the height of natural vegetation, while an easement within an approach area may only limit the allowable height of structures or vegetation. The details associated with each easement should be based upon review of the specific property concerns and airport needs.

3. Conservation Easement

Similar to an aviation or noise easement, a conservation easement legally preserves land that is attached to the property title or deed in perpetuity and is registered with the municipality. A conservation easement allows for restrictions to be placed on the type of land uses that can be developed on a specific parcel of property. Typically conservation easements are utilized to protect land from certain development types. These restrictions can be used to preserve and mitigate land underneath critical flight areas such as approaches and departures paths, RPZ, runway extended centerlines, aircraft overflight areas, as well as noise sensitive areas.

Conservation easements are generally best used on agricultural, forest, wetland, scenic, or open space land to limit or prevent the development of incompatible land uses on or near airport environs. However, the land continues to be privately owned and managed, therefore still allowing the land to be utilized by the property owner. A conservation easement is intended to legally protect land against future growth and development, which may be incompatible with airport operations while allowing the current land use to be maintained.

4. Transfer of Development Rights

A tool which has been used in other areas of development is the concept of Transfer of Development Rights (TDR). A TDR program involves separation of property ownership and the use of rights associated with a parcel of land. Under a TDR, the development rights of a property are transferred to an alternate location where they may be used to intensify allowable development. For example, land identified in a local comprehensive plan may be zoned to allow medium density housing, but if this land were to fall within a runway approach zone, the local municipality may allow the property owner to transfer the development rights from this property to another piece of property within the community that would otherwise not be zoned for medium density housing. This would allow the property owner to benefit from the developments potential but within a different geographic location, which is more compatible with airport operation.

Funding for a TDR program typically comes from a local or state-developed program focused on the preservation of a certain resource. The governing entity that purchases the land holds the development rights in perpetuity, thereby, restricting development that would otherwise take place.

5. *Purchase of Development Rights*

Under a Purchase of Development Rights (PDR) program, the ownership and the use rights associated with a parcel of land are separated. Typically the local airport sponsor purchases the development rights of a parcel deemed worthy of protection. The property owner can maintain ownership of the property and can sell the property at a later date. However, the land uses allowed on the property are maintained within the PDR agreement. For example, if property near an airport is deemed important to the preservation of an airport, an airport sponsor may elect to purchase the development rights or “value” of subject property using a PDR program. This pays the property owner for the right to maintain the property as it is. This tool has most often been used for preservation of environmentally sensitive areas and agricultural properties.

Funding for a PDR program typically comes from a local or state program focused on the preservation of a certain resource. The governing entity that purchases the land holds the development

6. *Nonsuit Covenants and Hold Harmless Agreements*

Nonsuit covenants and hold harmless agreements are legal contracts between a property owner and an airport sponsor, which acknowledge the potential for incompatible land use issues. A non-suit covenant or hold harmless agreement is typically used in conjunction with an aviation and noise easement. These agreements legally record that a property owner has agreed not to sue an airport over noise or other land use incompatibility issues, because the property owner acknowledges the issues exist.

Nonsuit covenants or hold harmless agreements may monetarily compensate a property owner for the agreement depending upon the specific situation. Neither will alter incompatible land uses, nor limit future incompatibilities. They are merely declaration of acknowledgement between the two parties.

7. *Disclosure Notices*

Disclosure requirements can be an effective way to notify future property owners of their proximity to an airport or area impacted by aircraft use. A disclosure notice typically is a recorded legal document that follows the title for a specific parcel of property in perpetuity. Disclosure requirements can be established as part of a site plan review, local zoning ordinance, or can be a standalone process for properties near-airport environs.

A disclosure notice may also be as simple as a stamp placed on an individual property plot map that provides notification of the existence on Airport Hazard Area in the vicinity. The notice may indicate potential safety hazards and noise issues associated with living near an airport. Of particular note is a real estate disclosure notice which is intended to make a property buyer aware of any land use compatibility issues that may arise on a piece of property near an airport, as well as the various easements, agreements, and rights that may already be in place on the property.

The State of Rhode Island does require real estate sales disclosures for real estate transactions. Of the 35 requirements specifically identified under R.I.G.L Title 5. *Businesses and Professions*, Chapter 20.8. *Real Estate Sales Disclosures*, § 5-20.8-2. *Disclosure requirements*, Airport Hazard Areas or other airport-related requirements are currently not specifically addressed. However, zoning-related issues (which could reasonably be inferred to include Airport Hazard Areas) are contained in the state disclosure requirement. They are addressed in the following manner:

Buyers of real estate in the state of Rhode Island are legally obligated to comply with all local real estate ordinances; including, but not limited to, ordinances on the number of unrelated persons who may legally reside in a dwelling, as well as ordinances on the number of dwelling units permitted under the local zoning ordinances.

Noise Related Techniques

Aircraft noise is a major concern for land use compatibility planning. Prevention and mitigation options are typically costly and can include but are not limited to the following: sound insulation, noise barriers, noise abatement departure procedures, and land acquisition. For large, primary service airports like T.F. Green, noise mitigation options are usually guided by AC 150/5020-1, *Noise Control and Compatibility Planning for Airport*; FAR Part 150, *Noise Study*; and the development of noise compatibility plans.

Noise compatibility programs are the resulting work products of an intensive planning process that brings together various key airport and community stakeholders, and develops techniques to establish and maintain compatible uses in areas around the airport based upon noise. The requirements for development of the program are identified in 14 CFR Part 150 and utilize various types of noise abatement or mitigation alternatives that are designed to limit the amount of

aircraft noise affecting populated areas, and to encourage land uses compatible with the aircraft noise that can not be abated.

However, it is important to note that Part 150 studies are considered to be practicable only for larger airports that experience significant levels of aircraft activity, like primary commercial service airports such as T.F. Green. Experience nationwide has shown that for smaller, low activity general aviation airports, like the five state-owned Rhode Island airports, Part 150 noise compatibility evaluations are not an effective planning tool. Therefore noise-related techniques that typically result from such Part 150 noise studies have not been included in this Guidebook. As such, **Table 3.16** lists the noise related technique appropriate for the Rhode Island general aviation airports.

Table 3-16. Summary of Noise Related Land Use Compatibility Techniques

Technique	Description	Key Value	Primary Shortcoming	When to Use	Primary Responsibility
Building Codes	Building codes implemented by the local unit of government can be an effective way to minimize aircraft noise impacts	Construction zoning regulations require the use of noise reduction materials and techniques that minimize the amount of aircraft noise impacts on the indoor environment	Increased cost of construction materials, thereby increasing the cost of the home / structure to potential buyers	Should be utilized within airport noise impact areas as determined by either the Noise Compatibility Program or by local criteria	State Building Commission; Developers; RIAC

Source: ACRP Report 27 – Enhancing Airport Land Use Compatibility; Mead & Hunt, Inc.

Building Codes

In order to promote good health, safety, and welfare of citizens, implementing building codes that target the reduction of noise is recommended. Regulating new construction, alterations, remodeling, repairs, maintenance, and changes of use within homes or structures impacted by aircraft noise provides protection from exterior noise levels that may affect the quality of life for citizens in proximity to airports. Noise can enter homes and structures in multiple ways, and the intent of implementing building codes is to reduce those potential entry points through the use of construction methods and building techniques designed for noise reduction.

The level of noise acceptable to persons in the vicinity of an airport is ambiguous and can vary depending on the amount of ambient noise, which can mask aircraft noise intrusions. Noise sensitive land uses such as residential, institutional

(schools), hospitals, hotels/motels, elder care homes, places of worship, etc., may be required to utilize specific building construction techniques or meet noise insulation requirements defined in building codes, that reduce interior aircraft noise. The following building code provisions represent a sampling of criteria that could be incorporated into the local ordinances to limit or prevent further noise incompatibility in proximity to airports; however, it is not all inclusive:

- Require specific exterior wall materials to reduce noise impacts;
- Limit the amount of penetrations through exterior walls; if a wall is penetrated caulk or fill should be utilized to prevent a path for noise to travel;
- Prohibit the use of window or through-the-wall uses such as:
 - Ventilation units / air conditioning units; and
 - Mail boxes.
- Require specific rough frame and sheathing construction methods to reduce noise impacts;
- Require insulation minimums to dampen noise effects;
- Require noise reducing windows and doors, as well as require weather stripping to limit access points for noise to enter the home/structure;
- Require combined roof and ceiling construction methods that will not allow noise intrusions to penetrate from the top of the home/structure;
- Regulate the use of exterior ventilation such as:
 - Enforce the use of ventilation units that provide a fresh air supply and cooling;
 - Limit the size and amount of gravity vent openings;
 - Regulate forced ventilation units and ducts to require specific insulation methods to dampen and reduce noise while traveling through the tubes; and
 - Mandate the use of well-fitted dampers on fireplaces.

Building code provisions such as these can also be used to mitigate noise in areas affected by highways, railroads, arterial roads, and other nonresidential sources of excessive noise.

However, it is important to recognize that Rhode Island has a statewide building code that cannot be amended or superceded by local ordinances in any way, per Section 23-27.3-100.1.7 of the State Building Code. This applies even if local requirements actually apply more rigorous standards. As such, any changes to the state building code designed for use within Airport Hazard Areas would have to

follow the state process outlined in the code. Generally, the code states that it can be amended triennially through application to and approval by the state building code standards committee, then application to and ultimately approval by the state legislature.

3.5.3 Step Four Outcomes

Completion of **Step Four** should result in the following:

- A clear understanding of what is required of RIAC and the airport host communities under R.I.G.L. with respect to airport zoning.
- A Land Use Compatibility Plan and a commitment by RIAC and those airport host communities to meet the requirements for airport zoning under R.I.G.L.
- An understanding of the Rhode Island Airport Land Use Compatibility program, including the defined, accepted methods for the prevention, mitigation, and limitation of airport incompatible land uses.

3.6 Step Five: Implementation

As sponsor and manager of the state airport system, RIAC must be the advocate, educator and facilitator in ensuring compatible land use around Rhode Island's state airports. It is also RIAC that must lead the effort to promote an understanding of the importance of airports and the need for securing compatible land use zoning and policies. And most importantly, RIAC must work closely with local officials and the RI Statewide Planning Program to develop local comprehensive plan elements, zoning regulations, and airport zoning ordinances that:

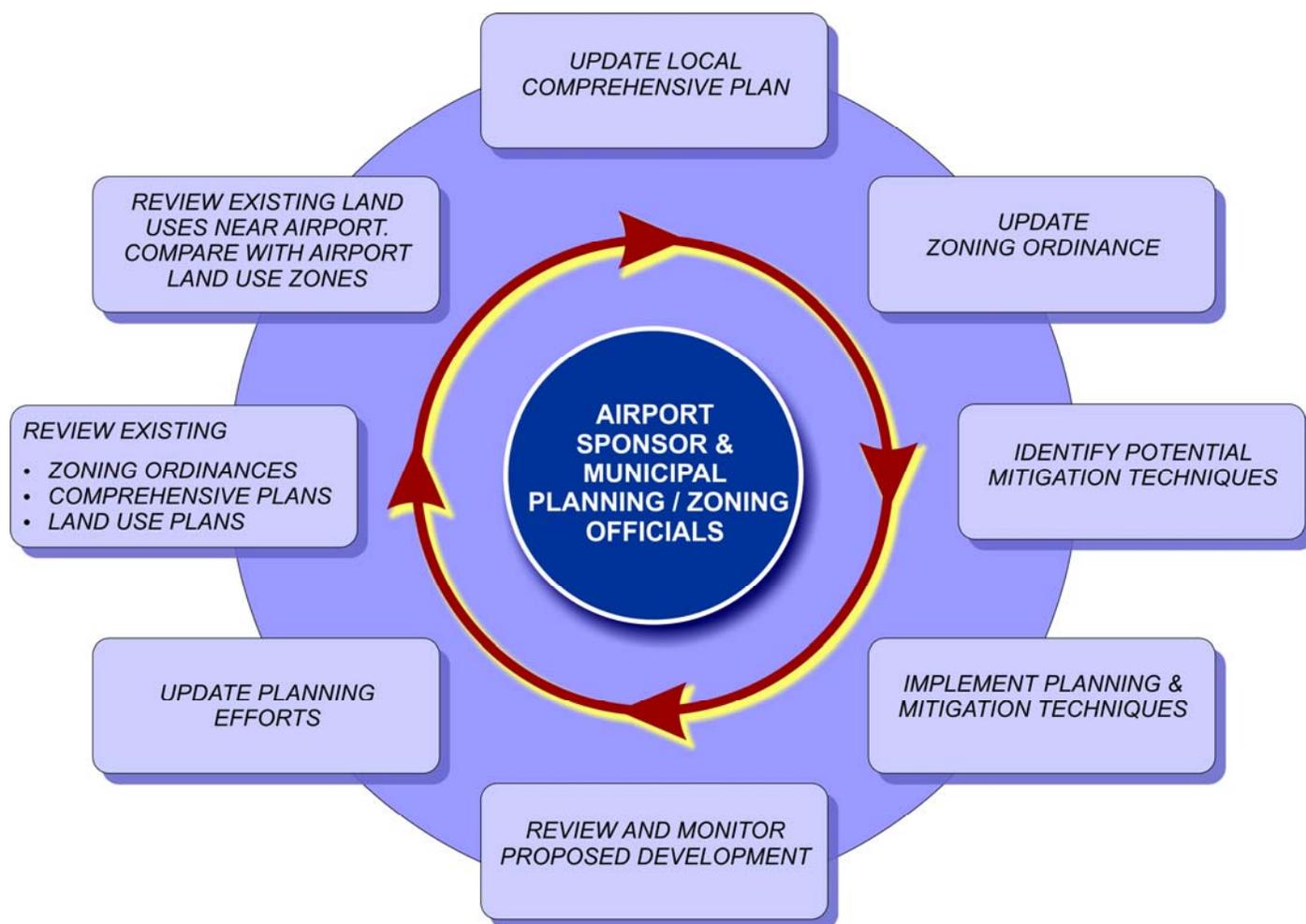
- Preserve the viability of airports;
- Minimize and mitigate potential safety and noise impacts on surrounding areas;
- Preserve adequate space for airport operations, expansion, and safety zones; and
- Protect airport environs from encroachment and incompatible land uses.

In partnership with local officials, RIAC needs to remain alert to proposed development or expansion projects within the airports' environs to ensure compatibility with the airport and the safe movement of aircraft. Educating and informing local citizens of the importance of compatible land uses around airports

is essential to the preservation of the aviation system and the safety and quality of life of persons on the ground in the proximity of local airports.

Planning is a cyclical process that requires continual monitoring and updating to implement and maintain compatible land uses near airports. This process is necessary to continually evaluate and assess land use concerns as they change and evolve within individual communities. **Figure 3-6** illustrates the cyclical process of evaluating and planning. Utilization of the various techniques referenced in this chapter is recommended to create a multifaceted approach to the development of appropriate land use planning tools that meet or address individual community and airport needs.

Figure 3-6. Land Use Compatibility Actions



Source: Adapted from *Iowa Airport Land Use Guidebook*, 2008

Public education and outreach during airport and local planning efforts are essential in preventing future incompatible land use issues. It will also enhance the credibility and success of airport and local planning efforts.

3.7 Summary

Many communities have some form of existing incompatible land use in proximity to a local airport. It is important to develop strategies to mitigate incompatibilities in order to maintain the safe and efficient use of airports, as well as protect the safety of local citizens on the ground. It is essential to protect Rhode Island's airports through a wide variety of mitigation and preservation techniques, since each airport has its own unique set of land use issues. This effort begins with a solid understanding of the existing and future needs of the local airport as well as the local community. Using this Guidebook as a foundation, RIAC and the host communities can move forward to develop complementary comprehensive plans and airport master plans/airport layout plans which can guide the development of airport compatible land use that utilizes a number of techniques, including planning, zoning, acquisition and notification, natural features, and noise mitigation.

This Page Intentional Left Blank



Airport Land Use Compatibility Planning:

Planning Checklist

In This Chapter

A planning checklist to assist those following the steps outlined in Chapter 3A to establish Airport Land Use Compatibility. This checklist provides direction through and a record of the planning process.

This Page Intentional Left Blank

Airport Land Use Compatibility Planning Checklist

Use this checklist as a resource and as a record of your airport land use compatibility planning efforts. This checklist is supported by the worksheets that appear in **Chapter 3C**.

Date: _____

Airport Name: _____

Planning Organization: _____

Airport Point of Contact: Rhode Island Airport Corporation (RIAC)

Name: _____

Phone: _____

City: _____ **State:** _____ **Zip:** _____

Step One: Getting Started and Gathering Data

Tasks

- The initial study area has been identified
- RIAC has been contacted
- Applicable RIGL has been reviewed
- FAR Part 77 Regulations has been reviewed
- A joint consultation meeting has been conducted with RIAC and Statewide Planning Program
- Input received from Airport manager, Pilots and Airport businesses (FBOs)
- The airport's role, key features, and activity levels have been identified and documented
- Inventoried existing land uses around the airport and existing land use plans

Supporting Worksheets

- Worksheet 1A - Goals and Objectives of Airport Land Use Compatibility Planning
- Worksheet 1B - Challenges to Airport Land Use Compatibility Planning
- Worksheet 2 - Airport Data Checklist: Context, Features, and Activity

Data and Products

- Airport Master Plan (AMP) and Airport Layout Plan (ALP)
- Rhode Island Airport System Plan (RIASP)
- Existing Town Comprehensive Plan for policies and land use map
- Map of the initial study area/Airport Hazard Area
- Regional Transportation Plans
- Existing local area parcel maps
- Existing local area land use map
- Existing local area topography map
- Existing local area environmental sensitive areas map
- Local development regulations and zoning map

Step Two: Delineate the Airport Hazard Area

Tasks

- Delineate the airport hazard area
- Identify the impacts of airport and aircraft air, noise, light, and vibration
- Identify the protected airspace requirements protection
- Identify the airport traffic pattern
- Analyze the existing land uses, topography, airport operations
- Analyze the airport master plan/ALP, comprehensive plan, and other supporting plans

Data and Products

- Airport Hazard Area boundary map
- Airport Layout Plan (ALP)
 - Airport map showing airport facility information airport runway, taxiway, apron, terminal
 - Airport airspace map showing FAR Part 77 Imaginary Surfaces and Elevations
 - Airport land use plan, including compatibility zones applicable to each runway end
- Airport traffic pattern diagrams

Step Three: Identify Land Use Compatibility Concerns

Tasks

- Determine the compatibility of existing land uses in the Airport Hazard Area
- Identify potential compatibility conflicts
- Identify strategies to address incompatibility issues

Relevant Worksheets

- Worksheet 3A - Compatibility Status of Existing Land Uses
- Worksheet 3B - Potential New Incompatible Uses
- Worksheet 3C - Compatibility Concerns Based on Current Policy

Data and Products

- List of current comprehensive plan policies affecting air transportation and land use development in the Airport Hazard Area
- List of compatibility conflicts and land use status
- Identification of potential future compatibility conflicts
- List of specific compatibility issues and strategies to be addressed by new policies

Step Four: Develop Airport Land Use Compatibility Plan

Tasks

- Analyze advantages and disadvantages of planning strategies
- Identify comprehensive plan policies that address land use compatibility within the Airport Hazard Area
- Coordinate the proposed plan with RIAC and Statewide Planning Program
- Prepare a Draft Land Use Compatibility Plan with Implementation Strategies
- Circulate the proposed draft compatibility plan for review
- Develop a Final Land Use Compatibility Plan with Implementation Strategies

Relevant Worksheets

- Worksheet 4A - Current Policy
- Worksheet 4B - Compatibility Policy Findings
- Worksheet 4C - Alternatives Analysis
- Worksheet 4D - Airport Hazard Area Adjustments

Data and Products

- Draft and final Airport Land Use Compatibility Plan (including Airport Hazard Area plan)

Step Five: Implementation

Tasks

- Implementation strategies have been identified
- The compatibility plan has been completed and circulated to agencies and the public for comment
- As required, public communication and workshops and meetings have been held
- The public and aviation stakeholders have had an opportunity to review the proposal and provide comments.
- RIAC has provided comments on the compatibility measures you propose to adopt in your comprehensive plan update.
- Implementation regulations, zoning map, airspace overlay map and compatibility map has been developed consistent with the adopted comprehensive plan.
- Decision-makers have adopted a comprehensive plan update or amendment that contains appropriate measures to protect the airport from encroachment by incompatible land uses.

Relevant Worksheets

- Worksheet 5 – *Implementation Check*

Data and Products

- Open communication lines between local stakeholders and RIAC
- Updated local comprehensive plans to reflect Airport Hazard Areas
- Final land use and zoning regulations for airport compatibility
- Land use compatibility matrix
- Supporting documentation
- Identification of continuing actions and specific points for implementation have been developed



Airport Land Use Compatibility Planning:

Planning Worksheets

In This Chapter

Planning Worksheets Listing:

Worksheet 1A - Goals and Objectives for Compatibility Planning

Worksheet 1B - Challenges to Airport Land Use Compatibility Planning

Worksheet 2 - Airport Data Checklist: Context, Features, and Activity

Worksheet 3A - Compatibility Status of Existing Land Uses

Worksheet 3B - Potential New Incompatible Uses

Worksheet 3C - Compatibility Concerns Based on Current Policy

Worksheet 4A - Current Policy

Worksheet 4B - Compatibility Policy Findings

Worksheet 4C - Alternatives Analysis

Worksheet 4D - Airport Hazard Area Adjustments

Worksheet 5 - Implementation Check

This Page Intentional Left Blank

Worksheet 1A

**Goals and Objectives for
Airport Land Use Compatibility Planning**

What are the primary goals and objectives to be achieved in compatibility planning for the airports in your jurisdiction?

List the top three general project goals:

Goal 1: _____

Goal 2: _____

Goal 3: _____

List the top three specific project objectives:

Objective 1: _____

Objective 2: _____

Objective 3: _____

This Page Intentional Left Blank

Worksheet 1B

**Challenges to
Airport Land Use Compatibility Planning**

1. What particular challenges do you expect to face during the compatibility planning effort? *(Some typical obstacles to compatibility planning include airport expansion, community opposition, etc.)*

Identify your top three challenges to the completion of the project:

Challenge 1: _____

Challenge 2: _____

Challenge 3: _____

2. How do you intend to accomplish the compatibility planning study?

3. Will the study be done as part of the town comprehensive plan or will a separate effort be needed?

4. If a separate effort is required, have you allowed enough time to complete your study before the comprehensive plan?

5. Are there specific issues to be addressed that are arising either because of changes at the airport or development pressures nearby?

List any issues to be addressed:

Issue 1: _____

Issue 2: _____

Issue 3: _____

Worksheet 2

**Airport Data Checklist:
Context, Features, and Activity**

Airport Context

1. Who owns or sponsors the airport and who runs it?

2. What previous planning studies have been completed for the airport?

3. What is the airport’s role per the Rhode Island State Airport System Plan (*State Guide Plan Element 640*)?

- Primary Commercial Air Service (P)
- Commercial Service (CM)
- General Aviation (GA)

4. What is the airport’s role per FAA’s *General Aviation Airports: A National Asset study*?

- National
- Regional
- Local
- Basic
- Unclassified

5. Who uses the airport?

6. Is the airport and its role in the community explicitly addressed in the town comprehensive plan?

a. How does the airport fit into the goals of the community and the region?

b. Has your community adopted specific policies regarding the role of the airport?

c. How is the airport perceived by the general public?

d. Have compatibility problems or other issues become major controversies?

7. Is the airport integrated with other local and state transportation modes?

a. Is the airport an integral part of a multi-modal transportation system within your community and region?

b. What gaps exist between the airport and the current transportation network?

c. What linkages does the airport have with public transportation and freight movement systems?

d. Where do opportunities for better inter-modal connections exist?

8. How does the airport contribute to the community's economy? What is its annual economic impact?

a. Has an airport economic impact study been completed?

b. How many people are directly employed on the airport? What is their estimated payroll?

c. How many people are employed as a result of the airport (direct and indirect employment)? What is their estimated payroll?

d. If possible, what is the replacement value of the airport?

e. How do local businesses utilize the airport?

f. What aviation services does the airport provide to support local businesses (commercial service, charter services, FBOs, etc.)

Airport Features

1. What is the length, width, and surface type for each runway at the airport?

a. Does the airport have a displaced threshold? Which runway end and how long is the displacement?

b. Do the runways have nighttime lighting systems?

c. What are the runways' pavement strength?

d. What are the official coordinates (latitude/longitude) of the runway ends and displaced thresholds?

2. What type of instrument approaches does each runway on the airport have?

3. What is the design aircraft and Airport Reference Code (ARC) for each runway (per the Airport Layout Plan)?

4. What are the future plans for development at the airport? Are changes planned for the runways and instrument approaches?

Airport Activity

1. What is the general composition of aircraft operations at the airport? Is the airport used strictly by general aviation aircraft or are there scheduled airline/charter flights?

2. What types of aircraft use the airport and how often?

Aircraft Type	Based Aircraft		Transient (or Visiting) Aircraft	
	Number Based at Airport	Number of Annual Operations	Aircraft Type	Number of Annual Operations
Single Engine Piston			Single Engine Piston	
Multi Engine Piston			Multi Engine Piston	
Turbine			Turbine	
Jet			Jet	
Helicopter			Helicopter	
Military			Military	
Other			Other	

a. What is the design aircraft for each runway (per the Airport Layout Plan)?

b. What types of aircraft are expected to use the airport in the future?

c. Does the airport support flight school activities, medical services or skydiving operations?

3. How many total passengers (arriving and departing) does the airport serve annually?

4. How many tons of cargo does the airport ship and receive annually?

5. Are there any deviations from the airport's normal traffic pattern typically experienced?

Worksheet 3A

**Compatibility Status of
Existing Land Uses**

Use the following worksheet to inventory the uses that exist within the airport hazard area. Are these uses clearly compatible or incompatible with the airport? Flag the uses that could potentially be incompatible or that you are uncertain about. For each of the following categories, identify the degree to which each is either compatible or incompatible today and explain why.

Agricultural:

1. _____

2. _____

3. _____

4. _____

Airspace Hazards (tall structures, dust, smoke, glare, electronic transmissions):

1. _____

2. _____

3. _____

4. _____

Dining/Entertainment:

1. _____

2. _____

3. _____

4. _____

Educational Facilities/Schools/Day Care Centers:

1. _____

2. _____

3. _____

4. _____

Healthcare (Hospitals/Nursing Homes):

1. _____

2. _____

3. _____

4. _____

Industrial (Manufacturing/Warehousing):

1. _____

2. _____

3. _____

4. _____

Infrastructure (Power Plants/Transmission Lines/Roads):

1. _____

2. _____

3. _____

4. _____

Miscellaneous Uses:

1. _____

2. _____

3. _____

4. _____

Offices/Industrial Parks:

1. _____

2. _____

3. _____

4. _____

Parks/Recreation/Stadiums:

1. _____

2. _____

3. _____

Established Places of Worship:

1. _____

2. _____

3. _____

Residential – Low-Density:

1. _____

2. _____

3. _____

Residential – Medium-Density:

1. _____

2. _____

3. _____

Residential – High-Density:

1. _____

2. _____

3. _____

Retail/Service Uses:

1. _____

2. _____

3. _____

Vacant or Undeveloped Land:

1. _____

2. _____

3. _____

Wildlife Attractants:

1. _____

2. _____

3. _____

Worksheet 3B

Potential New Incompatible Land Uses

Use the following worksheet to inventory the uses that potentially could exist within the airport hazard area in the future based on current land use policy and development plans.

	Future Development	Compatible or Incompatible	Why
Agricultural			
Airspace Hazards			
Dining/ Entertainment			
Educational Facilities			
Healthcare			
Industrial			
Infrastructure			
Miscellaneous Uses			
Offices/ Industrial Parks			
Parks & Recreation			
Places of Worship			
Residential – Low-Density			
Residential – Medium-Density			
Residential – High-Density			
Retail/Service Uses			
Vacant or Undeveloped Land			
Wildlife Attractants			

This Page Intentional Left Blank

Worksheet 3C

**Compatibility Concerns
Based on Current Policy**

List the specific issues that must be addressed to ensure that development of incompatible land uses is avoided in the airport hazard area.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

This Page Intentional Left Blank

Worksheet 4A

Current Policy

List the existing policies, goals, and development regulations affecting the airport influence area. Also note any implicit policies that may affect future land use compatibility.

Policies

1. _____

2. _____

3. _____

4. _____

5. _____

Goals

1. _____

2. _____

3. _____

4. _____

5. _____

Development Regulations

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Worksheet 4B

Compatibility Policy Findings

Write statements of fact that document your findings. These statements provide evidence of your work on airport land use compatibility and may be used to support adoption of policies and regulations. Use the following questions to assess your jurisdiction's current policies:

- *Do current policies help prevent incompatible land use development in the airport hazard area or do they tend to promote this development?*
- *To what extent have policies intended to prevent incompatible development been inadequate and why? Are their loopholes in the policies that allow compatibility goals to be circumvented?*
- *Are the policies clearly defined or are they open to a wide degree of interpretation?*
- *Do the current policies provide a good starting point for more detailed and thorough policies or do you need to start from nothing?*

Policy Findings

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

This Page Intentional Left Blank

Worksheet 4C

Alternatives Analysis

Compatibility Problem List compatibility issues that need to be addressed	Potential Planning Strategies List options for addressing the problem and describe the advantages/disadvantages of each	Preferred Strategy Write a finding that explains why the selected approach is best for your community
1.		
2.		
3.		

Compatibility Problem List compatibility issues that need to be addressed	Potential Planning Strategies List options for addressing the problem and describe the advantages/disadvantages of each	Preferred Strategy Write a finding that explains why the selected approach is best for your community
4.		
5.		
6.		

Worksheet 4D

Airport Hazard Area Adjustments

Circumstances Warranting Possible Impact Area Adjustment	What are the conditions at your airport?	Do these conditions warrant adjusting the Airport Hazard Area boundary? If so, in what manner?
<p>All</p> <ul style="list-style-type: none"> • Have any planned runway configuration changes been accounted for? • Is the traffic pattern only on one side of the runway? 		
<p>Noise</p> <ul style="list-style-type: none"> • Have future changes in airport role and aircraft usage been considered? • Does airport activity have a significant seasonal variation warranting consideration of peak season activity? • Do aircraft frequently follow a “nonstandard” approach or departure pattern? 		
<p>Overflights</p> <ul style="list-style-type: none"> • Does the airport experience a significant number of low overflight operations? 		

<p>Circumstances Warranting Possible Impact Area Adjustment</p>	<p>What are the conditions at your airport?</p>	<p>Do these conditions warrant adjusting the Airport Hazard Area boundary? If so, in what manner?</p>
<p>Airspace Protection</p> <ul style="list-style-type: none"> • Does the airport have instrument approach procedures that are not aligned with extended runway centerline? • Do any of the runways have a displaced threshold? • Are there existing obstructions such as high terrain that affect where aircraft fly? 		
<p>Safety</p> <ul style="list-style-type: none"> • Do aircraft frequently follow a “nonstandard” approach or departure pattern? • Does the airport’s historical operational patterns reveal conditions that create greater or lower than normal risks in certain locations? 		

Worksheet 5

Implementation Check

Use this worksheet to confirm that you have addressed all of the compatibility criteria in your implementation processes.

List Relevant Planning Policies	Describe How Regulations Support Implimentation and Address Compatibility Criteria

This Page Intentional Left Blank

Glossary

Advisory Circular (AC).

Advisory Circulars (ACs) provide guidance such as methods, procedures, and practices for complying with regulations and grant requirements. ACs may also contain explanations of regulations, other guidance material, best practices, or information useful to the aviation community. They do not create or change a regulatory requirement.

Above Ground Level (AGL).

An elevation datum given in feet above ground level.

Aeronautical Activities.

Any activity that involves, makes possible, or is required for the operation of aircraft, or that contributes to or is required for the safety of such operations. Activities within this definition, commonly conducted on airports, include, but are not limited to, the following: general and corporate aviation, air taxi and charter operations, scheduled and nonscheduled air carrier operations, pilot training, aircraft rental and sightseeing, aerial photography, crop dusting, aerial advertising and surveying, aircraft sales and services, aircraft storage, sale of aviation petroleum products, repair and maintenance of aircraft, sale of aircraft parts, parachute or ultralight activities, and any other activities that, because of their direct relationship to the operation of aircraft, can appropriately be regarded as aeronautical activities. Activities, such as model aircraft and model rocket operations, are not aeronautical activities.

Aeronautical Study.

A study performed pursuant to FAR Part 77 "Objects Affecting Navigable Airspace" concerning the effect of proposed construction or alternation on the use of air navigation facilities or navigable airspace by aircraft. The conclusion of each study is normally a determination as to whether the specific proposal studied would be a hazard to air navigation and/or a determination for marking and/or lighting.

Air Carriers.

The commercial system of air transportation, consisting of the certificated air carriers, air taxis (including commuters), supplemental air carriers, commercial operators of large aircraft, and air travel clubs.

Aircraft.

A device that is used or intended to be used for flight in the air.

Aircraft Accident.

An occurrence incident to flight in which, as a result of the operation of an aircraft, a person (occupant or nonoccupant) receives fatal or serious injury, or an aircraft receives substantial damage.

Aircraft Incident.

A mishap associated with the operation of an aircraft in which neither fatal nor serious injuries nor substantial damage to the aircraft occurs.

Aircraft Operation.

The airborne movement of aircraft operating in the airport traffic pattern or within sight of the airport. There are two types of operations: local and itinerant. An operation is counted for each landing and each departure, such that a touch-and-go flight is counted as two operations.

Airport.

An area of land or water that is used or intended to be used for the landing and taking off of aircraft, and includes its buildings and facilities if any.

Airport Classification – Rhode Island

Based on the Rhode Island State Airport System Plan Guide Plan Element 640, airport function roles or classifications were established based on each airport’s current role and contribution to the system. Following is a brief description of the four airport role classifications.

1. Primary Commercial Air Service (P) Airports, such as T.F. Green, are developed to accommodate scheduled commercial airline service. Primary Commercial Service airports have greater than 10,000 passenger enplanements as recorded by the U.S. Department of Transportation (US/DOT). These airports also receive FAA AIP entitlement funds that are based on the enplaned passenger count. They are also capable of supporting cargo, charter and general aviation activities. In terms of GA

activity the emphasis is on corporate aircraft operations because they can accommodate the larger GA aircraft.

2. Commercial Service (CM) Airports, such as Westerly and Block Island accommodate scheduled service but usually with smaller aircraft types. The recorded passenger enplanements are greater than 2500 but less than 10,000. The FAA AIP funding is also different than primary commercial air service airports. Commercial service airports typically serve general aviation needs as well. In a given year Westerly and/or Block Island may have enplaned passenger counts to elevate them to primary airport status.

3. General Aviation (GA) Airports, such as, North Central, Quonset, and Newport, support a variety of general aviation activities, such as business/corporate and, flight training and provide support to aviation activities. They also provide aircraft owners covered (hangar) and uncovered (apron parking) storage. General aviation airports include smaller facilities that service single and small twin engine aircraft, such as Newport and larger ones, such as Quonset with a runway that could service large turbine and jet aircraft. These airports also support some special operational activities such as emergency evacuation service, passenger service to more remote or isolated locations, and military operations.

4. Reliever (R) Airports include those airports that are designated to attract general aviation flight activity away from the congested, primary commercial service airports (T.F. Green). They are typically located in close proximity to a primary commercial service airport and should provide the same precision approaches and support systems that are found at the larger airport. Reliever airports receive a higher priority for FAA funding. North Central and Quonset have been classified as Reliever Airports by FAA.

Airport Elevation.

The highest point of an airport's useable runways, measured in feet above mean sea level.

Airport Layout Plan (ALP).

A scale drawing of existing and proposed airport facilities, their location on an airport, and the pertinent clearance and dimensional information required to demonstrate conformance with applicable standards.

Airport Master Plan (AMP).

A long-range plan for development of an airport, including descriptions of the data and analyses on which the plan is based.

Airport Overlay.

A zoning district that establishes development standards in areas of special concern over and above the standards applicable to basic underlying zoning districts.

Airport Reference Code (ARC).

A coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport. It is a combination of the aircraft approach category and the airplane design group.

Airport Sponsor.

The owner or tax-supported organization such as an airport authority, that is authorized to own and operate, to obtain property interests, to obtain funds, and are legally, financially, and otherwise able to meet all applicable requirements of current laws and regulations related to the operation of an airport.

Airspace.

The space lying above the earth or above a certain area of land or water that is necessary to conduct aviation operations.

Aviation-Related Use.

Any facility or activity directly associated with the air transportation of persons or cargo or the operation, storage, or maintenance of aircraft at an airport or heliport. Such uses specifically include runways, taxiways, and their associated protected areas defined by the Federal Aviation Administration, together with aircraft aprons, hangars, fixed base operations, terminal buildings, etc.

Avigation Easement.

A grant of a property interest in land over which a right of unobstructed flight in the airspace is established.

Based Aircraft.

An aircraft permanently stationed at an airport by agreement between the aircraft owner and the airport management.

Building Codes.

Codes, either local or state, that control the functional and structural aspects of buildings and/or structures. Local ordinances typically require proposed buildings to comply with zoning requirements before building permits can be issued under the building codes.

Code of Federal Regulations (CFR).

The FAA publishes the Code of Federal Regulations (CFRs) to make readily available to the aviation community the regulatory requirements placed upon them. CFR can be located on the following web site: www.gpoaccess.gov/cfr/index.html

Commercial Activities.

Airport-related activities that may offer a facility, service, or commodity for sale, hire, or profit.

Commercial Service Airport.

A public airport that has at least 2,500 passengers boarding each year and is receiving scheduled passenger aircraft service.

Compatibility.

The degree to which land uses or types of development can coexist or integrate.

Comprehensive Plan.

A comprehensive plan is a policy document that expresses a community's vision about itself and what it would like to become. The plan forms the policy framework from which all future community planning actions will be judged, and it is the starting point for any discussion regarding local land use. The time range for the comprehensive plan is generally 20 years. Periodic updates every five to seven years are usually required.

Conditional Zoning.

The imposition or exaction of conditions or promises upon the grant of zoning by the zoning authority.

Development Regulations

The controls placed on the development or use of land by a county or a city including, but not limited to, zoning ordinances, critical area ordinances, shoreline master programs, and subdivision ordinances.

Easement.

The legal right of one party to use a portion of the total rights in real estate owned by another party. This may include the right of passage over, on, or below property; certain air rights above the property, including view rights; and the rights to any specified from of development or activity, as well as any other legal rights in the property that may be specified in the easement document.

Federal Aviation Administration (FAA).

The U.S. government agency that is responsible for ensuring the safe and efficient use of the nation's airports and airspace.

Federal Aviation Regulations (FAR).

Regulations established and administered by the FAA that govern civil aviation and aviation-related activities.

- **FAR Part 36 (FAA FAR Sec. 36.1)**
Regulation establishing noise standards for the civil aviation fleet.
- **FAR Part 91 (FAA FAR Sec. 91.1)**
Regulation pertaining to air traffic and general operating rules, including operating noise limits.
- **FAR Part 150 (FAA FAR Sec. 150.1)**
Regulation pertaining to airport noise compatibility planning.
- **FAR Part 161 (FAA FAR Sec. 161.1)**
Regulation pertaining to notice and approval of airport noise and access restrictions.
- **FAR Part 77 (FAA FAR Sec. 77.1)**
Objects Affecting Navigable Airspace - Part 77 (a) establishes standards for determining obstructions in navigable airspace; (b) defines the requirements for notice to the FAA Administrator of certain proposed construction or alteration; (c) provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace; (d) provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and (e) provides for establishing antenna farm areas.

Federal Grant Assurance.

A federal grant assurance is a provision with a Federal grant agreement to which the recipient of federal airport development assistance has agreed to comply in consideration of the assistance provided.

General Aviation.

All civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire. General aviation accounts for the majority of aviation activity and encompasses a wide range of private and commercial purposes. General aviation aircraft can be of almost any size or type, ranging from gliders to large jets.

General Aviation Airport.

Any airport that is not an air carrier airport, or a military facility.

Helipad.

A small, designated area, usually with a prepared surface, on a heliport, airport, landing/takeoff area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters.

Incompatible Development.

The use of land which is normally incompatible with the aircraft and airport operations. Incompatible development may have both direct and indirect impacts. Directly, it may reduce property available for aviation operations, safety areas and navigatable airspace. Indirectly, incompatible development can lead to demands for limitations on the airport activity.

Infrastructure.

A community's built elements that establish the community's foundation for maintaining existing populations, activities, future growth and development. Infrastructure elements include airports, roads, highways, bridges, water and sewer systems, waste disposal facilities, utilities, telecommunications systems, schools, and governmental and community facilities.

Instrument Approach Procedure.

A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority.

Instrument Flight Rules (IFR).

Rules governing the procedures for conducting instrument flight. Generally, IFR applies when meteorological conditions with a ceiling below 1,000 feet and visibility less than 3 miles prevail.

Instrument Operation.

An aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility.

Instrument Runway.

A runway equipped with electronic and visual navigation aids for which a precision or nonprecision approach procedure having straight-in landing minimums has been approved.

Itinerant Operation.

Takeoff or landing operations of airplanes going from one airport to another airport that involves a trip of at least 20 miles. Local operations are excluded.

Land Use Compatibility.

The coexistence of land uses surrounding the airport with airport-related activities.

Land Use Controls.

Measures established by state or local government that are designed to carry out land use planning. The controls include: zoning, subdivision regulations, planned acquisition, easements, covenants, or conditions in building codes and capital improvement programs, such as the establishment of sewer, water, utilities, or their service facilities.

Land Use Management Measures.

Land use management techniques that consist of both remedial and preventive measures. Remedial, or corrective, measures typically include sound insulation or land acquisition. Preventive measures typically involve land use controls that amend or update the local zoning ordinance, comprehensive plan, subdivision regulations, and building code.

Land Use Density.

A measure of the concentration of land use development in an area. Mostly the term is used with respect to residential development and refers to the number of dwelling units per acre. Unless otherwise noted, policies in this compatibility plan refer to gross rather than net acreage.

Lighting and Marking of Hazards to Air Navigation.

Installation of appropriate lighting fixtures, painted markings, or other devices to such objects or structures that constitute hazards to air navigation.

Local Operation.

Any operation performed by an aircraft that (a) operates in the local traffic pattern or within sight of the tower or airport, or (b) is known to be departing for, or arriving from, flight in local practice areas located within a 20-mile radius of the control tower or airport, or (c) executes a simulated instrument approach or low pass at the airport.

Mitigation.

The avoidance, minimization, reduction, elimination, or compensation for adverse environmental effects of a proposed action.

National Plan of Integrated Airport Systems (NPIAS).

The National Plan of Integrated Airport System (NPIAS) is the federal plan for developing public-use airports that identifies existing and proposed airports that are significant to the national air transportation and estimates the infrastructure development needed to meet the needs of all segments of civil aviation. An updated 5-year national plan is submitted to Congress every two years.

Navigational Aid (NAVAID).

Any visual or electronic device airborne or on the surface that provides point-to-point guidance information or position data to aircraft in flight.

Noise Contours.

Continuous lines of equal noise level usually drawn around a noise source, such as an airport or highway. The lines are generally drawn in 5-decibel increments so that they resemble elevation contours in topographic maps.

Noise Impact.

A condition that exists when the noise levels that occur in an area exceed a level identified as appropriate for the activities in that area.

Noise Sensitive Area.

Defined as an area where noise interferes with normal activities associated with the area's use. Examples of noise-sensitive areas include residential, educational, health, and religious structures and sites, and parks, recreational areas (including areas with wilderness characteristics), wildlife refuges, and cultural and historical sites where a quiet setting is a generally recognized feature or attribute.

Nonconforming Use.

Any use, situation, lot, building or structure that legally existed prior to the adoption of a development regulation that would otherwise prohibit its use.

Nonprecision Approach Procedure.

A standard instrument approach procedure in which no electronic vertical guidance (e.g. glide slope) is provided.

Nonprecision Instrument Runway.

A runway with an approved or planned straight-in instrument approach procedure that has no existing or planned precision instrument approach procedure.

Obstruction.

Any object of natural growth, terrain, or permanent or temporary construction or alteration, including equipment or materials used therein, the height of which exceed the standards established in Subpart C of Federal Aviation Regulations Part 77, *Objects Affecting Navigable Airspace*.

Overflight.

Any distinctly visible and/or audible passage of an aircraft in flight, not necessarily directly overhead.

Overlay Zone.

A mapped zone that imposes a set of requirements in addition to those of the underlying zoning district.

Part 77.

14 CFR Part 77, *Objects Affecting Navigable Airspace*, establishes standards for determining obstructions in navigable airspace; defines the requirements for notice to the FAA Administrator of certain proposed construction or alteration; provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace; provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and provides for establishing antenna farm areas.

Part 77 Surfaces.

Imaginary airspace surfaces established with relation to each runway of an airport. There are five types of surfaces: (1) primary; (2) approach; (3) transitional; (4) horizontal; and (5) conical.

Precision Approach Procedure.

A standard instrument approach procedure where an electronic glide slope is provided.

Precision Instrument Runway.

A runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS). It also means a runway for which a precision approach system is planned and is so indicated on an approved airport layout plan or any other planning document.

Primary Runway.

The runway used for the majority of airport operations. Large, high-activity airports may operate two or more parallel primary runways.

Public Use Airport.

Means either a publicly owned airport or a privately owned airport open for public use.

Runway Protection Zone (RPZ).

An area (formerly called a clear zone) off the end of a runway used to enhance the protection of people and property on the ground.

Approach Visibility Minimums	Length	Inner Width	Outer Width
Visual and not lower than 1 mi			
A & B small aircraft exclusively	1,000	250	450
A & B	1,000	500	700
C & D	1,700	500	1,010
Not lower than $\frac{3}{4}$ mile - all aircraft	1,700	1,000	1,510
Lower than $\frac{3}{4}$ mile - all aircraft	2,500	1,000	1,750

Special Function Uses.

These generally include children, elderly, the infirmed, or others regarded as having comparatively little control over their own lives. Land uses may include K-12 schools, hospitals, nursing homes, convalescent center and other similar uses.

Structure.

Any object constructed or installed by humans, including, but without limitation, buildings, towers, smokestacks, and overhead transmission lines, including the poles or other structures supporting the same.

Terminal Instrument Procedures (TERPS).

Procedures for instrument approach and departure of aircraft to and from civil and military airports. There are four types of terminal instrument procedures – precision approach, nonprecision approach, circling, and departure.

Touch-and-Go.

An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway.

Traffic Pattern.

The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

Turbojet Aircraft.

Aircraft operated by jet engines incorporating a turbine-driven air compressor to take in and compress the air for the combustion of fuel, the gases of combustion (or the heated air) are used both to rotate the turbine and to create a thrust-producing jet.

Turboprop Aircraft.

Aircraft in which the main propulsive force is supplied by a gas turbine driven conventional propeller. Additional propulsive force may be supplied from the discharged turbine exhaust gas.

Utility Runway.

A utility runway constructed for and intended to be used by propeller driven aircraft of 12,500 pounds gross weight or less.

Variance.

An authorization for the construction or maintenance of a building or structure, or for the establishment or maintenance of a use of land that is prohibited by a zoning ordinance. A lawful exception from specific zoning ordinance standards and regulations predicated on the practical difficulties and/or unnecessary hardships on the petitioner being required to comply with those regulations and standards from which an exemption or exception is sought.

Visual Approach.

An approach where the pilot must use visual reference to the runway for landing under VFR conditions.

Visual Flight Rules (VFR).

Rules that govern the procedures for conducting flight under visual conditions. VFR applies when meteorological conditions are equal to or greater than the specified minimum—generally a 1,000-foot ceiling and 3-mile visibility.

Visual Runway.

A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan.

Zoning.

A police power measure, enacted primarily by units of local government, in which the community is divided into districts or zones within which permitted and special uses are established, as are regulations governing lot size, building bulk, placement, and other development standards. Requirements vary from district to district, but they must be uniform within districts. A zoning ordinance consists of two parts—the text and a map.

Zoning Ordinance.

Primarily a legal document that allows a local government effective and legal regulation of uses of property while protecting and promoting the public interest.

This Page Intentional Left Blank

Overview of the Rhode Island Airport System

The purpose of this section is to provide an overview of the current Rhode Island airport system. Each description contains a general overview of the existing conditions, current operations, and an aerial photo that are current as of the publication of this guidebook..

It is also recommended that the reader refer to the airport system description included within the current release of State Guide Plan Element 640 – *State of Rhode Island Airport System Plan*. The current Airport System Plan (ASP) can be found on the State of Rhode Island Statewide Planning Program website at www.planning.ri.gov. Additional information can also be found on the Rhode Island Airport Corporation’s (RIAC) website at www.pvdairport.com.

B.1 Block Island Airport Summary

Block Island Airport (BID) is a 10 square mile island, 14 miles from the mainland. The airport provides commercial, emergency, and general aviation air access to Block Island, located approximately 13 miles off the south coast of Rhode Island.

New England Airlines, a small commercial passenger FAR Part 135 commuter carrier provides service to and from the island from Westerly Airport (WST). Operations at are seasonal, with the majority of operations occurring during the tourism season between Memorial Day and Labor Day. During the summer season, New England Airlines has hourly scheduled departure and arrival between BID and WST. Scheduled operations can be increased by New England Airlines by adding flights to meet passenger demand. During the off-season, this scheduled service is reduced to at least one scheduled departure to and arrival from WST every other hour. This scheduled commercial service plays a vital role for Block Island. It is the fastest means of access (15-20 minutes via air vs. 60+ minutes via ferry). During high seas conditions when the ferry service cannot operate, it the only means of access to the Island. Air service also fills a variety of additional roles for island residents, carrying off-time sensitive items like newspapers, critical parts repair and machinery maintenance equipment. BID serves as the island’s lifeline to the mainland for the emergency evacuation of life-threatened patients.



BID produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the

airport and aviation-related industries requiring use of the airport create jobs, which have an immediate and direct impact on the local economy. Additionally, visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact.

Table B-1. Block Island Airport Highlights.

Three Letter Identifier	BID
Location/Host Community	New Shoreham
Associated City	Block Island
ASP Role	Commercial Service
Runways	10-28 100' wide by 2,501' long
Taxiways	Partial Parallel
Lowest Approach Minimums	¾ mi VIS, 431' MDH for GPS 10 & VOR DME 10
FBOs & Tenants	5
Based Aircraft (2009)	3
Operations (2009)	14,180
Enplanements (2009)	5,195 ¹
Economic Impact (2006)	\$14.2 million

¹Numbers vary annually and have reached over 10,000

B.2 Robert F. Wood Airpark (Newport Airport) Summary

Robert F. Wood Airpark (UUU) (also locally known as Newport Airport) is located in Middletown. It 1.5 miles to the north of Newport. The airport provides general aviation access to the towns of Portsmouth, Middletown and Newport. To a lesser extent the neighboring towns of Little Compton, Tiverton, Bristol, Warren, and Barrington. The runway length limits the type of aircraft that can use the airport to primarily single and multi-engine pistons, although turboprops, such as Beech King Airs, and small corporate jets, such as Cessna Citations, occasionally use the Airpark.

Robert F. Wood Airpark is regularly used by tourists, by local aircraft owners and the Rhode Island Army National Guard. It serves the Island's corporate community, as well as the many visitors to Newport's year-round festivals and attractions. The airport also provides quick access not only for boat owners who harbor vessels in

the nearby marinas, but also for the extensive ship building industry on the Island's western shore.



The airport meets the needs of the local business community who find it advantageous to either, charter a flight or utilize corporate aircraft rather than use commercial service at T.F. Green Airport, located 20 miles away in Warwick. This benefit is more pronounced in the peak summer months when traffic congestion on the Newport and Jamestown Bridges, increases driving times to T.F. Green.

UUU produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate and direct impact on the local economy. Visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact.

Table B-2. Robert F. Wood Airpark Highlights.

Three Letter Identifier	UUU
Location/Host Community	Middletown
Associated City	Newport
ASP Role	General Aviation
Runways	4-22 75' wide by 2,999' long 16-34 75' wide by 2,623' long
Taxiways	Full Parallel (4-22)
Lowest Approach Minimums	1 mi VIS, 468' MDH for LOC 22
FBOs & Tenants	3
Based Aircraft (2009)	41
Operations (2009)	20,501
Enplanements (2009)	Not Applicable
Economic Impact (2006)	\$6.0 million

¹Numbers vary annually and have reached over 10,000

B.3 North Central Airport Summary

North Central Airport (SFZ), built in 1951, is located in the towns of Lincoln and Smithfield. It serves the greater Blackstone River Valley region of northern RI and southern Massachusetts. SFZ accommodates a spectrum of general aviation traffic, from single-engine piston aircraft used for recreational and flight training to operations by most small and mid-sized corporate jets.

SFZ produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate and direct impact on the local economy. Visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact.



Table B-3. North Central Airport Highlights.

Three Letter Identifier	SFZ
Location/Host Community	Smithfield/Lincoln
Associated City	Pawtucket
ASP Role	Reliever
Runways	5-23 100' wide by 5,000' long 15-33 75' wide by 3,210' long
Taxiways	Full Parallel (5-23), Partial Parallel (15-33)
Lowest Approach Minimums	¾ mi VIS, 391' MDH for LOC 5
FBOs & Tenants	3
Based Aircraft (2009)	111
Operations (2009)	18,630
Enplanements (2009)	Not Applicable
Economic Impact (2006)	\$9.6 million

B.4 Quonset Airport Summary

Quonset Airport (OQU) is located in North Kingstown, RI, on the western shore of Narragansett Bay. The airport is, and is less than 9 miles south of T.F. Green Airport.



As a reliever airport, it serves as an alternative facility for general aviation traffic that would otherwise use T.F. Green Airport (PVD). OQU and PVD are the only airports in the state with an ILS precision approach and a control tower. The control tower and precision approach are operated by the RIANG.

It is unique among Rhode Island's airports in that it is a public use facility that combines port, rail, road and air transportation facilities, and an extensive industrial park. It is also the operations, training and maintenance base of the RI Air National Guard (RIANG) (operating C-130 transports) and the RI Army National Guard (the 1/126th Aviation Regiment currently operating UH-60 Blackhawk helicopters). Electric Boat, a large submarine manufacturing facility, operates a large sub-component manufacturing plant within close proximity. There is relatively little air cargo at the airport.

Although it has a 7500' runway and ILS, it does not have the same volume of corporate traffic as PVD. In large part it is due to its distance from Providence, Warwick and Cranston. Additionally, its primary 7,500 foot Runway 16-34 is configured in more of a crosswind orientation to the area's prevailing southwesterly winds, and is preferred for use typically in adverse weather conditions, when winds usually blow from the southeast. Its shorter Runway 5-23 lies in the same orientation as PVD's primary runway, which coincides with the prevailing winds.

Quonset produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate and direct impact on the local economy. Visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact.

Table B-4. Quonset Airport Highlights.

Three Letter Identifier	OQU
Location/Host Community	North Kingstown
Associated City	North Kingstown
ASP Role	Reliever
Runways	5-23 75' wide by 4,003' long, 16-34 150' wide by 7,500' long
Taxiways	Full Parallel (16-34), Partial Parallel (5-23)
Lowest Approach Minimums	½ mi VIS, 200' MDH for ILS 16
FBOs & Tenants	4
Based Aircraft (2009)	25
Operations (2009)	31,183
Enplanements (2009)	Not Applicable
Economic Impact (2006)	\$102.0 million

B.5 T.F. Green Airport Summary

T.F. Green Airport (PVD) is the only airport in the Rhode Island providing scheduled service by major commercial airlines. It plays an important role in the state and regional aviation system because it is a key component in providing a more balanced, integrated use of public airports in the New England Region. This is reflected in the New England Airport Regional System Plan. The airport occupies 1,100 acres of land and is accessible via several major regional and national roadways, including Interstate Highways I-95, I-295 and I-195.



PVD's 352,000 square foot passenger terminal building contains ticketing, baggage claim, and surface transportation areas; security services, Federal Inspection Services; concessions areas; two concourses with passenger hold rooms; 22 commercial air service gates with 16 jet bridges; and RIAC's administrative offices. In addition to the terminal, airport facilities include public and corporate hangars, a fuel farm, a de-icer blending facility, air cargo, ground support equipment facilities an aircraft rescue fire fighting facility and an airfield maintenance facility. On airport parking facilities include three parking garages (Garages A, B and C) and two surface parking lots (short-and long-term) for a total capacity of 8,422 spaces.

Since 1996 when both the new terminal opened and Southwest commenced service, PVD has seen tremendous passenger growth. PVD is currently served by 5 national airlines, 2 commuter airlines, and one international airline. The major nonstop destinations are in the northeast, southeast and the midwest. In addition Southwest Airlines flies to Phoenix and Las Vegas, nonstop destinations. In addition to commercial air service Green provides belly and full cargo operations, as well as, supporting based and itinerant general aviation activities.

The new “InterLink” intermodal facility connects the terminal via a bridge and skywalk to a consolidated rental car facility and commuter rail platform. The Interlink houses rental car company counters and operations, including ready return space, fueling, vacuuming and car wash facilities. The 850 foot rail platform, located in the Interlink garage is served by the Massachusetts Bay Transportation Authority (MBTA) commuter rail service.

Table B-5. T.F. Green Airport Highlights.

Three Letter Identifier	PVD
Location/Host Community	Warwick
Associated City	Providence
ASP Role	Primary Commercial Air Service
Runways	5-23 150’ wide by 7,166’ long, 16-34 150’ wide by 6,081’ long
Taxiways	Full Parallel (5-23), Partial Parallel (16-34)
Lowest Approach Minimums	0 mi VIS, 0’ MDH for CAT IIIC ILS 5R
FBOs & Tenants	92
Based Aircraft (2009)	72
Operations (2009)	83,016
Enplanements (2009)	2,168,146
Economic Impact (2006)	\$1.96 billion

T.F. Green is also a major economic generator for the state and region. According to the Rhode Island Airport Economic Impact Study completed in 2006, in 2005 T.F. Green supported 12,706 jobs in the state, and over 21,000 in the region. Additionally, T.F. Green’s direct total economic impact on the state was over \$1 billion dollars and close to \$2 billion dollars for the region as a whole.

B.6 Westerly Airport Summary

Westerly Airport's (WST) serves Westerly, Charlestown, Hopkinton, Richmond, Exeter, and parts of South Kingstown and parts of southeastern Connecticut. It provides facilities and services for corporate users and general aviation aircraft; offering extensive aircraft maintenance capabilities. WST regularly accommodates mid-sized corporate aircraft (both turboprops and jets), although piston-engine airplanes are the predominant operating type.



WST serves as a critical link in the transportation of both passengers and cargo to Block Island. New England Airlines is an FAR Part 135 commuter carrier based at WST and providing the only scheduled air service to BID, currently utilizing both single and multi-engine piston aircraft (i.e. Piper Cherokee Six and B-N Islander). Westerly operations are seasonal, with the majority of operations occurring during the tourism season between Memorial Day and Labor Day. During this summer season, New England Airlines has hourly scheduled departure to and arrival from BID. New England Airlines frequently adds more flights in order to accommodate increased ticket counter demand during peak periods.

WST produces positive economic benefits for the local and surrounding communities. Aviation services provided at the airport and aviation-related

industries requiring use of the airport create jobs, which have an immediate and direct impact on the local economy. Visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact.

Table B-6. Westerly Airport Highlights.

Three Letter Identifier	WST
Location/Host Community	Westerly
Associated City	Westerly
ASP Role	Commercial Service
Runways	7-25 100' wide by 4,010' long 14-32 75' wide by 3,980' long
Taxiways	Full Parallels to both runways
Lowest Approach Minimums	1 mi VIS, 444' MDH for LOC 7
FBOs & Tenants	13
Based Aircraft (2009)	47
Operations (2009)	20,528
Enplanements (2009)	5,199
Economic Impact (2006)	\$8.4 million

B.7 Rhode Island Airport System

The locations of the six state airports described above are shown in the following graphic, including their defined ASP roles.



This Page Intentional Left Blank

Review of Federal, State and Local Airport Zoning Regulations and Guidelines

The information contained in this Appendix can be used to guide planners and authorities to develop appropriate goals and objectives with respect to airport and land use compatibility planning.

There are typically multiple governmental entities involved in actions to improve land use compatibility around airports. These entities can include the Federal Aviation Administration (FAA), state governments, local governments, airport system users, and the local community. Although many of these entities have some influence in the process, the three key authorities that are crucial in helping to implement land use compatibility near airports include the following:

- Federal Aviation Administration
- State of Rhode Island
- Local Governmental Entities (cities, counties, land use agencies, airports)

Each of these entities plays an integral role in airport and land use compatibility planning. Policymakers and planners should consider the value that each of these authorities can bring to the table in terms of policy planning and execution. In addition, a substantial amount of research and information is available to help in executing this process, some of which is highlighted in this Appendix.

C.1 Federal Aviation Administration (FAA)

The three principal focal points of FAA is the safe operation of aircraft, the protection of airspace, and the proper design and safe operation of airports. It is important to understand that FAA does not have authority to directly prevent or remediate off-airport incompatible land uses. Nevertheless, FAA has a significant stake in the land use patterns that occur around airports that takes the form of the overall preservation of the National Airspace System (NAS), and the protection of federal Airport Improvement Program (AIP) tax dollars used for airport development. Consequently, FAA has conducted substantial research regarding

land use compatibility and safety near airports, which can be a valuable resource in the planning process.

The following is a brief overview of federal statutes, rules, and obligations related to airport land use compatibility that could affect an airport sponsor. The FAA has specific definitions, regulations, and assurances that enforce airspace protection, aircraft safety, airport design, and airport management and operations. Moreover, federal grant assurances require compliance with specific airport performance measures set out by grant sponsors. These assurances are required to be submitted as part of project applications that request federal funds. The specific assurances that pertain to land use compatibility are grant assurances # 20 Hazard Removal and Mitigation, and # 21, Compatible Land Use. These grant assurances set requirements for protecting terminal airspace and measures to uphold land use compatibility as part of the airport planning process. Relevant definitions as well as the key regulations and grant assurances that the FAA administers to airports are described in the following.

Relevant Definitions

- Title 49 United States Code (USC) § 47102 (2) (A) and (B), Definitions
Airport means (i) an area of land or water used or intended to be used for the landing and taking off of aircraft; (ii) an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; and (iii) airport buildings and facilities located in any of those areas; and includes a heliport.
- Title 49 United States Code (USC) § 47102 (4), Definitions
Airport Hazard means a structure or object of natural growth located on or near a public-use airport, or a use of land near the airport, that obstructs or otherwise is hazardous to the landing or taking off of aircraft at or from the airport.

Key Airspace and Land Use Related Regulations and Grant Assurances

- 14 CFR Part 77, Objects Affecting Navigable Airspace
14 CFR Part 77, Objects Affecting Navigable Airspace, is a key regulation for achieving federally mandated airport and airspace clearance requirements. This regulation establishes a method of identifying geometric surfaces that should be free from obstructions in order to maintain aircraft and airspace safety at an airport. All airports need to follow the airspace protection guidelines and height restrictions identified by this federal regulation. Federal law, Title 14 Code of Federal Regulations (CFR), Federal Aviation Regulations (FAR), Part 77, "Objects Affecting Navigable Airspace", requires that prior

notification must be given to the Federal Aviation Administration (FAA) regarding any construction or alteration of structures that meet specific criteria.

- 14 CFR Part 150 - Airport Noise Compatibility Planning Table 1, Land Use Compatibility with Yearly Day-Night Average Sound Levels
- Title 49 United States Code (USC) § 47107 (a) (9)
 - Sec. 47107 Project grant application approval conditioned on assurances about airport operations
 - (a) *General Written Assurances. The Secretary of Transportation may approve a project grant application under this subchapter for an airport development project only if the Secretary receives written assurances, satisfactory to the Secretary, that-- (9) appropriate action will be taken to ensure that terminal airspace required to protect instrument and visual operations to the airport (including operations at established minimum flight altitudes) will be cleared and protected by mitigating existing, and preventing future, airport hazards; --(10) appropriate action, including the adoption of zoning laws, has been or will be taken to the extent reasonable to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations;*
- Grant Assurance #6 - Consistency with Local Plans

The project is reasonably consistent with plans (existing at the time of submission of this application) of public agencies that are authorized by the State in which the project is located to plan for the development of the area surrounding the airport.
- Grant Assurance #20 - Hazard Removal and Mitigation

It will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.

- Grant Assurance #21 - Compatible Land Use

It will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which Federal funds have been expended.

FAA Order 5190.6B - FAA Airport Compliance Manual, Chapter 20 – Compatible Land Use and Airspace Protection

- Authority – Page 20-1

Ensuring compatible land use near federally airports that receive AIP grants is an important responsibility and an issue of federal interest. In effect since 1964, Grant Assurance 21, Compatible Land Use, implementing Title 49 United States Code (U.S.C.) § 47107 (a) (10), requires, in part, that the sponsor:

“...take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which federal funds have been expended.”

- Description of Zoning and Land Use Planning – Page 20-2 and 20-3

Zoning is an effective method of meeting the federal obligation to ensure compatible land use and to protect airport approaches. Generally, zoning is a matter within the authority of state and local governments. Where the sponsor does have authority to zone or control land use, FAA expects the sponsor to zone and use other measures to restrict the use of land in the vicinity of the airport to activities and purposes compatible with normal aircraft operations. Restricting residential development near the airport is essential in order to avoid noise-related problems.

Sponsors and local communities should consider adopting adequate guidelines and zoning laws that consider noise impacts in land use planning and development. Similarly, any airport sponsor that has the authority to adopt

ordinances restricting incompatible land development and limiting the height of structures in airport approaches according to the standards prescribed in 14 Code of Federal Regulations (CFR) Part 77, Objects Affecting Navigable Airspace, is generally expected to use that authority.

- Definition of Compatible Land Use – Page 20-5

Compatibility of land use is attained when the use of adjacent property neither adversely affects flight operations from the airport nor is itself adversely affected by such flight operations. In most cases, the adverse affect of flight operations on adjacent land results from exposure of noise sensitive development, such as residential areas, to aircraft noise and vibration. Land use that adversely affects flight operations is that which creates or contributes to a flight hazard. For example, any land use that might allow tall structures, block the line of sight from the control tower to all parts of the airfield, inhibit pilot visibility (such as glaring lights, smoke, etc.), produce electronic aberrations in navigational guidance systems, or that would tend to attract birds would be considered an incompatible land use. For instance, under certain circumstances, an exposed landfill may attract birds. If open incineration is regularly permitted, it can also create a smoke hazard.

- Definition of Concurrent Land Use – Page 20-5

In some cases, concurrent land use can be an appropriate compatible land use. Concurrent land use means that the land can be used for more than one purpose at the same time. For example, portions of land needed for clear zone purposes could also be used for agriculture purposes at the same time, which would be consistent with Grant Assurance 21, Compatible Land Use.

FAA Order 5190.6B - FAA Airport Compliance Manual, Chapter 13 – Airport Noise and Access Restrictions

- Introduction and Responsibilities – Page 13-1

This chapter contains guidance on the sponsor’s responsibility with regard to restrictions on airport noise and access.

- Background – Page 13-1

a. The legal framework with respect to abatement of aviation noise may be summarized as follows:

(3). State and local governments may protect their citizens through land use controls and other police power measures not affecting airspace management

or aircraft operations. In addition, to the extent they are airport proprietors, they have the powers described in paragraph (b)(2) below:

b. The authorities and responsibilities of the parties may be summarized as follows:

(2). Airport sponsors are primarily responsible for planning and implementing action designed to reduce the effect of noise on residents of the surrounding area. Such actions include optimal site location, improvements in airport design, noise abatement ground procedures, land acquisition, and restrictions on airport use that do not unjustly discriminate against any user, impede the federal interest in safety and management of the air navigation system, or unreasonably interfere with interstate or foreign commerce.

(3). State and local governments and planning agencies should provide for land use planning and development, zoning, and housing regulations that are compatible with airport operations.

- Residential Development – Page 13-12

FAA must consider whether the sponsor has fulfilled its responsibilities regarding compatible land use under Grant Assurance 21, Compatible Land Use. Airport sponsors are obligated to take appropriate action, including the adoption of zoning laws, to the extent reasonable to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. Local land use planning, as a method of determining appropriate (and inappropriate) use of properties around airports, should be an integral part of the land use policy and regulatory tools used by state and local land use planning agencies. Very often, such land use planning coordination is hampered by the fact that an airport can be surrounded by multiple individual local governmental jurisdictions, each with its own planning process. Some airport authorities have the authority to control land use, but many do not. If the airport sponsor does not have authority to control local land use, FAA will not hold the actions of independent land use authorities against the airport sponsor. However, FAA expects the airport sponsor to take reasonable actions to encourage independent land use authorities to make land use decisions that are compatible with aircraft operations. The airport sponsor should be proactive in opposing planning and proposals by independent authorities to permit development of new noncompatible land uses around the airport. Note that a key consideration for achieving federally mandated airport and airspace clearance requirements is compliance with 14 CFR Part 77, Objects Affecting Navigable Airspace, which requires that prior notification must be given to

the FAA regarding any construction or alteration of structures that meet specific criteria.

C.2 State of Rhode Island

Rhode Island General Laws, Title 1, *Aeronautics*, Chapter 1-3 – *Airport Zoning* identifies existing state policies and authorizes establishment of regulations and guidelines for land use zoning near airports. This statute requires the creation of airport airspace plans by RIAC for each publicly-owned airport that would be considered by airport host communities when establishing appropriate local zoning controls. The statute also requires those communities to adopt limits for object heights which mirror FAR Part 77 regulations, as well as enforcement authority not present in FAR Part 77. (See www.rilin.state.ri.us/statutes/ for the full publication of the current laws.)

As stated previously, it is a goal of the 2004 Rhode Island Aviation System Plan to ensure that *Rhode Island's airports will exist compatibly within their communities while providing air services appropriate to their roles*. As part of meeting that goal, Rhode Island desires to have local planning and/or zoning boards plan for, enact, and enforce zoning to protect local airports because they are valuable public facilities as well as economic centers for the local and state economies. The following statutes and their associated regulations should be used as a reference point that can be strengthened by more detailed regulations and plans at the local level.

Rhode Island General Laws - Title 1 Aeronautics - CHAPTER 1-3 Airport Zoning

- Section 1-3-1 Short title
- Section 1-3-2 Definitions
- Section 1-3-3 Declaration of policy
- Section 1-3-4 Airport approach plans
- Section 1-3-5 Zoning powers of political subdivisions
- Section 1-3-6 Joint zoning boards
- Section 1-3-7 Airspace plans to be considered in zoning
- Section 1-3-8 Reasonableness of zoning regulations
- Section 1-3-9 Continuance of existing uses
- Section 1-3-10 Purchase or condemnation of air rights
- Section 1-3-11 Procedure for adoption of regulations

- Section 1-3-12 Incorporation in general zoning regulations
- Section 1-3-13 Conflict with general zoning regulations
- Section 1-3-14 Permits to construct, change, or repair structures – Removal of nonconforming uses
- Section 1-3-15 Variances
- Section 1-3-16 Obstruction markers
- Section 1-3-17 Delegation of administration and enforcement duties
- Section 1-3-18 Powers of board of appeals
- Section 1-3-19 Composition of board of appeals
- Section 1-3-20 Rules, meetings, and witnesses of board of appeals
- Section 1-3-21 Parties entitled to appeal – Filing
- Section 1-3-22 Stay of proceedings by appeal
- Section 1-3-23 Hearing of appeals
- Section 1-3-24 Decisions by board of appeals
- Section 1-3-25 Majority vote of board of appeals
- Section 1-3-26 Records of board of appeals
- Section 1-3-27 Judicial review
- Section 1-3-31 Costs against board of appeals
- Section 1-3-32 Penalty for violations – Enforcement by injunction
- Section 1-3-33 Severability

Section 1-3-1 Short title

This chapter shall be known and may be cited as the "Airport Zoning Act".
(P.L. 1946, ch. 1743, § 13; G.L. 1956, § 1-3-1.)

Section 1-3-2 Definitions

As used in this chapter, unless the context otherwise requires:

- (1) "Airport" means any area of land or water, or both, designed and set aside for the landing and taking off of aircraft and utilized or to be utilized in the interest of the public for those purposes. An airport is "publicly owned" if the portion used for the landing and taking off of aircraft is owned, operated, controlled, leased to or leased by the United States, or any agency or department of the United States, this state, or any other state, or any municipality or other political subdivision of this state, or any other state, or any other governmental body, public agency or other public corporation.
- (2) "Airport hazard" means any electronic transmission device or structure, which, as determined by the federal aviation administration, interferes with radio communication between airport and aircraft approaching or leaving the

airport, or any structure or tree or use of land which obstructs the airspace required for the flight of aircraft in landing or taking off at any airport or is otherwise hazardous to the landing or taking off of aircraft.

(3) "Airport hazard area" means any area of land or water upon which an airport hazard might be established if not prevented as provided in this chapter.

(4) "Obstruction" means any tangible, inanimate physical object, natural or artificial, protruding above the surface of the ground.

(5) "Person" means any individual, firm, co-partnership, corporation, company, association, joint stock association, or body politic, and includes any trustee, receiver, assignee or other similar representative.

(6) "Political subdivision" means any city or town or any other public corporation, authority or district, or any combination of two (2) or more, which is currently empowered to adopt, administer and enforce municipal zoning regulations.

(7) "Structure" means any object constructed or installed by humans, including, but without limitation, buildings, towers, smokestacks, and overhead transmission lines, including the poles or other structures supporting the object.

(8) "Tree" means any object of natural growth.

(9) "Airport corporation" means the Rhode Island Airport Corporation.

(P.L. 1946, ch. 1743, § 1; G.L. 1956, § 1-3-2; P.L. 1999, ch. 462, § 1.)

Section 1-3-3 Declaration of policy

It is found and declared that an airport hazard endangers the lives and property of users of the airport and of occupants of land and other persons in its vicinity and also, if of the obstruction type, in effect reduces the size of the area available for the landing, taking off and maneuvering of aircraft, thus tending to destroy or impair the utility of the airport and the public investment in the airport.

Accordingly, it is declared:

(1) That the creation or establishment of an airport hazard is a public nuisance and an injury to the community served by the airport in question.

(2) That it is necessary in the interest of the public health, safety and general welfare that the creation or establishment of airport hazards be prevented.

(3) That this should be accomplished, to the extent legally by proper exercise of the police power, without compensation.

(4) That the prevention of the creation or establishment of airport hazards, and the elimination, removal, alteration, mitigation, or marking and lighting of existing airport hazards are public purposes for which the state and its political

subdivisions may raise and expend public funds, and acquire land or property interests.

(5) That any obstructions to the use of navigable airspace destroy and impair the safe use of such airspace thereby endangering aircraft and are not in the interest of public health, public safety or general welfare.

(P.L. 1946, ch. 1743, § 2; G.L. 1956, § 1-3-3; P.L. 1999, ch. 462, § 1.)

Section 1-3-4 Airport approach plans

The airport corporation shall formulate, adopt and revise, when necessary, an airport airspace plan for each publicly owned airport in the state. Each plan shall indicate the circumstances in which structures and trees are or would be airport hazards, the area within which measures for the protection of the airport's navigable airspace, including aerial approaches, should be taken, and what the height limits and other objectives of those measures should be. In adopting or revising any airspace plan, the airport corporation shall consider, among other things, the character of flying operations expected to be conducted at the airport, the traffic pattern and regulations affecting flying operations at the airport, the nature of the terrain, the height of existing structures and trees above the level of the airport, and the possibility of lowering or removing existing obstructions. The airport corporation may obtain and consider the views of the agency of the federal government charged with the fostering of civil aeronautics, as to the aerial approaches and other regulated airspace necessary to safe flying operations at the airport.

(P.L. 1946, ch. 1743, § 3; G.L. 1956, § 1-3-4; P.L. 1999, ch. 462, § 1.)

Section 1-3-5 Zoning powers of political subdivisions

(1) In order to prevent the creation or establishment of airport hazards, every political subdivision having an airport hazard area wholly or partly within its territorial limits shall adopt, administer, and enforce, under the police power and in the manner and upon the conditions prescribed, airport zoning regulations for that part of the airport hazard area which is within its territorial limits, which regulations may divide the airport hazard area into zones, and, within those zones, specify the land uses permitted and regulate and restrict the height to which structures and trees may be erected or allowed to grow.

(2) A political subdivision which includes an airport hazard area created by the location of a public airport shall adopt, administer, and enforce zoning ordinances pursuant to this chapter if the existing comprehensive zoning ordinance for the political subdivision does not provide for the land uses

permitted, and regulate and restrict the height to which structures may be erected or objects of natural growth may be allowed to grow in, an airport hazard area.

(3) A political subdivision which includes an airport hazard area created by the location of a public airport shall adopt, either in full or by reference, the provisions of Part 77 of Title 14 of the Code of Federal Regulations, entitled "Objects Affecting Navigable Airspace" hereinafter known as Part 77.

(P.L. 1946, ch. 1743, § 4; G.L. 1956, § 1-3-5; P.L. 1999, ch. 462, § 1.)

Section 1-3-6 Joint zoning boards

Where an airport is owned or controlled by a political subdivision or where any other publicly owned airport is in one or more political subdivisions and where any airport hazard area appertaining to that airport is located outside the territorial limits of the political subdivision or subdivisions, the political subdivisions in which the airport and airport hazard area or areas are located may, by ordinance or resolution adopted, create a joint airport zoning board. The board shall have the same power to adopt, administer, and enforce airport zoning regulations applicable to the airport hazard area or areas in question as that vested by § 1-3-5 in the political subdivision within which the area is located. Each joint board shall have as members two (2) representatives appointed by the city or town council or other legislative body of each political subdivision participating in its creation or addition. Another member is to be chairperson, elected by a majority of the members appointed.

(P.L. 1946, ch. 1743, § 4; G.L. 1956, § 1-3-6; P.L. 1999, ch. 462, § 1.)

Section 1-3-7 Airspace plans to be considered in zoning

In adopting, administering, and enforcing any airport zoning regulations under this chapter, the political subdivision or subdivisions shall consider the airport airspace plan prepared by the airport corporation and the further considerations outlined in § 1-3-4.

(P.L. 1946, ch. 1743, § 4; G.L. 1956, § 1-3-7; P.L. 1999, ch. 462, § 1.)

Section 1-3-8 Reasonableness of zoning regulations

All airport zoning regulations adopted under this chapter shall be reasonable and none shall impose any requirement or restriction which is not reasonably necessary to effectuate the purpose of the chapter. In addition, each political subdivision and zoning board shall consider the regulations or standards

promulgated by the Federal Aviation Administration in zoning the use of land and structures in areas over which jurisdiction is assumed.

(P.L. 1946, ch. 1743, § 4; G.L. 1956, § 1-3-8; P.L. 1999, ch. 462, § 1.)

Section 1-3-9 Continuance of existing uses

No airport zoning regulations adopted under this chapter shall require the removal, lowering or other change or alteration of any structure or tree not conforming to the regulations when adopted or amended, or otherwise interfere with the continuance of any nonconforming use, except as provided in §§ 1-3-14 – 1-3-16.

(P.L. 1946, ch. 1743, § 4; G.L. 1956, § 1-3-9.)

Section 1-3-10 Purchase or condemnation of air rights

In any case in which:

- (1) It is desired to remove, lower, or otherwise terminate a nonconforming use;
or
- (2) The approach protection necessary cannot, because of constitutional limitations, be provided by airport zoning regulations under this chapter; or
- (3) It appears advisable that the necessary approach protection be provided by acquisition of property rights rather than by airport zoning regulations, the political subdivision within which the property or nonconforming use is located or the political subdivision owning the airport or served by it may acquire, by purchase, grant, or condemnation in the manner provided by the law under which political subdivisions are authorized to acquire real property for public purposes, any air right, easement, or other estate or interest in the property or nonconforming use in question as may be necessary to effectuate the purposes of this chapter.

(P.L. 1946, ch. 1743, § 11; G.L. 1956, § 1-3-10.)

Section 1-3-11 Procedure for adoption of regulations

No airport zoning regulations shall be adopted, amended or changed under this chapter except by action of the legislative body of the political subdivision in question, or the joint board provided for in § 1-3-6, after a public hearing in relation to these zoning regulations, at which parties of interest and citizens shall have an opportunity to be heard. At least fifteen (15) days' notice of the hearing shall be published in an official paper, or a paper of general circulation, in the political subdivision or subdivisions in which the airport or airport hazard areas are located.

(P.L. 1946, ch. 1743, § 6; G.L. 1956, § 1-3-11; P.L. 1999, ch. 462, § 1.)

Section 1-3-12 Incorporation in general zoning regulations

In the event that a political subdivision has adopted or adopts a comprehensive zoning ordinance regulating, among other things, the height of buildings, any airport zoning regulations adopted for the same area or portion of the area under this chapter may be incorporated in those general zoning regulations, and be administered and enforced in connection with those regulations, but those general zoning regulations shall not limit the effectiveness of the regulations adopted under this chapter.

(P.L. 1946, ch. 1743, § 5; G.L. 1956, § 1-3-12.)

Section 1-3-13 Conflict with general zoning regulations

In the event of conflict between any airport zoning regulations adopted under this chapter and any other regulations applicable to the same area, whether the conflict is with respect to the height of structures or trees, the use of land, or any other matter, and whether those regulations were adopted by the political subdivision that adopted the airport zoning regulations or by some other political subdivision, the more stringent limitation or requirement shall govern.

(P.L. 1946, ch. 1743, § 5; G.L. 1956, § 1-3-13.)

Section 1-3-14 Permits to construct, change, or repair structures – Removal of nonconforming uses

(a) Where advisable to facilitate the enforcement of zoning regulations adopted pursuant to this chapter, any political subdivision in which an airport or airport hazard area is located shall establish a system for the granting of permits to establish or construct new structures and other uses and to replace existing structures and other uses or to make substantial changes or substantial repairs.

Each person seeking a permit to construct or alter a structure within an airport hazard area under this section shall file a form 7460-1 with the federal aviation administration, (FAA), as required under part 77. Furthermore, each person shall file a copy of the form 7460-1 and the FAA part 77 determination with the airport corporation and with the political subdivision or joint zoning board. A political subdivision or joint zoning board shall consider the FAA part 77 determination before granting any permit.

(b) Before any nonconforming structure or tree may be replaced, substantially altered or repaired, rebuilt, allowed to grow higher, or replanted, a permit must be secured from the administrative agency authorized by the political subdivision to administer and enforce the regulations, authorizing the replacement, change, or repair. No permit shall be granted that would allow the structure or tree in question to be made higher or become a greater obstruction and/or hazard to air navigation than it was when the applicable regulation was adopted. Whenever the administrative agency authorized by the political subdivision determines that a nonconforming structure has been abandoned or more than eighty percent (80%) torn down, destroyed, deteriorated, or decayed:

(1) No permit shall be granted that would allow the structure or tree to exceed the applicable height limit established by the airport's airspace plan or otherwise deviate from the zoning regulations;

(2) Whether application is made for a permit under this section or not, the administrative agency authorized by the political subdivision may by appropriate action compel the owner of the nonconforming structure or tree, at his or her own expense, to lower, remove, reconstruct, or equip the object as may be necessary to conform to the regulations or, if the owner of the nonconforming structure or tree fails to comply with the order for ten (10) days after notice, the agency may proceed to have the object so lowered, removed, reconstructed, or equipped and assess the cost and expense upon the owner of object or the land where it is or was located.

(c) Unless an assessment is paid within ninety (90) days from the service of notice on the agent or owner of the object or land, the sum shall bear interest at the rate of ten percent (10%) per annum until paid, and shall be collected in the same manner as are general taxes.

(d) [Deleted by P.L. 1999, ch. 462, § 1.]

(P.L. 1946, ch. 1743, § 7; G.L. 1956, § 1-3-14; P.L. 1999, ch. 462, § 1.)

Section 1-3-15 Variances

Any person desiring to erect any structures, increase the height of any structure, permit the growth of any tree, or otherwise use his or her property in violation of airport zoning regulations adopted under this chapter may apply to the board of appeals, as provided in §§ 1-3-18 – 1-3-26, for a variance from the zoning regulations in question. Variances shall be allowed where a literal application or

enforcement of the regulations would result in practical difficulty or unnecessary hardship and the relief granted would not be contrary to the public interest but do substantial justice and be in accordance with the spirit of the regulations of this chapter.

(P.L. 1946, ch. 1743, § 7; G.L. 1956, § 1-3-15.)

Section 1-3-16 Obstruction markers

In granting any permit or variance under §§ 1-3-14 – 1-3-16, the administrative agency or board of appeals may, if it deems the action advisable to effectuate the purposes of this chapter and reasonable in the circumstances condition the permit or variance as to require the owner of the structure or tree in question to permit the political subdivision, at its own expense, to install, operate, and maintain suitable obstruction markers and obstruction lights or the structure or trees.

(P.L. 1946, ch. 1743, § 7; G.L. 1956, § 1-3-16.)

Section 1-3-17 Delegation of administration and enforcement duties

The legislative body of any political subdivision adopting airport zoning regulations under this chapter may delegate the duty of administering and enforcing those regulations to any administrative agency under its jurisdiction, or may create a new administrative agency to perform the duty, but the administrative agency shall not be, or include any member of, the board of appeals. The duties of the administrative agency shall include that of hearing and deciding all permits under § 1-3-14, but the agency shall not have or exercise any of the powers delegated to the board of appeals.

(P.L. 1946, ch. 1743, § 8; G.L. 1956, § 1-3-17.)

Section 1-3-18 Powers of board of appeals

Airport zoning regulations adopted under this chapter shall provide for a board of appeals to have and exercise the following powers:

- (1) To hear and decide appeals from any order, requirement, decision, or determination made by the administrative agency in the enforcement of this chapter or of any ordinance adopted;
- (2) To hear and decide special exceptions to the terms of the ordinances which the board may be required to pass under the ordinance; and
- (3) To hear and decide specific variances under § 1-3-15.

(P.L. 1946, ch. 1743, § 8; G.L. 1956, § 1-3-18.)

Section 1-3-19 Composition of board of appeals

Where a zoning board of appeals or adjustment already exists, it may be appointed as the board of appeals. Otherwise, the board of appeals shall consist of five (5) members, each to be appointed for a term of three (3) years and to be removable for cause by the appointing authority upon written charges and after a public hearing.

(P.L. 1946, ch. 1743, § 8; G.L. 1956, § 1-3-19.)

Section 1-3-20 Rules, meetings, and witnesses of board of appeals

The board shall adopt rules in accordance with the provisions of any ordinance adopted under this chapter. Meetings of the board shall be held at the call of the chairperson and at any other times that the board may determine. The chairperson, or in his or her absence the acting chairperson, may administer oaths and compel the attendance of witnesses. All meetings of the board shall be public.

(P.L. 1946, ch. 1743, § 8; G.L. 1956, § 1-3-20; P.L. 1987, ch. 78, § 6.)

Section 1-3-21 Parties entitled to appeal – Filing

Appeals to the board may be taken by any person aggrieved, or by any officer, department, board, or bureau of the political subdivision affected, by any decision of the administrative agency. An appeal must be taken within a reasonable time, as provided by the rules of the board, by filing with the agency from which the appeal is taken and with the board, a notice of appeal specifying the grounds. The agency from which the appeal is taken shall transmit to the board all the papers constituting the record upon which the action appealed from was taken.

(P.L. 1946, ch. 1743, § 8; G.L. 1956, § 1-3-21.)

Section 1-3-22 Stay of proceedings by appeal

An appeal shall stay all proceedings in furtherance of the action appealed from, unless the agency from which the appeal is taken certifies to the board, after the notice of appeal has been filed with it, that by reason of the facts stated in the certificate a stay would, in its opinion, cause imminent peril to life or property. In the latter case, proceedings shall not be stayed otherwise than by a restraining order which may be granted by the board or by a court of record on application on notice to the agency from which the appeal is taken and on due cause shown.

(P.L. 1946, ch. 1743, § 8; G.L. 1956, § 1-3-22.)

Section 1-3-23 Hearing of appeals

The board shall fix a reasonable time for the hearing of the appeal, give public notice and due notice to the parties in interest, and decide the appeal within a

reasonable time. Upon the hearing, any party may appear in person, by agent, or by attorney.

(P.L. 1946, ch. 1743, § 8; G.L. 1956, § 1-3-23.)

Section 1-3-24 Decisions by board of appeals

The board may, in conformity with the provisions of this chapter, reverse or affirm, wholly or partly, or modify, the order, requirement, decision, or determination appealed from and may make any order, requirement, decision, or determination as ought to be made, and to that end shall have all the powers of the administrative agency from which the appeal is taken.

(P.L. 1946, ch. 1743, § 8; G.L. 1956, § 1-3-24.)

Section 1-3-25 Majority vote of board of appeals

The concurring vote of a majority of the members of the board shall be sufficient to reverse any order, requirement, decision, or determination of the administrative agency, or to decide in favor of the applicant on any matter upon which it is required to pass under any ordinance, or to effect any variation in an ordinance.

(P.L. 1946, ch. 1743, § 8; G.L. 1956, § 1-3-25.)

Section 1-3-26 Records of board of appeals

The board shall keep minutes of its proceedings, showing the vote of each member upon each question or, if absent or failing to vote, indicating that fact, and shall keep records of its examinations and other official actions, all of which shall be filed immediately in the office of the board and shall be a public record.

(P.L. 1946, ch. 1743, § 8; G.L. 1956, § 1-3-26.)

Section 1-3-27 Judicial review

Any person or persons jointly or severally aggrieved by any decision of the board of appeals, or any taxpayer, or any officer, department, board, or bureau of the political subdivision, or the airports division, may appeal to the superior court in the manner prescribed by § 45-24-20 and the provisions of that section shall in all respects be applicable to the appeal.

(P.L. 1946, ch. 1743, § 9; G.L. 1956, § 1-3-27; P.L. 1969, ch. 239, § 49.)

Section 1-3-31 Costs against board of appeals

Costs shall not be allowed against the board of appeals unless it appears to the court that it acted with gross negligence, in bad faith, or with malice, in making the decision appealed from.

(P.L. 1946, ch. 1743, § 9; G.L. 1956, § 1-3-31.)

Section 1-3-32 Penalty for violations – Enforcement by injunction

Each violation of this chapter or of any regulations, order, or ruling promulgated or made pursuant to this chapter, shall constitute a misdemeanor and shall be punishable by a fine not exceeding five hundred dollars (\$500) or imprisonment not exceeding ninety (90) days, or by both, and each day a violation continues to exist shall constitute a separate offense. In addition, the political subdivision or agency adopting zoning regulations under this chapter may institute in any court of competent jurisdiction, an action to prevent, restrain, correct or abate any violation of this chapter, or of airport zoning regulations adopted under this chapter, or of any order or ruling made in connection with their administration or enforcement, and the court shall adjudge to the plaintiff any relief, by way of injunction, which may be mandatory, or otherwise, as may be proper under all the facts and circumstances of the case, in order to fully effectuate the purposes of this chapter and of the regulations adopted and orders and ruling made pursuant to this chapter.

(P.L. 1946, ch. 1743, § 10; G.L. 1956, § 1-3-32.)

Section 1-3-33 Severability

If any provision of this chapter or the application of this chapter to any person or circumstances is held invalid, the invalidity shall not affect other provisions or applications of the chapter which can be given effect without the invalid provision or application, and to this end the provisions of this chapter are declared to be severable.

(P.L. 1946, ch. 1743, § 12; G.L. 1956, § 1-3-33.)

C.3 Local Governments

The primary responsibility for incorporating airport considerations into the local land use planning process rests with local governments, local land use agencies, and airport administrators. Land use regulation near airports is typically achieved through municipal codes, ordinances and plans that include airport districts, zones, or planning areas which enforce land uses adjacent to airports. Some of the most important tools that should be considered for use in ensuring airport land use compatibility include incorporation of specific language within the Rhode Island State Guide Plan and relevant town comprehensive plans; establishment of appropriate zoning codes and development regulations; actively maintaining airport master plans, airport layout plans, and airport property maps; and constructing airport zoning maps.

Land use coordination should be an integral part of local airport land use planning efforts. Coordination of land use planning goals is essential to airport planning efforts because airport facilities are often surrounded by a multitude of individual governmental jurisdictions as well as private property. In many cases, each local jurisdiction has their own set of plans and ordinances and their own policy process. The airport sponsor (RIAC) may also have separate strategies for improvement of an airport. Thus, early and ongoing coordination between adjacent land use agencies, governments, and airport administrators can help to achieve sustainable and economically balanced land uses around airports. The valuable insight that each entity can bring to the table will help in forming plans or programs that are regionally accepted. Successful coordination and agreement in formulating land use decision near airports is crucial in protecting the needs of local governments, airports, and Rhode Island's communities.

Following are the current (as of the publication date of this guidebook) airport land use and zoning regulations established by the host communities for Rhode Island's state airports. Please note that as this guidebook evolves and grows over time, specific information related to the local governmental requirements will be collected and included.

Town of Lincoln, RI (North Central Airport)

The Town of Lincoln has Airport Hazard Zone (AHZ) references incorporated into its Zoning Ordinance (last adopted May 15, 2007). The specific language is provided below. It should be noted that while the town does incorporate an

Airport Hazard Zone overlay into its ordinances (in compliance with state law), the actual zone has never been defined. The reason for this is that RIAC, who under state law is responsible for defining the basis of this zone (i.e Airport Hazard Areas), has not yet presented the town with an Airport Hazard Area plan.

Article II Definitions - §260-7: Definitions

Airport Hazard: As defined in R.I.G.L. § 1-3-2. Airport hazard means any electronic transmission device or structure, which, as determined by the federal aviation administration, interferes with radio communication between airport and aircraft approaching or leaving the airport, or any structure or tree or use of land which obstructs the airspace required for the flight of aircraft in landing or taking off at any airport or is otherwise hazardous to the landing or taking off of aircraft.

Article III Use Regulations - §260-16: Transportation Uses

Transportation Uses	RA	RS	RL	RG	BL	ML	MG	CR1	CR2	VCMU
§260-16A: Airport	N	N	N	N	N	S	S	N	N	N

Article VIII Overlay Zones - §260-43: Airport Hazard Zone (AHZ)

- A. *Purpose:* It is hereby found and declared that airport hazards may endanger the lives and property of users of the airport and of occupants of land and other persons in its vicinity. The creation or establishment of an airport hazard is a public nuisance and an injury to the community. It is necessary in the interest of public health, safety, and general welfare that the creation or establishment of airport hazards be prevented.
- B. *Height restriction:* Within an airport hazard zone overlay district, the height of structures and trees shall be restricted to a height below the airport approach plan as prepared by the Rhode Island Airport Corporation for the North Central Airport. All new construction or alteration that increases the height of an existing structure shall supply a site plan. This site plan shall display the altitude of the land above mean sea level and shall clearly note the height of the structure above mean sea level. Additionally, the applicant shall provide the distance between the structure and the end of the airport runway and the direction of the airport, and such distances shall be clearly noted on the site plan.
- C. *Existing hazards:* This overlay zone shall not require the removal, lowering or other change or alteration of any structure not in conformance prior to the adoption of the overlay zone.

- D. *Replacing nonconforming structures:* Before a nonconforming structure may be replaced, substantially altered or repaired, rebuilt, allowed to grow higher or replanted, a special permit shall be granted from the Zoning Board of Review. No permit shall be granted that would allow the structure in question to be made higher or become a greater hazard to air navigation than it was when the applicable regulation was adopted.
- E. *Abandonment:* Whenever the Zoning Enforcement Officer determines that a nonconforming structure has been abandoned as defined in §260-54K of this ordinance, or more than 80% torn down, destroyed, deteriorated, or decayed: 1) no permit shall be granted that would allow the structure to exceed the applicable height limit or otherwise deviate from the zoning regulations; and 2) whether application is made for a permit under this section or not, the Zoning Enforcement Officer may by appropriate action compel the owner of the nonconforming structure, at his own expense, to lower, remove, reconstruct or equip the object as may be necessary to conform to the height limit or, if the owner of the nonconforming structure shall neglect or refuse to comply with such order for 10 days after notice thereof, the Zoning Enforcement Officer may proceed to have the object so lowered, removed, or reconstructed, or equipped and assess the cost and expense thereof upon the object or the land whereon it is located. Unless an assessment is paid within 90 days from the service of notice thereof on the agent or owner of the object or land, the sum shall bear interest at the rate of 10% per annum until paid, and shall be collected in the same manner as are general taxes.
- F. *Variances for airport hazards:* Any person desiring to erect any structure, or increase the height of any structure, or otherwise use his property, in violation of the height restriction may apply to the Zoning Board of Review for a variance from the limitation. Variances shall be allowed where a literal application or enforcement of the regulations would result in practical difficulty or unnecessary hardship and the relief granted would not be contrary to the public interest but do substantial justice and be in accordance with the spirit of the regulations of Chapter 3 of Title 1 of the Rhode Island General Laws.
- G. *Standards for approval:* In granting any permit or variance, the reviewing board or agency may, if it deems the action advisable and reasonable in circumstance, condition the permit or variance to require the owner of the structure or tree in question to permit the Town, at the property owners expense, to install, operate, and maintain suitable obstruction markers and obstruction lights thereon.

Town of Middletown, RI (Newport Airport)

The Town of Middletown’s Zoning Ordinance (last ammended May 21, 2012) has a reference to airport area height restrictions, but nothing related to zoning or land use.

Article VII Supplemental Regulations - § 713 Airport Height Restrictions

In any district, the height of any structure or growing thing, hereafter erected or permitted to grow in the vicinity of the Newport State Airport shall not exceed the heights indicated on the map entitled "Airport Approach Plan for Newport State Airport" as filed in the Office of the Town Clerk, and as it may be revised from time to time under the provisions of R.I. Gen. Laws § 1-3-4, as amended, which map, as amended, is hereby incorporated in and made a part of this section.

Town of New Shoreham, RI (Block Island Airport)

The Town of New Shoreham’s Zoning Ordinance (last ammended August 17, 2011) makes no reference to the airport other than to define “airport” and to incorporate the airport approaches into any analysis associated with the erection of a new wind turbine.

Town of North Kingstown, RI (Quonset Airport)

The Town of North Kingstown’s Zoning Ordinance (last ammended December 17, 2012) makes no reference to the airport other than to define “airport hazard area” and to provide several ancillary references to the airport.

Town of Smithfield, RI (North Central Airport)

The Town of Smithfield has Airport Hazard Overlay District references incorporated into its Zoning Ordinance (last ammended May 12, 2012). The specific language is provided below. It should be noted that while the town does incorporate an Airport Hazard Overlay District into its ordinances (in compliance with state law), the actual zone has never been defined. The reason for this is that RIAC, who under state law is responsible for defining the basis of this district (i.e Airport Hazard Areas), has not yet presented the town with an Airport Hazard Area plan.

Article I – General Provisions - 1.3 Establishment of Zoning Districts

P. *Airport Hazard Overlay District* - This overlay district is intended to protect areas of land or water upon which an airport hazard might be established, if not prevented, as provided in Chapter 3 (Airport Zoning Act) of the General Laws of Rhode Island, as amended.

Article IV Use Regulations - 4.2. Permitted Uses

Zoning Uses	R-200	R-80	R-Med	R-20	R-20M	MU	V	C	HC	LI	I	PC	PD
1. Airport, Heliport													
1.A. Airport	N	N	N	N	N	N	N	N	N	N	S	S	S
1.B. Heliport	N	N	N	N	N	N	N	N	N	N	S	S	S

K. Transportation Uses - K-1. Airport; Heliport

Airport or heliport subject to the following:

- A. Any buildings, hangars, or other structures shall be at least one hundred (100) feet from any street or lot line and at least five hundred (500) feet from any residential district boundary.
- B. Adequate space for off-street parking for at least fifty (50) vehicles shall be provided. If in the opinion of the Board, off-street parking for more than fifty (50) vehicles will be required, the Board shall increase this requirement.
- C. In addition to all other requirements of the land development plan, the application for authorization of an airport or heliport shall be accompanied by a plan, drawn to scale, showing the proposed location of the airport or heliport; boundary lines; dimensions; names of owners of abutting properties; proposed layout of runways, landing strips or areas, taxi strips, aprons, roads, parking areas, hangars, buildings, and other structures and facilities; the location and height of all buildings, structures, trees, and overhead wires falling within the airport approach zone and less than five hundred (500) feet distance from the boundary lines of the airport or heliport; other pertinent data such as topography and grading plan, drainage, water, and sewage, etc.
- D. In its land development plan review of the proposed airport or heliport, the Planning Board shall make a finding on at least the following two issues:
 - (1) Whether the airport or heliport is in conflict with any existing element of the Comprehensive Community Plan;

(2) Whether the benefits of and need for the airport or heliport area are greater than any possible depreciating effects and damages in the neighboring property.

Article IX Special Districts - 9.2. Airport Overlay District

Within the Airport Overlay District,

- A. The area shall be sufficient to meet the Federal Aviation Administration requirements for the class of airport or heliport proposed.
- B. There shall be no existing flight obstruction such as towers, chimneys, or other tall structures, or natural obstructions outside the proposed airport which would fall within the approach zone to any of the proposed airport or heliport runways or landing strips.
- C. There shall be sufficient distance between the end of each usable landing strip and the airport boundary to satisfy the requirements of the Federal Aviation Administration, or any other appropriate authority.
- D. In cases where air rights or easements have been acquired from the owners of abutting properties in which approach zones fall, satisfactory evidence thereof shall be submitted with the application.

CFR Title 14 Part 77

Objects Affecting Navigable Airspace

(Document can also be found on the Electronic Code of Federal Regulations website at <http://ecfr.gpoaccess.gov>.)

This Page Intentional Left Blank

FEDERAL AVIATION REGULATIONS

Part 77 Objections Affecting Navigable Airspace

This edition replaces the existing loose-leaf
Part 77 and its changes.

This FAA publication of the basic Part 77, effective May 1, 1965,
incorporates Amendments 77-1 through 77-11 with preambles.

Published
March 1993

Introductory Note

Part 77 is codified under Subchapter C, Aircraft, of Title 14 of the Code of Federal Regulations.

This FAA publication of the basic Part 77, effective May 1, 1965, incorporates Amendments 73-1 through 73-11.

Bold brackets [**]** throughout the regulation indicate the most recent changed or added material for that particular subpart. The amendment number and effective date of new material appear in bold brackets at the end of each affected section.

NOTICE TO FAA AND OTHER GOVERNMENT USERS

Distribution of changes to this part within the Federal Aviation Administration and other U.S. Government agencies will be made automatically by FAA in the same manner as distribution of this basic part.

Part 77--Objects affecting Navigable Airspace

Contents

Section

Preambles	5
-----------------	---

Subpart A--General

77.1	Scope	23
77.2	Definition of terms	23
77.3	Standards	24
77.5	Kinds of objects affected	24

Subpart B--Notice of Construction or Alteration

77.11	Scope.....	25
77.13	Construction or alteration requiring notice.....	25
77.15	Construction or alteration not requiring notice.....	26
77.17	Form and time of notice	26
77.19	Acknowledgment of notice.....	27

Subpart C--Obstruction Standards

77.21	Scope	28
77.23	Standards for determining obstructions	28
77.25	Civil airport imaginary surfaces	29
77.27	[Reserved]	30
77.28	Military airport imaginary surfaces	30
77.29	Airport imaginary surfaces for heliports	31

Subpart D--Aeronautical Studies of Effect of Proposed Construction on Navigable Airspace

77.31	Scope	32
77.33	Initiation of studies	32
77.35	Aeronautical studies	32
77.37	Discretionary review	32
77.39	Effective period of determination of no hazard	33

Subpart E--Rules of Practice for Hearings under Subpart D

77.41	Scope	34
77.43	Nature of hearing.....	34
77.45	Presiding officer	34
77.47	Legal officer	34
77.49	Notice of hearing	34
77.51	Parties to the hearing.....	34
77.53	Prehearing conference.....	35
77.55	Examination of witnesses	35
77.57	Evidence.....	35
77.59	Subpoenas of witnesses and exhibits	35

Contents-Continued

<i>Section</i>		<i>Page</i>
77.61	Revision of construction or alteration.....	35
77.63	Record of hearing.....	36
77.65	Recommendations by parties	36
77.67	Final decision of the Administrator	36
77.69	Limitation on appearance and representation	36
 Subpart F--Establishment of Antenna Farm Areas		
77.71	Scope	37
77.73	General provisions	37
77.75	Establishment of antenna farm areas.....	37

Adoption of Revised Part 77

Adopted: February 3, 1965

Effective: May 1, 1965

(Published in 30 F.R. 1837, February 10, 1965)

This revision of Part 77 of the Federal Aviation Regulations relaxes and simplifies the requirements for notice to the Agency of certain proposed structures, consolidates obstruction standards for use in the several Agency programs, and streamlines the Agency procedures for determining the effect of proposed structures on air navigation.

The proposed revision was published in the Federal Register (28 F.R. 7788-7795) on July 31, 1963. Extensive comments were received from aeronautical and non aeronautical sources which endorsed generally the changes under consideration. These comments were very constructive in nature and the Agency appreciates the cooperative spirit in which they were submitted. Since the discussion here must necessarily be a limited review and explanation of the principal actions being taken, the Agency is unable to give specific recognition to each comment. However, each person who participated may be assured that full consideration was given to his recommendations.

The first noteworthy departure in this amendment from the revisions originally proposed relates to the statement in Subpart A-General on the lack of application of Subparts B, D, and E to construction work begun before July 15, 1961. This has been deleted as unnecessary and possibly misleading. The extensive amendments made by this revision to all portions of Part 77 will take effect at the effective date provided herein. Notices received after this date will be processed under the provisions of Part 77 as revised. Aeronautical studies begun prior to this effective date will be continued under the new provisions.

Public reaction to the proposed revisions of the notice requirements disclosed a need for several adjustments. The first of these involves the requirement for notice to the Agency of any proposed structure which would pierce an imaginary slope of 100 to 1 extending from the property line of an airport listed in the "Airport Directory" of the Airman's Information Manual. The property line was selected as a point of beginning because of its greater availability to the public. This feature appears to be an inadequate substitute for the most appropriate point of beginning, that is, the nearest point of the runway nearest to the site of the proposed structure. The use of this point also fixes the elevation of the beginning of the pertinent imaginary slope at the elevation of that nearest point. In addition, the scope of the notice requirement has been substantially reduced. The horizontal distance of the 100 to 1 slope has been restricted to 20,000 feet and will now be applied only to airports with the longest runway more than 3,200 feet in length. For airports with the longest runway 3,200 feet or shorter, a 50 to 1 slope is prescribed for a horizontal distance of 10,000 feet. The FAA "Directory" furnishes the length of the longest runway at each airport. The notice requirement for helicopters now has a horizontal slope of 25 to 1 extending for 5,000 feet.

These notice requirements are made applicable for airports which are either listed in the "Directory" or are operated by a Federal military agency. We have determined that military airports need not be included in the "Directory" in view of their listing in military publications and the fact that their presence is generally well known to people living or owning property in their vicinity. In those cases where the boundaries of a runway of an airport, including a seaplane base, are not designated, the notice requirement of section 77.13(a)(2) will, obviously, not be applicable. However, the notice requirement would apply to those airports which have large sod, or other unpaved areas designated for the takeoff and landing of aircraft. Those areas constitute the runways from which the notice slope is computed. Also, the "Directory" will not list those airports constructed after December 31, 1958, which were the subject of a determination by the Agency that their establishment was not acceptable and would • have an adverse effect on the efficient use of airspace and the safety of aircraft.

While this amendment simplifies the current notice requirements, it is recognized that many construction proponents may nevertheless experience difficulty in ascertaining whether they are required to notify the Agency of their proposed structures. The Airspace Utilization Branch in each FAA regional office is staffed with technicians who are available to inform any interested person of the effect of these notice requirements on a specific construction

proposal. These technicians will also describe the airspace assignments and aeronautical operations in the area of the construction site so that the proponent may make an informed decision on the feasibility of the site and the availability of other areas which may serve his purpose equally and without derogation of air safety.

The substantial number of comments on the shielding provision of section 77.15 which excuses certain construction and alteration proposals from the notice requirements indicates a further explanation would be in order. The shielding provision adopted here is more restrictive than the one previously employed. This limitation was found necessary because of the unjustified extension of the earlier provision by certain construction proponents. As adopted, the shielding exemption is applicable only in the congested areas of cities, towns, and settlements, and then only to structures so shielded that they could not possibly derogate the safety of air navigation. It should be emphasized that this provision does not represent the Agency shielding criteria. It only relates to the exception from the notice requirements. Upon receiving the required notice, the Agency conducts an appropriate aeronautical study of the proposed structure and, in the course of that study, determines whether it would be, in fact, shielded.

The provisions describing the Agency acknowledgment of notices of construction proposals have been further simplified. The acknowledgment will advise each construction sponsor on two subjects, the possible application of the Agency marking and lighting standards, and whether the proposed structure may be a hazard to air navigation. On the first, the acknowledgment advises whether the construction proposal would be of a type included under the provisions of the FAA Manual on "Obstruction Marking and Lighting" and, if so, how the structure should be marked and lighted. On the hazard question, the acknowledgment will generally state whether the construction or alteration would exceed any of the obstruction standards of Subpart C and will either include a determination on whether the structure would be a hazard to air navigation or advise that further study is required to resolve the question. In the relatively few cases where the structure would exceed an obstruction standard and, in addition, would be located within a runway clear zone or the part of the primary surface extending beyond the end of a runway, the acknowledgment advises that the structure would be a hazard to air navigation. As indicated by this discussion, we have determined not to substitute the phrase "adverse effect on air navigation" for "hazard to air navigation." The Agency review of this portion of the proposal and the comments received with respect to it have disclosed that the "hazard" terminology is preferable.

The obstruction standards adopted here differ in many respects from those originally proposed. Upon review of the comments, the Agency has determined that the obstruction criteria most appropriate for promulgation at this time for civil airports, including joint-use airports, should be drawn more directly from the existing Technical Standard Order TSO-N18, "Criteria for Determining Obstruction to Air Navigation." In view of the substantial length of time that the TSO-N18 criteria have been employed for civil aviation purposes, the adoption of these criteria as the consolidated Agency criteria for use in the performance of the statutory functions authorized by the Federal Aviation Act and the Federal Airport Act should result in the least possible disruption of the performance of those functions.

The obstruction standards now presented in Subpart C are less stringent than those contained in the notice of Proposed Rule Making. The 200-foot limiting height of section 77.23(a) is now to be applied only within three statute miles of an airport with its longest runway more than 3,200 feet in length, rather than the proposed five statute miles. While there is an additional limiting height, beginning at 100 feet within instrument approach areas within three miles of the end of the runway and increasing to a maximum of 250 feet within ten miles from the runway end, this height is largely duplicative of other limiting heights or surfaces and does not constitute a substantial addition to the standard previously considered. We might note, in explanation of the use of the term "runway" here, that this term is now used, exclusively throughout the Part, and the term "landing strip" has been deleted to eliminate a possible ambiguity.

In sections 77.25 and 77.27, criteria are provided for all civil airports, including those constructed to "VFR Airports" standards. These standards are currently contained in the Advisory Circular 150/ 5300-1, "VFR Airports," and are prescribed for airports constructed to serve only aircraft operating under the Visual Flight Rules. The horizontal and conical airport imaginary surfaces provided in section 77.25 with respect to airport reference points are classified for (1) "VFR Airports," and (2) other airports in accordance with the planned length of the longest runway at each such airport.

The airport imaginary surfaces prescribed in section 77.27 based on runways, except those for "VFR Airports," have been reclassified so that their sizes depend upon whether the runway is equipped with a precision landing aid, such as an instrument Landing System. Runways having instrument approach procedures based upon such facilities as a VOR, ADF, ASR, low frequency range, or TACAN are now provided with the same type surfaces as runways used only for VFR operations, except those on "VFR Airports."

The Department of Defense has forwarded obstruction criteria which differ from those applied here for civil airports. The Department has requested that the criteria be incorporated into Part 77 for application at military airports, except heliports, controlled by components of the Department of Defense, where the longest runway exceeds 5,000 feet. The Department advises that these separate criteria are required at military airports because of

the operating characteristics of certain military aircraft, the necessity for low-altitude maneuvering and formation takeoffs, the more stringent air crew training, and the armament and ordnance-carrying requirements of the military. Accordingly, these criteria are stated herein in section 77.28. The Department is developing criteria for application at military airports with shorter runways than 5,000 feet; and until these criteria are developed, civil airport criteria will apply at such military airports. Also, pending development of these criteria, the military standards for the 2,000-foot width of primary surface will apply only to runways longer than 5,000 feet. The Agency will study the military criteria to determine their potential adaptability to civil airports and their appropriate consolidation with the civil criteria.

The presence of two sets of criteria, applicable to civil and military airports, will not result in inconsistent conclusions in the aeronautical studies on whether a proposed structure would be a hazard to air navigation. These determinations are not controlled by the extent to which such a structure may exceed a civil or military obstruction standard but, rather, upon the possible hazardous effect of the structure on air navigation. A "hazard" or "no hazard" determination is reached after a review of the VFR and IFR operations and procedures involved, both present and prospective. Each study not only includes a review to determine whether the construction proposal might be so altered in location or height that it would not exceed an obstruction standard but, also, a review to ascertain if the structure could be accommodated by adjustment of the aeronautical procedures. Thus, there may be a substantial difference between a construction proposal which would exceed an obstruction standard and one which is determined, as the result of the aeronautical study, to be a hazard to air navigation.

The airport imaginary surfaces proposed for helicopters have been substantially revised for compatibility with the current "Heliport Design Guide." The primary surfaces coincide in size and shape with the takeoff and landing area of each heliport. The designated approach clearance surfaces begin at the edge(s) of the primary surface and extend outward and upward at a slope of 8 to 1. The approach surface is a trapezoid whose inner width is coincident with the width of the primary surface and which extends to the minimum enroute altitude where its width is 500 feet. Transitional surfaces extend outward and upward at a slope of 2 to 1 from the lateral boundaries of each primary surface and approach surface for a horizontal distance of 250 feet from the centerline of these surfaces.

One of the minor revisions of the obstruction standards made here might also be mentioned. The proposed addition of a 17-foot height to a highway prior to the application of the obstruction criteria evoked several protests. The 17-foot clearance was proposed as a compatible measure with current Federal policy for interstate highways. To avoid an unnecessary extension of this policy, the standard here has been adjusted to permit application of the current 15-foot figure to highways which will not be used by the higher vehicles. In addition, we have added a provision which removes the requirement for the addition of any figure, 15 feet or 17 feet, to a traverse way which is under the coordinated traffic control of the airport management or the air traffic control tower.

We might conclude this brief reference to some of the salient features of the obstruction standards of Subpart C by emphasizing this Subpart may be applied with respect to air navigation facilities planned for future installation or alteration and to planned uses of the navigable airspace by aircraft if that application would result in a lower limiting height or surface. This point is of particular significance in regard to an airport since it includes all runway extensions and other improvements which may be contained in the approved airport layout plan.

The revisions in the procedures for the conduct of aeronautical studies, public hearings on the effect of proposed structures on the navigable airspace, and the establishment of antenna farm areas have been adopted substantially

as proposed. Section 77.37 has been broadened to make available a review by the Administrator of each decision by a Regional Director on the effect of a proposed structure on air navigation, including "no hazard" determinations made without notice to any possible interested aeronautical source. While decisions of this type are only made in cases where the available evidence clearly indicates that air safety would not be affected by the construction, this review procedure is nevertheless provided to insure against possible error. The effective period fixed in section 77.39 for a determination of no hazard has been extended in recognition of the time necessary for the processing by the Federal Communications Commission of an application for a construction permit and the issuance of that permit. Appropriate safeguards for the protection of air navigation have been attached to this extension of time.

The comments in response to the Notice of Proposed Rule Making included a number of recommendations for Agency action beyond the authority contained in the Federal Aviation Act of 1958. That Act does not contain a basis for the mandatory marking and lighting of structures to warn pilots of aircraft of those structures. Neither does it contain specific authorization for regulations which would limit the heights of structures. To date, no judicial decision has been issued on the extent to which ground structures may constitute an unlawful interference with the public right of freedom of transit through the navigable airspace recognized in Section 104 of the Act. Until authoritative guidance is received on that point or express legislative authority is conferred, the Agency measures in the field of ground hazards to air navigation will be limited to the areas presently covered in Part 77.

In consideration of the foregoing, Part 77 of Chapter I of Title 14 of the Code of Federal Regulations is revised, effective May 1, 1965, to read as hereinafter set forth.

This amendment is made under the authority of Sections 104, 307, 313, 1001, and 1101 of the Federal Aviation Act of 1958 (49 U.S.C. 1304, 1348, 1354, 1481, 1501).

Amendment 77-1 *

Miscellaneous Amendments

Adopted: May 11, 1965

Effective: May 11, 1965

(Published in 30 F.R. 6713, May 18, 1965)

The purpose of this amendment is to make certain minor clarifying amendments to Part 77 of the Federal Aviation Regulations, which became effective on May 1, 1965.

Section 77.19, by reference to section 77.28(b) in the last paragraph, provides for application of the dimensions of clear zones for runways at civil airports to runways at all military airports. This was not intended. As currently written, section 77.28(b)(1) states that the primary surface for military airports is "the same elevation as the centerline of the runway." The section is being revised to make it clear that the primary surface undulates with the underlying surface.

In the interest of timely correction of these discrepancies, in view of the May 1, 1965, effective date of revised Part 77, and since these amendments are clarifying in nature, I find that notice and public procedure are impracticable and contrary to the public interest and that this amendment may therefore be made effective immediately.

In consideration of the foregoing, Part 77 is amended, effective immediately, as follows.

This amendment is made under the authority of Sections 307, 313, and 1101 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, and 1510), and Executive Order 10854 (24 F.R. 9565).

Amendment 77-2

Form and Time of Notice

Adopted: July 6, 1966

Effective: July 12, 1966

(Published in 31 F.R. 9448, July 12, 1966)

The purpose of this amendment is to establish an Agency policy applicable to proposals filed under section 77.13 of the Federal Aviation Regulations for any construction or alteration in excess of 2,000 feet aboveground. This amendment is a general statement of policy and is procedural in nature. Therefore notice and public procedure hereon are unnecessary and the amendment may be made effective in less than 30 days after publication.

The Federal Aviation Agency has analyzed the recent trend of competitively taller television antenna towers to determine its effect on safety in air navigation. It has long been recognized by this Agency that antenna towers of adequate height are necessary to serve the public interest in a nation-wide broadcasting system. However, there has been a proliferation of antenna towers accompanied by a progressive increase in heights over 1,000 feet above the ground that now presents hazardous conditions to the safety of air navigation. The Agency is of the firm belief that the reasonable interests of the communications industry and the aviation community be accommodated

* Included in the publication of Part 77.

concurrently. To this end, the Federal Communications Commission recently declared in Public Notice FCC 65-455 that "the public interest in broadcast service, may in some instances call for an antenna tower higher than any particular maximum imposed." However, the FCC was "nevertheless convinced that the public interest requires a specific ceiling to halt the upward trend in antenna tower heights, and that 2,000 feet above ground is both realistic and appropriate."

The Federal Aviation Agency, within the limits of its jurisdiction, has attempted to find a remedy for air safety problems inherent in the conflicting demands for a fair and reasonable sharing of airspace by tall towers and aircraft. Part 77 of the Federal Aviation Regulations established procedures for reporting to the Agency proposed construction that may constitute potential obstructions or hazards to safe air navigation as determined by the application of criteria stated therein. Under these regulations, the FAA advises the construction proponent whether his proposal would constitute a hazard to air navigation. During the time the regulation has been in effect, hundreds of proposed television and radio towers have been considered. Procedures permitting such analysis by the Agency have been of considerable value to the aviation community and to the broadcasting industry in eliminating both geographic and airspace conflicts created by their competing requirements.

In spite of steps already taken to ensure the accommodation of these competing interests, it has been determined that the cumulative effect of heights and locations of towers, both actual and proposed, have created a situation that is hazardous to safe air navigation.

On February 18-19, 1965 the Agency made the following statement to the House Committee on Interstate and Foreign Commerce concerning H.J. Res. 261, which would limit the height of certain radio and television towers:

The FCC has allocated the TV channels of the Nation on the basis of maximum power television broadcasting at a height of 2,000 feet. Whenever a television tower exceeds this 2,000-foot limitation in most areas (it is 1,000 feet for VHF TV stations in the eastern part of the United States) the power must be reduced to compensate for the increased height.

Therefore, there is no compelling need for any tower to be in excess of 2,000 feet. Although there may be a need for 2,000-foot television towers, under some conditions we would be derelict in our duty as the allocator of the airspace if we permitted all towers to be constructed to a height of 2,000 feet wherever the broadcaster desired.

The 2,000-foot tower with its problems of visibility is inherently hazardous to air navigation.

The Agency therefore considers that it is necessary to take steps to minimize the construction of any antenna tower to a height of more than 2,000 feet aboveground unless it is fully justified in accordance with this Part. This action applies equally to any other structure whose height is proposed to exceed 2,000 feet aboveground, even though the most pressing current problem relates to antenna towers. It is expected that this action will encourage proponents of tower or other type construction to formulate realistic plans, thereby avoiding unnecessary and costly proceedings before the Federal Aviation Agency. In addition, the regulation will be flexible enough to accommodate a proposal for a tower or other type construction more than 2,000 feet high in the event the proponent can demonstrate that it would not be a present or reasonably foreseeable hazard to safe air navigation.

It is of course recognized that towers or other structures with heights of less than 2,000 feet above the ground may be hazardous to air navigation, especially where they are located near airports, Federal airways or VFR routes. However, the problems engendered by these situations are totally different from the potential hazards precipitated by the taller towers. Proposed tall towers and other type structures of less than 2,000 feet will continue to be studied carefully on an individual basis to determine whether they present any adverse effects on safe air navigation or cause an inefficient utilization of navigable airspace. The Agency is convinced that from an air safety standpoint the designation of a specific ceiling is needed to halt the upward trend in heights of various type structures. As a general policy, this Agency considered 2,000 feet above the ground to be the maximum height of structures that may be acceptable for maintaining safe navigation. Any structure proposed in excess of 2,000 feet above the ground will be considered to be, inherently, a hazard to air navigation and an inefficient utilization of the airspace. It will be incumbent upon the proponent to overcome this technical assumption by demonstrating to the Agency that such a proposal will not create an inefficient use of airspace or constitute a hazard to air navigation.

In consideration of the foregoing, Part 77 of the Federal Aviation Regulations is amended, effective July 12, 1966.

This amendment is made under the authority of Sections 307, 313, and 1101 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, and 1510).

Amendment 77-3

Alteration of Discretionary Review

Adopted: May 1, 1967

Effective: June 5, 1967

(Published in 32 F.R. 6970, May 6, 1967)

The purpose of this amendment is to exclude determinations of no hazard made under 77.19(c)(1) from the applicability of discretionary review provided in 77.37.

The FAA published a notice of proposed rule making in the Federal Register on August 23, 1966 (31 F.R. 11155), circulated as Notice 66-34, proposing to exclude no hazard determinations relating to those structures for which a notice must be filed under 77.13 but which would not exceed any standard of Subpart C of Part 77, and therefore would be neither an obstruction nor a hazard. Under the FAA's published criteria the proponent of a structure in this category could be given only a no hazard determination. However, under 77.37 the proponent should wait 30 days to allow any interested party the opportunity to petition for a discretionary review that could only result in a substantiation of the no hazard determination.

Comments received in response to the notice indicated a general understanding of the unneeded delay of 30 days preceding finality of the determination and generally endorsed the proposal. Objections were received to the proposal that were directed to procedural delays encountered in disseminating information concerning the proposed structure to airspace users.

The Air Line Pilots Association objected, stating that local authority would not have an opportunity to study a proposed construction with regard to local zoning ordinances, and to assess the "effects" of the proposal on aviation in that location. A proponent must, of course, obtain any necessary approval from local government authorities prior to construction, including zoning approval if any, which would consider the effects on local property interests. Elimination of the provision for discretionary review by the FAA would have no effect on any requirement local authorities may impose on the proponent.

The Department of the Air Force objected, stating that the elimination of a 30-day delay would not permit proper treatment of aviation considerations because of the length of time involved in obtaining and assessing the effect of the proposal. Particularly, the Air Force is concerned with training flights at very low levels for which a structure of moderate height could be a hazard, and which may be erected before the Air Force representatives would be aware of its existence. Part 77 was never intended to provide protection for very low level military training operations. If every structure that may be an obstruction to flights of this nature should be called a hazard, the public would be overburdened, and a hazard determination would be meaningless. The portion of the comment relating to the delay in obtaining information is pertinent, and coincidentally is similar to a comment received from the Department of the Navy in concurring with the proposal. The FAA will review its procedures to insure appropriate coordination and timely dissemination of information to appropriate parties, including military representatives.

Some comments, conceding that a delay of 30 days may be burdensome in particular circumstances, suggested that a provision be promulgated to waive the 30-day period in circumstances of hardship, or that the 30-day period be retained when an interested party specifically requests its retention to permit time for filing a petition for review. One comment suggested eliminating acknowledgments issued under 77.19(c)(1). Retention of the 30-day period under normal circumstances while waiving it in cases of hardship would base the decision for discretionary review upon the circumstances of the proponent rather than the effect upon aeronautical operations. If under the standards of Part 77 a structure could be neither an obstruction nor a hazard, periods of delay and additional reviews could not alter the determination. Moreover, issuing waivers would be time-consuming and administratively inefficient where the necessity of review is nonexistent.

In consideration of the foregoing, 77.37 of the Federal Aviation Regulations is amended, effective June 5, 19-7.

This amendment is made under the authority of Secs. 307, 313, and 1101 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, and 1501).

Amendment 77-4

Standards for Determining Obstructions

Adopted: September 6, 1967

Effective: November 12, 1967

(Published in 32 F.R. 12997, September 13, 1967)

The purpose of this amendment is to eliminate the requirement that the FAA must find any structure exceeding the applicable obstruction standard and located within an airport runway clear zone or the portion of a primary surface extending beyond the end of a runway to be a hazard to air navigation, regardless of any mitigating factor.

The FAA published a Notice of Proposed Rule Making in the Federal Register on March 9, 1967 (32 F.R. 3887), circulated as Notice No. 67-7 proposing the elimination of the mandatory finding of hazard, thereby permitting the FAA to study all factors involved and make a finding based on the particular situation. The response to the notice indicated a general endorsement of the proposal. Due consideration was given to all comments received.

The Air Line Pilots Association withheld endorsement because the FAA had not indicated what factors it presently considers before granting an exemption to a proposal for an obstruction in a clear zone. It stated it had difficulty in visualizing any mitigating factor relative to an obstruction within a clear zone, and making it easier to allow an obstruction would undoubtedly increase the number of obstructions and decrease the safety margin.

Under the present regulation, we have granted exemptions in cases, there among other matters, the proposed construction, though in a clear zone, was shielded from aircraft flight paths; or where the structure was of a temporary nature such as construction machinery or rigs used in constructing a public water system and erected for use only during daylight hours under VFR conditions.

With the deletion of 77.19(c)(4), the FAA could subject any construction proposal within a clear zone that exceeded the applicable obstruction standards to an aeronautical study in accordance with 77.19(c)(3). The study, which may be reviewed by all interested persons, would determine whether the proposed construction could be a hazard. Pending such a determination the construction would be presumed to be a hazard as provided in that section.

This amendment will not reduce the protection to runway approach areas presently afforded by 77.19(c)(4), but would retain that protection through the application of 77.19(c)(3). It is not the intent of this amendment to make it easier for obstructions to be based in approach areas or to relax the position of the FAA with regard to such obstructions. This amendment will permit the FAA to exercise its discretionary authority in determining whether the obstruction will in fact be a hazard after reviewing all of the relevant factors. In so doing, the public will be made more aware of the proposed obstruction through circularization and notice, and will be given an opportunity to present relevant comments. Additionally, it will make unnecessary the present practice of granting exemptions from the notice requirements of Part 77 through a procedure recognized as time consuming and inefficient.

In consideration of the foregoing, Part 77 of the Federal Aviation Regulations is amended, effective November 12, 1967.

These amendments are made under the authority of 307, 313, and 1101 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, 1501).

Amendment 77-5

Miscellaneous Amendments

Adopted: March 25, 1968

Effective: May 2, 1968

(Published in 33 F.R. 5255, April 2, 1968)

The purpose of these amendments is to make minor substantive changes and editorial corrections to Part 77.

The FAA published a notice of proposed rule making in the Federal Register on July 14, 1967 (32 F.R. 10373). circulated as Notice No. 67-29 which proposed a number of minor substantive amendments and editorial corrections to Part 77 that would clarify the intent or would make the part consistent with the FAA's current practice or organization.

Comments received to the notice indicated a general endorsement of the proposal. A number of comments suggested changes or improvements that have been incorporated herein. Due consideration was given to all comments received.

One comment raised a question on whether this proposal would increase the protection for airports with at least one runway of 3,200 feet. The proposed revision of ~77.13(a)(2) (i) and (ii) would make no change to the current notice requirement criteria. It would merely add the term "actual length" to clarify the intent that the runway length referred to in that section is the actual and not the "corrected" runway length. The actual runway length is selected because this is the measurement provided in the FAA Airport Directory, the Alaska and the Pacific Airman's Guides and Chart Supplements and is the length that the construction sponsor would see on the airport. The general public would have no means of readily determining a corrected runway length, as referred to in the proposed revision of 77.23(a)(8). and which is used by the FAA in applying its standards for determining obstructions.

The notice proposed to revoke 77.13(a)(5) which requires a notice, when requested by FAA, for any construction proposal that would be in an instrument approach area and available information indicates that it may be an

obstruction to air navigation. Information from the FAA's regional offices indicates that this provision has been used in a number of cases to obtain specific data on height and location after general information on the construction became available. This provision is therefore retained but is redesigned as 77.13(a)(4).

A new 77.2, *Definition of terms*, is included to clarify the meaning of certain terms used in this amendment.

Several comments objected to 77.1 3(a)(5)(ii) as redesigned herein, which included a planned or proposed airport within the category of airports for which the notice criteria applies, pointing out that frequently sponsors would have no way of ascertaining the sites of planned airports without an inquiry to the FAA each time, or consulting a currently maintained list of planned or proposed airports. There is merit to these comments and the amendment to that section has been revised to include only those airports under construction. Sponsors will be able to see work in progress on airports near the proposed construction and the benefits of this part will be available to those airports.

Some comments suggested that proposed 77.15(c) should be revised to clarify the phrase "approved by the Administrator" and to list the facilities to which that paragraph applies. The amendment has been revised to reflect the intent that the types of facilities and devices that have been approved by the Administrator are the subject of the reference. "Air Navigation facility" is defined in section 101(8) of the Federal Aviation Act of 1958. Therefore, it is unnecessary to again list those facilities to which the notice requirements do not apply.

The Air Line Pilots Association objected to exempting any object or structure from the notice requirements and obstruction standards. It is recognized that some of the structures exempted from the notice requirement may be obstructions to air navigation. However, these exemptions are based on the need to provide a reasonable notice that can be applied and complied with by a construction proponent. A notice requirement similar to the obstruction criteria of Subpart C of this part would be impracticable in application. The exemption of certain structures, e.g. antenna structures of 20 feet or less in height, and airport or FAA navigational aids, has been found advantageous to both the FAA and industry. Therefore, certain necessary structures, although they may be obstructions, are exempted because of their utility or the relative absence of any hazard associated therewith.

Editorial changes have been made to 77.17 to reflect the current procedure of sending notices of proposed construction to the appropriate area office instead of a regional office. The identity and address of the appropriate FAA area or regional office may be obtained from any FAA facility, therefore a listing of the respective jurisdictions and addresses is omitted.

Editorial changes have been made to 77.17(d) including the redesignation of paragraph (d) as paragraph (e), because of the intervening effectiveness of another amendment subsequent to the circularization of Notice No. 67-29.

Sections 77.11(b)(3) and 77.19 have been amended to refer to the current designation of the FAA advisory circular on "Obstruction Marking and Lighting".

The wording of 77.21(a) has been rearranged for readability without making any substantive change. One comment made the same objection to 77.21(c)(2) as to the notice criteria under ~77.13(a)(5)(ii) that the public would be unable to comply with that section since it could not be aware of airports existing only in the planning stage. This comment is not valid since the standards thereunder are applied by FAA specialists to whom this data would be available.

In consideration of the foregoing, Part 77 is amended, effective May 2, 1968, as hereinafter set forth.

(Secs 307, 313, 1101, Federal Aviation Act of 1958; 49 U.S.C. 1348, 1354, 1501)

Amendment 77-6

Objects Interfering With Air Navigation Facilities

Adopted: July 25, 1968

Effective: August 31, 1968

(Published in 33 F.R. 10842, July 31, 1968)

The purpose of this amendment to Part 77 of the Federal Aviation Regulations is to permit the Administrator to consider the effect a proposed construction or alteration would have upon the operation of an air navigation facility.

The substance of this amendment was published as a Notice of Proposed Rule Making in the Federal Register on December 21, 1967, (32 F.R. 20658) as NPRM 67-54. Many comments were received in response to the Notice. Generally, the comments were favorable and recommended adoption of the amendment as proposed.

Part 77 of the Federal Aviation Regulations establishes standards for determining obstructions in navigable airspace, sets forth the notice requirements of certain proposed construction or alteration, provides for aeronautical studies of obstructions to determine their effect on the safe and efficient use of airspace and provides for public hearings on the hazardous effect of proposed construction or alteration. In accordance with previous interpretations and practice, this part applies to the physical effect of an obstruction on the flight of aircraft through the navigable airspace.

The Federal Aviation Administration is encountering with increasing frequency, situations where construction or alteration has a deleterious effect on the operation of air navigation facilities without being a physical hazard in the flight path of aircraft. These situations have ranged from construction which partially blocked the view from an airport air traffic control tower of runways, taxi, and parking areas, to obstructions which blocked or reflected electromagnetic radiation in the vicinity of navigational aids like radio or radar installations. In some instances, the navigational aid could be moved to an interference-free location. In other situations, however, no interference-free locations were available, or the cost of razing and relocating facilities, because of their size or number, was exorbitant.

It appears desirable that when an aeronautical study is made, the Administrator should include in that study the effect that construction or alteration may have on the operation of air navigation facilities. It would be an unreasonable burden on the public to require a proponent to consider this effect because the public may not be aware of the existence or operational characteristics of an air navigation facility, and any effect thereon may not easily be ascertained by the proponent. Accordingly, the Administrator should have the authority of including in an aeronautical study the physical or electromagnetic effect of proposed construction on air navigation facilities. The study may enable the Administrator to recommend changes in the design, location, or construction material that would eliminate or reduce interference with the operation of the air navigation facility. A reduction or elimination of interference may permit the retention of existing approach minimums, use of existing runways or facility structures or avoid costly relocation expenses to the airport or the FAA.

All of the parties that submitted comments concurred in or endorsed the proposed amendment, except the Airport Operators Council International, the Department of Aviation, City of Atlanta, Georgia, and the Air Transport Association of America.

The Airport Operators Council International stated that it strongly opposed the proposed amendment primarily for the following reasons:

- (1) The FAA already has sufficient authority to minimize critical encroachment upon airport control tower sight lines through its ability to NOTAM and therefore needs no additional authority.
- (2) It is undesirable to use the proposed amendment to protect off-airport nav aids from the deleterious effect on their operation by construction proposals over which the airport has no control.

Regarding the first comment, the FAA's present authority allows it to issue a Notice to Airmen to advise them concerning areas on an airport in which ground control of traffic cannot be maintained due to blocking of line-of-sight from the airport control tower. When such a condition exists, the derogation of air traffic control has already

taken place and a NOTAM merely advises of that condition. The purpose of this rule is to prevent the condition from arising in the first place.

As far as the second comment is concerned, this amendment intends to include consideration of the physical or electromagnetic effect on the operation of air navigation facilities of any construction proposal for which a notice is required under Section 77.13(a), and would exceed any standard of Subpart C, regardless of whether the facilities are located on or off an airport.

The Department of Aviation, City of Atlanta, Georgia, opposed the proposed amendment primarily on the ground that it felt that this amendment would allow the location and functioning of an FAA air navigation facility to control all other airport development prospects. The Department also stated that it felt that the present Federal Aviation Regulations were adequate to handle obstructions to airport control towers and air navigation facilities.

The aeronautical study may enable the FAA to recommend changes in the design, location or construction material that may eliminate or reduce interference with the operation of the air navigation facility. These recommendations would be made to the construction sponsor and not to the airport operator unless the construction proposal was one over which the airport operator exercised control. Proposed construction or alteration subject to an aeronautical study under the proposed amendment would be limited to those proposals for which notice to the Administrator is now required under Section 77.13(a) of Part 77, FAR, and the proposal would exceed any standard of Subpart C. Proposed construction or alteration of airports that would not require notice under Section 77.13(a) would not come within the scope of the proposed amendment even though there may be a possibility that the proposed construction or alteration might adversely affect the operation of a nearby air navigation facility.

It is not the purpose of the proposed amendment to institute control over any aspect of airport development but (1) to consider the physical and electromagnetic effects of any proposed construction or alteration on air navigation facilities, during an aeronautical study; (2) to inform the construction sponsor, if necessary, of possible interference and how to avoid it; and (3) where the construction proposal would have a substantial adverse effect upon the operation of any air navigation facility to issue a determination of hazard. Current Federal Aviation Regulations do not provide the FAA with authority to study proposed construction or alteration for the purpose of determining their physical and electromagnetic effect on the operation of air navigation facilities.

The Air Transport Association (ATA) did not oppose the proposed amendment, but made several suggestions. Among them ATA commented that FAA has published few guidelines for construction facilities on or near airports and such guidelines should be published by FAA prior to amending Part 77 as proposed.

In addition, ATA felt it should be made clear that airport control towers are not air navigation facilities in the sense of the proposed rule. ATA comments are under careful consideration and the FAA at the present time is engaged in a project to develop new criteria to determine whether proposed construction would affect the operation of air navigation facilities. The intent of the amendment to Part 77, however, is not to revise or develop criteria but to provide the authority to consider possible interference with the operation of air navigation facilities during the aeronautical study of construction proposals. At such time as new criteria have been developed a determination will be made as to their adequacy and whether they should be incorporated in the regulation.

In consideration of the foregoing, Part 77 (77.31 and 77.35) of the Federal Aviation Regulations is amended effective August 31, 1968.

This amendment is made under the authority of sections 307, 313, and 1101 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, 1501).

Amendment 77-7

Utility Airports

Adopted: October 25, 1968

Effective: November 30, 1968

(Published in 33 F.R. 16056, November 1, 1968)

The purpose of this amendment is to include in Part 77 of the Federal Aviation Regulations a reference to "Utility Airports," as appropriate, with each reference to "VFR Airports" standards.

Subpart C of Part 77 contains several references to airports constructed to "VFR Airports" standards. The "VFR Airports" standards and the Advisory Circular in which they were contained were canceled and replaced with Advisory Circular 150/5300-4, "Utility Airports--Design Criteria and Dimensional Standards." Since those airports built to VFR Airports standards continue in existence, Subpart C must be revised to refer to both VFR and Utility Airports.

Since this amendment merely includes in Part 77 a reference to publications and standards currently in use, I find that notice and public procedure hereon are unnecessary.

In consideration of the foregoing, Part 77 (77.25 (a)(1) and (b)(1) and 77.27 (a)(1) and (c)(2)(i)) of the Federal Aviation Regulations is amended, effective November 30, 1968.

These amendments are made under the authority of Sections 307, 313, and 1101 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, and 1510).

Amendment 77-8

Revision of Notice Form

Adopted: December 11, 1968

Effective: February 1, 1969

(Published in 33 F.R. 18614, December 17, 1968)

The purpose of this amendment to Part 77 of the Federal Aviation Regulations is to revise the reference to the form on which notices of proposed construction or alteration are filed to reflect the new form number that has been adopted and to correct an editorial error.

The FAA is adopting Form 7460 1 entitled, "Notice of Proposed Construction or Alteration" to replace Form 177. This form more adequately reflects informational requirements concerning proposed construction or alteration of objects which might effect navigable airspace. Reference is made to FAA Form 117 in several places throughout Subpart B of Part 77. Therefore, an amendment is required to revise the references to this notice form.

Amendment 77-6, effective May 2, 1968, to 77.11 erroneously identified FAA Advisory Circular AC 70/7460-1 as AC 70/7460. Therefore, this section is being changed to reflect the correct advisory circular number.

In consideration of the foregoing, Subpart B of Part 77 (77.11(b)(3) and 77.17 (a) and (d)) of the Federal Aviation Regulations is amended, effective February 1, 1969.

This amendment is made under the authority of 307, 313 and 1101 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, 1501), and of 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 77-9

that plans would not be based upon heights that are impractical. The FAA considers that the height adjustments prescribed are needed for guidance when applying the notice requirement criteria, and should have limited flexibility. It should be noted that 23 feet is the highest tunnel clearance required for railroads in the United States, and this height would be in consonance with the requirements of the various states.

Several commentators objected to the proposed changes in 77.15(c) that would exclude from the notice requirement of 77.13 any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device, the location and height of which is fixed by its functional purpose, if a type approved by "an appropriate military service." After careful consideration of the objections, the FAA decided that type approval of devices and equipment on civil airports should remain with the Administrator. Therefore, the change to 77.15(c) as proposed, has been modified to exclude from the notice requirement of 77.13 any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device given type approval by an appropriate military service only when such facilities, aids, or devices would be located on a military airport.

Several isolated comments directed attention to the intention of the FAA to use the applicable MOCA instead of the established MEA as the basis for determining obstructions within an en route obstacle clearance area of a Federal airway or approved off-on airway route.

Even though some individuals or groups may consider this concept to be a new one, it is based on the rationale that through use of the MOCA alone and selectively applying the terms obstacle and obstruction to it, the application of the standards of Part 77 will be simplified and will result in bringing the entire system into conformity with intentional standards. In simplified terms, a MOCA is that minimum safe altitude that will permit an aircraft to traverse a designated area of airspace clear of obstacles below. Generally, the height of the highest or controlling obstacle in that airspace segment provides the imaginary obstacle reference line. The appropriate FAA personnel, applying established and specified standards then supply an additional amount of airspace above the obstacle reference line that forms the MOCA altitude level for that segment of flight.

In applying the standards of Part 77 to this airspace formulation, any proposed structure that does not exceed the obstacle reference line will be classified as an obstacle. However, if the proposed structure would penetrate this airspace above the obstacle reference line, it would be classified as an obstruction. Once a proposal is classified as an obstruction, under the procedures provided for in Part 77, it will be studied to determine whether it will or will not constitute a hazard to air navigation.

Accordingly, new ~ 77.23(a)(4) establishes that the MOCA instead of the MEA will be the basis for determining whether any object within any en route obstacle clearance area, including turn and termination areas. of any Federal airway or approved off-airway route will be classified as an obstruction to air navigation.

One comment was received concerning the proposed new 77.21 (b). The new paragraph was added to ensure proper application of the imaginary surfaces outlined in 77.25 at airports that have defined landing and takeoff strips. or pathways that are designated as runways but do not have specially prepared hard surfaces, or have a defined landing and takeoff area with no defined landing and takeoff strips or pathways designated as runways. For the purpose of Part 77, any clearly defined strip, pathway or lane designated by appropriate authority for the landing and takeoff of aircraft is considered to be a runway, even though its surface consists of water, turf, dirt or similar unprepared surface.

The application of new ~ 77.21(b) is based upon the philosophy that, at the thousands of airports having runways of various lateral dimensions without specially prepared hard surfaces, a factor common to each runway and its related primary surface is the centerline. This common factor permits application of the primary surface and the related transitional surfaces because the primary surface is longitudinally centered on the runway and the transitional surfaces extend outward and upward from the sides of the primary surface. Since the width of any primary surface is prescribed in 77.25(c), the width of that portion of any runway over which its primary surface is superimposed is limited by the width of the related primary surface, regardless of the runway width; the length of the primary surface, however, in this case, is the same as the length of the runway. In applying 77.21(b) to those airports, excluding seaplane bases, where the defined landing and takeoff area does not have any defined runways for the landing and

takeoff of aircraft, the agency would, applying the standards of the regulation, make a determination as to which portions of the area were being regularly used by aircraft as runways for landing and take off. The appropriate primary surface prescribed in 77.25(c) will then be centered on each portion of the landing and takeoff area determined to be used as a runway, with each end of the primary surface coinciding with the corresponding end of the determined runway.

Many commentators objected to the proposed amendment of 77.23(a)(2). After careful consideration of all objections to the proposed change, the FAA is convinced that with one exception the proposed revision should not be made. That exception is, that nautical miles will be used in lieu of statute miles in 77.23(a)(2) to conform to the units of horizontal measurement currently used in en route and terminal airspace configurations, and instrument procedures both nationally and internationally. Further study will be given to the need for relating the height of objects to the airport elevation where the terrain on which those objects are located exceeds the surfaces prescribed in ~ 77.25 or the heights prescribed in 77.23(a)(2).

The Notice proposed new 77.23(a) (3) and (4) to replace 77.23(a) (4), (5), (6), and (7). Comments on this proposal were generally favorable. Two commentators requested clarification of an en route obstacle clearance area and suggested that definitions of en route and terminal obstacle clearance be included in the regulation. Since we have already discussed in some detail the en route obstacle clearance area that falls within the scope of 77.23(a)(4), it only remains necessary to provide a brief explanation as to how obstacles and obstructions will relate to the terminal obstacle clearance area portion of the regulation provided for in 77.23(a)(3) of this amendment.

All approved procedures for instrument approach and departure of aircraft to and from airports that are conducted within specified terminal obstacle clearance and departure areas are established in conformity to the applicable criteria set forth either in the United States Standard for Terminal Instrument Procedures (TERPS) or the FAA Handbook 8260.19, Flight Procedures and Airspace. In the establishment of these instrument approach and departure criteria, the involvement of existing obstacles on the type of instrument procedure proposed for adoption, is one of the primary considerations. Accordingly, the standards of Part 77 applicable in any terminal instrument procedure area must also be based on the same obstacle concept that was used to formulate the applicable criteria of TERPS and FAA Handbook 8260.19. A brief explanation of the interrelationship of obstacles and obstructions to this concept should aid materially in understanding the provisions of 77.23(a)(3).

In the development of all types of instrument approach procedures under TERPS and departure procedures under FAA Handbook 8260.19, the method of establishing each such procedure is basically the same. The existing obstacles, including objects that are manmade, the terrain features, and the navigational facilities involving a particular approach or departure area are carefully analyzed, after which a prescribed plane, which is commonly referred to as an obstacle clearance plane, is established for that particular phase of flight. In order to insure maximum safety to all aircraft operators who may use that particular terminal instrument procedure, applicable FAA criteria is then applied to provide an additional layer of airspace above the prescribed obstacle clearance plane.

In applying the standards of Part 77 to this type of airspace structure, any object that does not exceed the obstacle clearance plane will be classified as an obstacle; but any object that penetrates the prescribed obstacle clearance plane will be classified as an obstruction, and subject to aeronautical study to determine whether or not it is a hazard to air transportation or air commerce.

Stated in another but in a more sophisticated way, any object that is located within an obstacle clearance area, including an initial approach segment, a circling approach area, or a departure area, is an obstruction to air navigation under the standards of Part 77, if it is of such height that the vertical distance between any point on it and any minimum instrument flight altitude established for any authorized instrument procedure within that area, is less than the obstacle clearance specified for that instrument procedure.

Several commentators addressed the proposed revision of 77.23. One commentator suggested that runways on air carrier airports be categorized as "air carrier" and provided with equal protection at both ends. The FAA feels that the rationale for the new categorization of runways has been explained adequately previously, therefore, this suggestion was not adopted.

Concern was expressed by some commentators as to the availability of information regarding the category of each approach to each end of each runway of any airport under consideration. The FAA agrees that the success of this concept is dependent upon definite information concerning the category of each approach to each runway end being available to the agency and to the public. This information will be available from FAA regional area offices, and from agency computer readouts.

In response to the suggestion of one commentator, 77.25(c) will be changed to include the words "or planned hard surface" after the words "has specially prepared hard surface." The FAA believes that this addition helps to clarify the intent of the section and does not modify the meaning.

Other minor changes of an editorial and technically clarifying nature have been made to the amendment. A minor change to the addresses under 77.17 has been included.

Interested persons have been afforded an opportunity to participate in the making of these amendments. Due consideration has been given to all matter presented. In other respects, for the reasons stated in the preamble to the notice, the rule is adopted as prescribed herein.

In consideration of the foregoing, Part 77 of the Federal Aviation Regulations is amended, effective May 16, 1971.

Sections 307, 313 and 1101 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, and 1501), and Section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 77-10

Miscellaneous Amendments

Adopted: February 28, 1972

Effective: March 4, 1972

(Published in 37 F.R. 4705, March 4, 1972)

The purpose of this amendment is to make certain minor editorial changes to Part 77 of the Federal Aviation Regulations.

Section 77.1 I(b) contains a reference to the sale of Advisory Circular 70/7460 1 entitled "Obstruction Marking and Lighting." Effective January 1, 1972, a revised edition of this Advisory Circular has become available free of charge from the Department of Transportation. Section 77.11 (b) is revised to reflect this change.

Throughout Subpart B of Part 77 there are several references to FAA area offices and personnel. Since all area offices were eliminated April 2, 1971, and reference to them is deleted and replaced with reference to the appropriate regional office or personnel.

Section 77.73 provides for the establishment of antenna farm areas under the procedural requirements of Section 4 of the Administrative Procedure Act. This citation is no longer accurate since the recodification of the Act, and appropriate language is substituted therefor.

Since these amendments are minor and editorial in nature and no substantive change is effected, notice and public procedure thereon are not necessary and good cause exists for making them effective on less than 30 days notice.

In consideration of the foregoing, Part 77 of the Federal Aviation Regulations is amended, effective March 4, 1972.

This amendment is issued under the authority of sections 313 and 1101 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1501), and section 6(c) of the Department of Transportation Act (49 U.S .C. 1 655(c)).

Amendment 77-11

Organizational Changes and Delegations of Authority

Adopted: September 15, 1989

Effective: October 25, 1989

(Published in 54 F.R. 39288, September 25, 1989)

SUMMARY: This amendment adopts changes to office titles and certain terminology in the regulations that were affected by a recent agency wide reorganization. These changes are being made to reflect delegations of authority that were changed, as well as offices that were renamed or abolished and replaced with new office designations. These changes are necessary to make the regulations consistent with the current agency structure.

FOR FURTHER INFORMATION CONTACT: Jean Casciano, Office of Rulemaking (ARM-1), Federal Aviation Administration, 800 Independence Ave., SW., Washington, DC 20591; Telephone (202) 267-9683.

SUPPLEMENTARY INFORMATION

Background

On July 1, 1988, the FAA underwent a far-reaching reorganization that affected both headquarters and regional offices. The most significant change is that certain Regional Divisions and Offices, which formerly reported to the Regional Director, are now under "straight line" authority, meaning that these units within each Regional Office report to the appropriate Associate Administrator (or Chief Counsel) in charge of the function performed by that unit.

Within Part 11 of the Federal Aviation Regulations (FAR), various elements of the FAA have been delegated rule making authority by the Administrator. These delegations need to be updated. In addition, throughout the Federal Aviation Regulations references are made to offices that have been renamed or are no longer in existence as a result of reorganization.

Title 14 of the Code of Federal Regulations must therefore be amended to reflect the reorganizations and changes that have taken place.

Paperwork Reduction Act

The paperwork requirements in sections being amended by this document have already been approved. There will be no increase or decrease in paperwork requirements as a result of these amendments, since the changes are completely editorial in nature.

Good Cause Justification for Immediate Adoption

This amendment is needed to avoid possible confusion about the FAA reorganization and to hasten the effective implementation of the reorganization. In view of the need to expedite these changes, and because the amendment is editorial in nature and would impose no additional burden on the public, I find that notice and opportunity for public comment before adopting this amendment is unnecessary.

Federalism Implications

The regulations adopted herein will not have substantial direct effects on the states, on the relationship between the National government and the states, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Conclusion

The FAA has determined that this document involves an amendment that imposes no additional burden on any person. Accordingly, it has been determined that: 'The action does not involve a major rule under Executive Order 12291; it is not significant under DOT Regulatory Policies and Procedures

(44 FR. 11034: February 26, 1979); and because it is of editorial nature. no impact is expected(1 to result and a full regulatory evaluation is not required. In addition, the FAA certifies that this amendment will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

The Rule

In consideration of the foregoing, the Federal Aviation Administration amends the Federal Aviation Regulations (14 CFR Chapter 1) effective October 25, 1989.

The authority citation for Part 77 is revised to read as follows:

Authority 49 U.S.C. 1304, 1348, 1354, 1421 through 1430, 1431, 1501, 49 U.S.C. 106(g) (Revised Pub. L. 97 449, January 12, 1983), (Revised Pub. L. 100-223, December 30, 1987).

PART 77--OBJECTS AFFECTING NAVIGABLE AIRSPACE

Subpart A--General

Source: Docket No. 1882 (30 FR 1839, 2/10/65) effective 5/1/65, for each subpart, unless otherwise noted.

77.1 Scope.

This part:

- (a) Establishes standards for determining obstructions in navigable airspace;
- (b) Sets forth the requirements for notice to the Administrator of certain proposed construction or alteration;
- (c) Provides for aeronautical studies of obstructions to air navigation, to determine their effect on the safe and efficient use of airspace;
- (d) Provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation:
and
- (e) Provides for establishing antenna farm areas.

77.2 Definition of terms.

For the purpose of this part:

Airport available for public use means an airport that is open to the general public with or without a prior request to use the airport.

A seaplane base is considered to be an airport only if its sea lanes are outlined by visual markers.

Nonprecision instrument runway means a runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in nonprecision instrument approach procedure has been approved, or planned, and for which no precision approach facilities are planned, or indicated on an FAA planning document or military service military airport planning document.

Precision instrument runway means a runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS), or a Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA approved airport layout plan; a military service approved military airport layout plan; any other FAA planning document, or military service military airport planning document.

Utility runway means a runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.

Visual runway means a runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA approved airport layout plan, a military service approved military airport layout plan, or by any planning document submitted to the FAA by competent authority.

(Amdt. 77-5, Eff. 5/2/68); (Amdt. 77-9, Eff. 5/16/71)

77.3 Standards.

(a) The standards established in this part for determining obstructions to air navigation are used by the Administrator in:

- (1) Administering the Federal-aid Airport Program and the Surplus Airport Program;
- (2) Transferring property of the United States under section 16 of the Federal Airport Act;
- (3) Developing technical standards and guidance in the design and construction of airports; and
- (4) Imposing requirements for public notice of the construction or alteration of any structure where notice will promote air safety.

(b) The standards used by the Administrator in the establishment of flight procedures and aircraft operational limitations are not set forth in this part but are contained in other publications of the Administrator.

(Amdt. 77-9, Eff. 5/16/71)

77.5 Kinds of objects affected.

This part applies to:

(a) Any object of natural growth, terrain, or permanent or temporary construction or alteration including equipment or materials used therein, and apparatus of a permanent or temporary character; and

(b) Alteration of any permanent or temporary existing structure by a change in its height (including appurtenances), or lateral dimensions, including equipment or materials used therein.

Subpart B--Notice of Construction or Alteration

77.11 Scope.

(a) This subpart requires each person proposing any kind of construction or alteration described in 77.13(a) to give adequate notice to the Administrator. It specifies the locations and dimensions of the construction or alteration for which notice is required and prescribes the form and manner of the notice. It also requires supplemental notices 48 hours before the start and upon the completion of certain construction or alteration that was the subject of a notice under 77.13(a).

(b) Notices received under this subpart provide a basis for:

- (1) Evaluating the effect of the construction or alteration on operational procedures and proposed operational procedures;
- (2) Determinations of the possible hazardous effect of the proposed construction or alteration on air navigation;
- (3) Recommendations for identifying the construction or alteration in accordance with the current Federal Aviation Administration Advisory Circular AC 70/7460 1 entitled "Obstruction Marking and Lighting," which is available without charge from the Department of Transportation, Distribution Unit, TAD 484.3, Washington, DC 20590.
- (4) Determining other appropriate measures to be applied for continued safety of air navigation; and
- 5) Charting and other notification to airmen of the construction or alteration.

(Amdt. 77-8, Eff. 2/1/69); (Amdt. 77-10, Eff. 3/ 4/72)

77.13 Construction or alteration requiring notice.

a) Except as provided in 77.15, each sponsor who proposes any of the following construction or alteration shall notify the Administrator in the form and manner prescribed in 77.17:

- (1) Any construction or alteration of more than 200 feet in height above the ground level at its site.
- (2) Any construction or alteration of greater height than an imaginary surface extending outward and upward at one of the following slopes:
 - (i) 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport specified in paragraph (a)(5) of this section with at least one runway more than 3,200 feet in actual length, excluding heliports.
 - (ii) 50 to 1 for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each airport specified in paragraph (a)(5) of this section with its longest runway no more than 3,200 feet in actual length, excluding heliports.
 - (iii) 25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of each heliport specified in paragraph (a)(5) of this section.
- (3) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) (1) or (2) of this section.
- (4) When requested by the FAA, any construction or alteration that would be in an instrument approach area (defined in the FAA standards governing instrument approach procedures) and available information indicates it might exceed a standard of subpart C of this part.
- (5) Any construction or alteration on any of the following airports (including heliports):
 - (i) An airport that is available for public use and is listed in the Airport Directory of the current Airman's Information Manual or in either the Alaska or Pacific Airman's Guide and Chart Supplement.

(ii) An airport under construction, that is the subject of a notice or proposal on file with the Federal Aviation Administration, and, except for military airports, it is clearly indicated that the airport will be available for public use.

(iii) An airport that is operated by an armed force of the United States.

(b) Each sponsor who proposes construction or alteration that is the subject of a notice under paragraph (a) of this section and is advised by an FAA regional office that a supplemental notice is required shall submit that notice on a prescribed form to be received by the FAA regional office at least 48 hours before the start of the construction or alteration.

(c) Each sponsor who undertakes construction or alteration that is the subject of a notice under paragraph (a) of this section shall, within S days after that construction or alteration reaches its greatest height, submit a supplemental notice on a prescribed form to the FAA regional office having jurisdiction over the region involved, if--

- (1) The construction or alteration is more than 200 feet above the surface level of its site; or
- (2) An FAA regional office advises him that submission of the form is required.

(Amdt. 77-5, Eff. 5/2/68); (Amdt. 77-9, Eff. 5/16/71); (Amdt. 77-10, Eff. 3/4/72)

77.15 Construction or alteration not requiring notice.

No person is required to notify the Administrator for any of the following construction or alteration:

(a) Any object that would be shielded by existing structures of a permanent and substantial character or by natural terrain or topographic features of equal or greater height, and would be located in the congested area of a city, town, or settlement where it is evident beyond all reasonable doubt that the structure so shielded will not adversely affect safety in air navigation.

(b) Any antenna structure of 20 feet or less in height except one that would increase the height of another antenna structure.

(c) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device, of a type approved by the Administrator, or an appropriate military service on military airports. the location and height of which is fixed by its functional purpose.

(d) Any construction or alteration for which notice is required by any other FAA regulation.

(Amdt. 77-5, Eff. 5/2/68); (Amdt. 77-9, Eff. 5/16/71)

77.17 Form and time of notice.

(a) Each person who is required to notify the Administrator under 77.13(a) shall send one executed form set (four copies) of FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the Manager, Air Traffic Division, FAA Regional Office having jurisdiction over the area within which the construction or alteration will be located. Copies of FAA Form 7460-1 may be obtained from the headquarters of the Federal Aviation Administration and the regional offices.

(b) The notice required under 77.13(a) (1) through (4) must be submitted at least 30 days before the earlier of the following dates:

- (1) The date the proposed construction or alteration is to begin.
- (2) The date an application for a construction permit is to be filed.

However, a notice relating to proposed construction alteration that is subject to the licensing requirements of the Federal Communications Act may be sent to FAA at the same time the application for construction is filed with the Federal Communications Commission, or at any time before that filing.

(c) A proposed structure or an alteration to an existing structure that exceeds 2,000 feet in height above the ground will be presumed to be a hazard to air navigation and to result in an inefficient utilization of airspace and the applicant has the burden of overcoming that presumption. Each notice submitted under the pertinent provisions of this part 77 proposing a structure in excess of 2,000 feet above ground, or an alteration that will make an existing

structure exceed that height, must contain a detailed showing, directed to meeting this burden. Only in exceptional cases, where the FAA concludes that a clear and compelling showing has been made that it would not result in an inefficient utilization of the airspace and would not result in a hazard to air navigation, will a determination of no hazard be issued.

(d) In the case of an emergency involving essential public services, public health, or public safety that requires immediate construction or alteration, the 30-day requirement in paragraph (b) of this section does not apply and the notice may be sent by telephone, telegraph, or other expeditious means, with an executed FAA Form 7460-1 submitted within 5 days thereafter. Outside normal business hours, emergency notices by telephone or telegraph may be submitted to the nearest FAA Flight Service Station.

(e) Each person who is required to notify the Administrator by paragraph (b) or (c) of 77.13, or both, shall send an executed copy of FAA Form 117-1, Notice of Progress of Construction or Alteration, to the Manager, Air Traffic Division, FAA Regional Office having jurisdiction over the area involved.

(Amdt. 77-2, Eff. 7/12/66); (Amdt. 77-5, Eff. 5/2/68); (Amdt. 77-8, Eff. 2/1/69); (Amdt. 77-9, Eff. 5/16/71); (Amdt. 77-10, Eff. 3/4/72); (Amdt. 77-11, Eff. 10/25/89)

77.19 Acknowledgment of notice.

(a) The FAA acknowledges in writing the receipt of each notice submitted under 77.13(a).

(b) If the construction or alteration proposed in a notice is one for which lighting or marking standards are prescribed in the FAA Advisory Circular AC 70/7460-1, entitled "Obstruction Marking and Lighting," the acknowledgment contains a statement to that effect and information on how the structure should be marked and lighted in accordance with the manual.

(c) The acknowledgment states that an aeronautical study of the proposed construction or alteration has resulted in a determination that the construction or alteration:

- (1) Would not exceed any s of subpart C and would not be a hazard to air navigation;
- (2) Would exceed a standard of subpart C but would not be a hazard to air navigation; or
- (3) Would exceed a standard of subpart C and further aeronautical study is necessary to determine whether it would be a hazard to air navigation, that the sponsor may request within 30 days that further study, and that, pending completion of any further study, it is presumed the construction or alteration would be a hazard to air navigation.

(Amdt. 77-1, Eff. 5/11/65); (Amdt. 77-4, Eff. 11/12/67); (Amdt. 77-5, Eff. 5/2/68)

Subpart C--Obstruction Standards

77.21 Scope.

(a) This subpart establishes standards for determining obstructions to air navigation. It applies to existing and proposed manmade objects, objects of natural growth, and terrain. The standards apply to the use of navigable airspace by aircraft and to existing air navigation facilities, such as an air navigation aid, airport, Federal airway, instrument approach or departure procedure, or approved off-airway route. Additionally, they apply to a planned facility or use, or a change in an existing facility or use, if a proposal therefor is on file with the Federal Aviation Administration or an appropriate military service on the date the notice required by 77.13(a) is filed.

(b) At those airports having defined runways with specially prepared hard surfaces, the primary surface for each such runway extends 200 feet beyond each end of the runway. At those airports having defined strips or pathways that are used regularly for the taking off and landing of aircraft and have been designated by appropriate authority as runways, but do not have specially prepared hard surfaces, each end of the primary surface for each such runway shall coincide with the corresponding end of the runway. At those airports, excluding seaplane bases, having a defined landing and takeoff area with no defined pathways for the landing and takeoff of aircraft, a determination shall be made as to which portions of the landing and takeoff area are regularly used as landing and takeoff pathways. Those pathways so determined shall be considered runways and an appropriate primary surface as defined in 77.25(c) will be considered as being longitudinally centered on each runway so determined, and each end of that primary surface shall coincide with the corresponding end of that runway.

(c) The standards in this subpart apply to the effect of construction or alteration proposals upon an airport if, at the time of filing of the notice required by 77.13(a), that airport is --

(1) Available for public use and is listed in the Airport Directory of the current Airman's Information Manual or in either the Alaska or Pacific Airman's Guide and Chart Supplement; or

(2) A planned or proposed airport or an airport under construction, that is the subject of a notice or proposal on file with the Federal Aviation Administration, and, except for military airports, it is clearly indicated that the airport will be available for public use; or,

(3) An airport that is operated by an armed force of the United States.

(Amdt. 77-5, Eff. 5/2/68); (Amdt. 77-9, Eff. 5/16/71)

77.23 Standards for determining obstructions.

(a) An existing object, including a mobile object, is, and a future object would be, an obstruction to air navigation if it is of greater height than any of the following heights or surfaces:

(1) A height of 500 feet above ground level at the site of the object.

(2) A height that is 200 feet above ground level or above the established airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 500 feet.

(3) A height within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area, which would result in the vertical distance between any point on the object and an established minimum instrument flight altitude within that area or segment to be less than the required obstacle clearance.

(4) A height within an en route obstacle clearance area, including turn and termination areas, of a Federal airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

(5) The surface of a takeoff and landing area of an airport or any imaginary surface established under 77.25, 77.28, or 77.29. However, no part of the take-off or landing area itself will be considered an obstruction.

(b) Except for traverse ways on or near an airport with an operative ground traffic control service, furnished by an air traffic control tower or by the airport management and coordinated with the air traffic control service, the standards of paragraph (a) of this section apply to traverse ways used or to be used for the passage of mobile objects only after the heights of these traverse ways are increased by:

(1) Seventeen feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance.

(2) Fifteen feet for any other public roadway.

(3) Ten feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road.

(4) Twenty-three feet for a railroad, and,

(5) For a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it.

(Amdt. 77-5, Eff. 5/2/68); (Amdt. 77-9, Eff. 5/16/71)

77.25 Civil airport imaginary surfaces.

The following civil airport imaginary surfaces are established with relation to the airport and to each runway. The size of each such imaginary surface is based on the category of each runway according to the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of a runway are determined by the most precise approach existing or planned for that runway end.

(a) Horizontal surface. A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:

(1) 5,000 feet for all runways designated as utility or visual;

(2) 10,000 feet for all other runways. The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be the highest determined for either end of the runway. When a 5,000-foot arc is encompassed by tangents connecting two adjacent 10,000-foot arcs, the 5,000-foot arc shall be disregarded on the construction of the perimeter of the horizontal surface.

(b) Conical surface. A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

(c) Primary surface. A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; but when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of a primary surface is:

(1) 250 feet for utility runways having only visual approaches.

(2) 500 feet for utility runways having nonprecision instrument approaches.

(3) For other than utility runways the width is:

(i) 500 feet for visual runways having only visual approaches.

(ii) 500 feet for nonprecision instrument runways having visibility minimums greater than three-fourths statute mile.

(iii) 1,000 feet for a nonprecision instrument runway having a nonprecision instrument approach with visibility minimums as low as three-fourths of a statute mile, and for precision instrument runways.

The width of the primary surface of a runway will be that width prescribed in this section for the most precise approach existing or planned for either end of that runway.

(d) Approach surface. A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based upon the type of approach available or planned for that runway end.

(1) The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of:

(i) 1,250 feet for that end of a utility runway with only visual approaches;

(ii) 1,500 feet for that end of a runway other than a utility runway with only visual approaches;

(iii) 2,000 feet for that end of a utility runway with a nonprecision instrument approach;

- (iv) 3,500 feet for that end of a nonprecision instrument runway other than utility, having visibility minimums greater than three-fourths of a statute mile;
 - (v) 4,000 feet for that end of a nonprecision instrument runway, other than utility, having a nonprecision instrument approach with visibility minimums as low as three-fourths statute mile; and
 - (vi) 16,000 feet for precision instrument runways.
- (2) The approach surface extends for a horizontal distance of:
- (i) 5,000 feet at a slope of 20 to 1 for all utility and visual runways;
 - (ii) 10,000 feet at a slope of 34 to 1 for all nonprecision instrument runways other than utility; and,
 - (iii) 10,000 feet at a slope of 50 to 1 with an additional 40,000 feet at a slope of 40 to 1 for all precision instrument runways.
- (3) The outer width of an approach surface to an end of a runway will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end.

(e) *Transitional surface.* These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces for those portions of the precision approach surface which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

(Amdt. 77-7, Eff. 11/30/68); (Amdt. 77-9, Eff. 5/16/71)

77.27 [Reserved] (Amdt. 77-5, Eff. 5/2/68); (Amdt. 77-7, Eff. 11/30/68); (Amdt. 77-9, Eff. 5/16/71)

77.28 Military airport imaginary surfaces.

(a) *Related to airport reference points.* These surfaces apply to all military airports. For the purposes of this section a military airport is any airport operated by an armed force of the United States.

(1) *Inner horizontal surface.* A plane is oval in shape at a height of 150 feet above the established airfield elevation. The plane is constructed by scribing an arc with a radius of 7,500 feet about the centerline at the end of each runway and interconnecting these arcs with tangents.

(2) *Conical surface.* A surface extending from the periphery of the inner horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 7,000 feet to a height of 500 feet above the established airfield elevation.

(3) *Outer horizontal surface.* A plane, located 500 feet above the established airfield elevation, extending outward from the outer periphery of the conical surface for a horizontal distance of 30,000 feet.

(b) *Related to runways.* These surfaces apply to all military airports.

(1) *Primary surface.* A surface located on the ground or water longitudinally centered on each runway with the same length as the runway. The width of the primary surface for runways is 2,000 feet. However, at established bases where substantial construction has taken place in accordance with a previous lateral clearance criteria, the 2,000-foot width may be reduced to the former criteria.

(2) *Clear zone surface.* A surface located on the ground or water at each end of the primary surface, with a length of 1,000 feet and the same width as the primary surface.

(3) *Approach clearance surface.* An inclined plane, symmetrical about the runway centerline extended, beginning 200 feet beyond each end of the primary surface at the centerline elevation of the runway end and extending for 50,000 feet. The slope of the approach clearance surface is 50 to 1 along the runway centerline extended until it reaches an elevation of 500 feet above the established airport elevation. It then continues horizontally at this elevation to a point 50,000 feet from the point of beginning. The width of this surface at the runway end is the same as the primary surface, it flares uniformly, and the width at 50,000 is 16,000 feet.

(4) *Transitional surfaces.* These surfaces connect the primary surfaces, the first 200 feet of the clear zone surfaces, and the approach clearance surfaces to the inner horizontal surface, conical surface, outer horizontal surface or other transitional surfaces. The slope of the transitional surface is 7 to 1 outward and upward at right angles to the runway centerline.

(Amdt. 77-1, Eff. 5/11/65); (Amdt. 77-9, Eff. 5/16/71)

77.29 Airport imaginary surfaces for heliports.

a) *Helicopter primary surface.* The area of the primary surface coincides in size and shape with the designated take-off and landing area of a heliport. This surface is a horizontal plane at the elevation of the established heliport elevation.

b) *Helicopter approach surface.* The approach surface begins at each end of the heliport primary surface with the same width as the primary surface, and extends outward and upward for a horizontal distance of 4,000 feet where its width is 500 feet. The slope of the approach surface is 8 to 1 for civil heliports and 10 to 1 for military heliports.

c) *Helicopter transitional surface.* These surfaces extend outward and upward from the lateral boundaries of the heliport primary surface and from the approach surfaces at a slope of 2 to 1 for a distance of 250 feet measured horizontally from the centerline of the primary and approach surfaces.

(Amdt. 77-9, Eff. 5/16/71)

Subpart D--Aeronautical Studies of Effect of Proposed Construction on Navigable Airspace

77.31 Scope.

(a) This subpart applies to the conduct of aeronautical studies of the effect of proposed construction or alteration on the use of air navigation facilities or navigable airspace by aircraft. In the aeronautical studies, present and future IFR and VFR aeronautical operations and procedures are reviewed and any possible changes in those operations and procedures and in the construction proposal that would eliminate or alleviate the conflicting demands are ascertained.

(b) The conclusion of a study made under this subpart is normally a determination as to whether the specific proposal studied would be a hazard to air navigation.

(Amdt. 77-6, Eff. 8/31/68)

77.33 Initiation of studies.

(a) An aeronautical study is conducted by the FAA:

(1) Upon the request of the sponsor or any construction or alteration for which a notice is submitted under subpart B of this part, unless that construction or alteration would be located within an antenna farm area established under subpart F of this part; or

(2) Whenever the FAA determines it appropriate.

(Amdt. 77-4, Eff. 11/12/67)

77.35 Aeronautical studies.

(a) The Regional Manager, Air Traffic Division of the region in which the proposed construction or alteration would be located, or his designee, conducts the aeronautical study of the effect of the proposal upon the operation of air navigation facilities and the safe and efficient utilization of the navigable airspace. This study may include the physical and electromagnetic radiation effect the proposal may have on the operation of an air navigation facility.

(b) To the extent considered necessary, the Regional Manager, Air Traffic Division or his designee:

(1) Solicits comments from all interested persons;

(2) Explores objections to the proposal and attempts to develop recommendations for adjustment of aviation requirements that would accommodate the proposed construction or alteration;

(3) Examines possible revisions of the proposal that would eliminate the exceeding of the standards in subpart C of this part; and

(4) Convenes a meeting with all interested persons for the purpose of gathering all facts relevant to the effect of the proposed construction or alteration on the safe and efficient utilization of the navigable airspace.

(c) The Regional Manager, Air Traffic Division or his designee issues a determination as to whether the proposed construction or alteration would be a hazard to air navigation and sends copies to all known interested persons. This determination is final unless a petition for review is granted under 77.37.

(d) If the sponsor revises his proposal to eliminate exceeding of the standards of subpart C of this part, or withdraws it, the Regional Manager, Air Traffic Division, or his designee, terminates the study and notifies all known interested persons.

(Amdt. 77-6, Eff. 8/31/68); (Amdt. 77-11, Eff. 10/25/89)

77.37 Discretionary review.

(a) The sponsor of any proposed construction or alteration or any person who stated a substantial aeronautical objection to it in an aeronautical study, or any person who has a substantial aeronautical objection to it but was not given an opportunity to state it, may petition the Administrator, within 30 days after issuance of the determination under 77.19 or 77.35 or revision or extension of the determination under 77.39(c), for a review of the determination, revision, or extension. This paragraph does not apply to any acknowledgment issued under 77.19(c)(1).

(b) The petition must be in triplicate and contain a full statement of the basis upon which it is made

(c) The Administrator examines each petition and decides whether a review will be made and, if so, whether it will be:

(1) A review on the basis of written materials, including study of a report by the Regional Manager, Air Traffic Division of the aeronautical study, briefs, and related submissions by any interested party, and other relevant facts, with the Administrator affirming, revising, or reversing the determination issued under 77.19, 77.35 or 77.39(c); or

(2) A review on the basis of a public hearing, conducted in accordance with the procedures prescribed in subpart E of this part.

(Amdt. 77-3, Eff. 6/5/67); (Amdt. 77-11, Eff. 10/25/89)

77.39 Effective period of determination of no hazard.

(a) Unless it is otherwise extended, revised, or terminated, each final determination of no hazard made under this subpart or subpart B or E of this part expires 18 months after its effective date, regardless of whether the proposed construction or alteration has been started, or on the date the proposed construction or alteration is abandoned, whichever is earlier.

(b) In any case, including a determination to which paragraph (d) of this section applies, where the proposed construction or alteration has not been started during the applicable period by actual structural work, such as the laying of a foundation, but not including excavation, any interested person may, at least 15 days before the date the final determination expires, petition the FAA official who issued the determination to:

(1) Revise the determination based on new facts that change the basis on which it was made; or

(2) Extend its effective period.

(c) The FAA official who issued the determination reviews each petition presented under paragraph (b) of this section, and revises, extends, or affirms the determination as indicated by his findings.

(d) In any case in which a final determination made under this subpart or subpart B or E of this part relates to proposed construction or alteration that may not be started unless the Federal Communications Commission issues an appropriate construction permit, the effective period of each final determination includes--

(1) The time required to apply to the Commission for a construction permit, but not more than 6 months after the effective date of the determination; and

(2) The time necessary for the Commission to process the application except in a case where the Administrator determines a shorter effective period is required by the circumstances.

(e) If the Commission issues a construction permit, the final determination is effective until the date prescribed for completion of the construction. If the Commission refuses to issue a construction permit, the final determination expires on the date of its refusal.

(Amdt. 77-5, Eff. 5/2/68)

Subpart E--Rules of Practice for Hearings Under Subpart D

77.41 Scope.

This subpart applies to (J) hearings held by the FAA under titles 1, III, and X of the Federal Aviation Act of 1958 (49 U.S.C. subchapters I, III, and X), on proposed construction or alteration that affects the use of navigable airspace.

77.43 Nature of hearing.

Sections 4, 5, 7, and 8 of the Administrative Procedure Act (5 U.S.C. 1003, 1004, 1006, and 1007) do not apply to hearings held on proposed construction or alteration to determine its effect on the safety of aircraft and the efficient use of navigable airspace because those hearings are fact-finding in nature. As a fact-finding procedure, each hearing is non adversary and there are no formal pleadings or adverse parties.

77.45 Presiding officer.

(a) If, under 79.37, the Administrator grants a public hearing on any proposed construction or alteration covered by this part, the Director, Air Traffic Operations Service designates an FAA employee to be the presiding officer at the hearing. (b) The presiding officer may:

- (1) Give notice of the date and location of the hearing and any prehearing conference that may be held;
- (2) Administer oaths and affirmations;
- (3) Examine witnesses;
- (4) Issue subpoenas and take depositions or have them taken;
- (5) Obtain, in the form of a public record, all pertinent and relevant facts relating to the subject matter of the hearing;
- (6) Rule, with the assistance of the legal officer, upon the admissibility of evidence;
- (7) Regulate the course and conduct of the hearing; and
- (8) Designate parties to the hearing and revoke those designations.

(Amdt. 77-11, Eff. 10/25/89)

77.47 Legal officer.

The Chief Counsel designates a member of his staff to serve as legal officer at each hearing under this subpart. The legal officer may examine witnesses and assist and advise the presiding officer on questions of evidence or other legal questions arising during the hearing.

77.49 Notice of hearing.

In designating a time and place for a hearing under this subpart the presiding officer considers the needs of the FAA and the convenience of the parties and witnesses. The time and place of each hearing is published in the "Notices" section of the FEDERAL REGISTER before the date of the hearing, unless the notice is impractical or unnecessary.

77.51 Parties to the hearing.

The presiding officer designates the following as parties to the hearing--

- (a) The proponent of the proposed construction or alteration.
- (b) Those persons whose activities would be substantially affected by the proposed construction or alteration.

77.53 Prehearing conference.

(a) The presiding officer may, in his discretion, hold a prehearing conference with the parties to the hearing and the legal officer before the hearing.

(b) At the direction of the presiding officer, each party to a prehearing conference shall submit a brief written statement of the evidence he intends to provide through his witnesses and by questioning other witnesses at the hearing, and shall provide enough copies of the statement so that the presiding officer may keep three for the FAA and give one to each other party.

(c) At the prehearing conference, the presiding officer reduces and simplifies the subject matter of the hearing so far as possible and advises the parties of the probable order of presenting the evidence.

77.55 Examination of witnesses.

(a) Each witness at a hearing under this subpart shall, after being sworn by the presiding officer, give his testimony under oath.

(b) The party for whom a witness, other than an employee of the FAA, is testifying shall examine that witness. After that examination, other parties to the hearing may examine the witness, in the order fixed by the presiding officer. The presiding officer and the legal officer may then examine the witness. The presiding officer may grant any party an additional opportunity to examine any witness, if that party adequately justifies the additional examination.

(c) The legal officer examines each FAA employee who is a witness, before the other parties examine him. After that examination, the order prescribed in paragraph (b) of this section applies. An FAA employee may testify only as to facts within his personal knowledge and the application of FAA regulations, standards, and policies.

77.57 Evidence.

(a) The presiding officer receives all testimony and exhibits that are relevant to the issues of the hearing. So far as possible, each party shall submit enough copies of his exhibits that the presiding officer may keep three copies for the FAA and give one to each other party.

(b) The presiding officer excludes any testimony that is irrelevant, unduly repetitious, or consists of statements made during an aeronautical study in an effort to reconcile or compromise aviation or construction or alteration requirements. A party to the hearing may object to the admission of evidence only on the ground that it is irrelevant.

77.59 Subpoenas of witnesses and exhibits.

(a) The presiding officer of a hearing may issue subpoenas for any witness or exhibit that he determines may be material and relevant to the issues of the hearing. So far as possible, each party to the hearing shall provide the witnesses and exhibits that he intends to present at the hearing.

(b) If any party to the hearing is unable to provide his necessary witnesses and exhibits, he shall advise the presiding officer far enough in advance that the presiding officer can determine whether he should issue subpoenas for the desired witnesses or exhibits.

77.61 Revision of construction or alteration proposal.

(a) The sponsor of any proposed construction or alteration covered by this part may revise his proposal at any time before or during the hearing. If he revises it, the presiding officer decides whether the revision affects the proposal to the extent that he should send it to the Administrator for a redetermination of the need for a hearing.

(b) If the presiding officer decides that it does not need to be resubmitted to the Administrator, he advises the parties of the revised proposal and takes the action necessary to allow all parties to effectively participate in the hearing on the revised proposal. Without limiting his discretion, the presiding officer may recess and reconvene the hearing, or hold another prehearing conference.

77.63 Record of hearing.

(a) Each hearing is recorded verbatim by an official reporter under an FAA contract. The transcript, and all exhibits, become a part of the record of the hearing. (b) Any person may buy a copy of the transcript of the hearing from the reporter at the price fixed for it.

(c) The presiding officer may allow any party to withdraw an original document if he submits authenticated copies of it.

(d) Any person may buy, from the FAA, photostatic copies of any exhibit by paying the copying costs.

(e) A change in the official transcript of a hearing may be made only if it involves an error of substance. Any recommendation to correct the transcript must be filed with the presiding officer within 5 days after the hearing closes. The presiding officer reviews each request for a correction to the extent he considers appropriate and shall make any revisions that he finds appropriate as a result of that review.

77.65 Recommendations by parties.

Within 20 days after the mailing of the record of hearing by the official reporter, or as otherwise directed by the presiding officer, each party may submit to the presiding officer five copies of his recommendations for a final decision to be made by the Administrator.

77.67 Final decision of the Administrator.

After reviewing the evidence relevant to the questions of fact in a hearing, including the official transcript and the exhibits, The Administrator resolves all these questions, based on the weight of evidence, and makes his determination, stating the basis and reasons for it. He then issues an appropriate order to be served on each of the parties.

77.69 Limitations on appearance and representation.

(a) A former officer or employee of the FAA may not appear on behalf of, or represent, any party before the FAA in connection with any matter to which this part applies, if he considered or passed on that matter while he was an officer or employee of the FAA.

(b) A person appearing before the FAA on any matter to which this part applies may not, in connection with that appearance, knowingly accept assistance from, or share fees with, any person who is prohibited by paragraph (a) of this section, from appearing himself on that matter.

(c) A former official or employee of the FAA may not, within 6 months after he ceases to be such an officer or employee, appear before the FAA on behalf of, or represent, any party in connection with any proceeding that was pending under this part while he was an officer or employee of the FAA, unless he obtains written consent from an appropriate officer of the FAA, based on a verified showing that he did not personally consider the matter concerned or gain particular knowledge of it while he was an officer or employee of the FAA.

Subpart F--Establishment of Antenna Farm Areas

77.71 Scope.

(a) This subpart establishes antenna farm areas in which antenna structures may be grouped to localize their effect on the use of navigable airspace.

(b) It is the policy of the FAA to encourage the use of antenna farms and the single structure multiple antenna concept for radio and television towers whenever possible. In considering proposals for establishing antenna farm areas, it considers as far as possible the revision of aeronautical procedures and operations to accommodate antenna structures that will fulfill broadcasting requirements.

77.73 General provisions.

(a) An antenna farm area consists of a specified geographical location with established dimensions of area and height, where antenna towers with a common impact on aviation may be grouped. Each such area is established by appropriate rule making action.

(b) Each proposal for an antenna farm area is evaluated on the basis of its effect on the use of navigable airspace. The views of the Federal Communications Commission are requested on the effect that each establishment of an antenna farm area would have on its statutory responsibilities. Any views submitted by it are fully considered before the antenna farm concerned is established. If the Commission advises that the establishment of any proposed antenna farm area would interfere with its statutory responsibility, the proposed area is not established.

(c) The establishment of an antenna farm area is considered whenever it is proposed by:

- (1) The FAA;
- (2) The Federal Communications Commission;
- (3) The sponsor of a proposed antenna tower; or
- (4) Any other person having a substantial interest in a proposed antenna tower.

(Amdt. 77-10, Eff. 3/4/72)

77.75 Establishment of antenna farm areas.

The airspace areas described in the following sections of this subpart are established as antenna farm areas.

Note: Sections 77.77 through 77.1100 reserved for descriptions of antenna farm areas.

This Page Intentional Left Blank

Examples of Other State Land Use Compatibility Programs

A range of other state Land Use Compatibility efforts within the United States that could serve as examples and resources for this Rhode Island Airport Land Use Compatibility Study was referenced in Chapter 3A, *Airport Land Use Compatibility Planning: Step-by-Step*. The purpose of this appendix is to provide specific details for nine active state land use compatibility programs, including references to their enabling land use compatibility statutes and regulations, and some of the key land use compatibility planning tools employed within their respective programs. (Note that since many of these plans are very involved and extensive, only a “high level” look at the key elements of each plan has been provided.)

It is important to review what other states agencies have actually instituted for their respective airports in order to compare their land use efforts to current regulations, codes and statutes found in Rhode Island and identify techniques that could be employed to improve land use compatibility around its state public-use airports. The nine state land use compatibility programs that were reviewed and are summarized below include the following (listed chronologically):

- Pennsylvania Airport Land Use Compatibility Guidelines, 1996
- California Airport Land Use Planning Handbook, 2002
- Texas Airport Compatibility Guidelines, 2003
- Oregon Airport Compatibility Land Use Guidebook, 2003
- Minnesota Airport Land Use Compatibility Manual, 2007
- Iowa Airport Land Use Guidelines, 2008
- Florida Airport Compatible Land Use Guidebook, 2010
- Idaho Airport Land Use Guidelines, 2010 (Draft)
- Washington Airports and Compatible Land Use Guidebook, 2011

E.1 Pennsylvania Airport Land Use Compatibility Guidelines (1996)

Over the last 15 years, the Commonwealth of Pennsylvania and the Pennsylvania Department of Transportation (PennDOT) Bureau of Aviation have recognized the importance of compatible land use as it relates to transportation, and in particular to that of aviation. In 1996, PennDOT Bureau of Aviation published the Pennsylvania Airport Land Use Compatibility Guidelines with the intention of identifying land uses and activities that are considered compatible around airports so as to protect the state’s airport system as a vital transportation and economic resource.



The primary focus of the guidelines is safety. In 1984, the Pennsylvania legislature passed ACT 164, Pennsylvania Laws Relating to Aviation that includes the “Airport Zoning Act” (Chapter 59, Subchapter B). Specifically ,the Airport Zoning Act states:

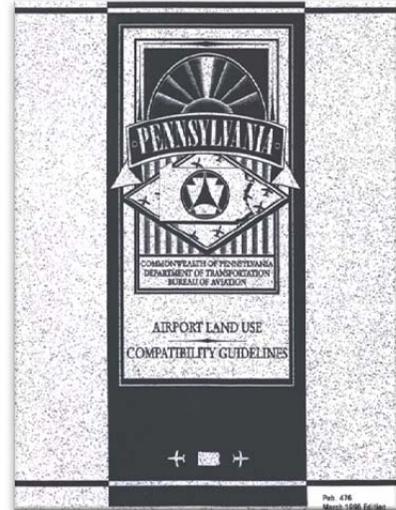
“In order to prevent the creating or establishment of airport hazards, every municipality having an airport hazard area within it’s territorial limits shall adopt, administer and enforce, under the police power and in the manner and upon the conditions prescribed in this subchapter and in applicable zoning laws unless clearly inconsistent with this subchapter, airport zoning regulations for such airport hazard area”

System Facts	
State NPIAS Airports	
Primary Service:	10
Commercial Service:	3
Reliever:	12
<u>General Aviation:</u>	<u>38</u>
Total Airports:	63
Based Aircraft (2010):	3,692
Enplanements (2010):	21,460,777

This act places the responsibility for enacting airport zoning ordinances with the municipality in which the hazard area occurs. Prior to the enactment of Act 164 and in the years since, PennDOT had actively encouraged municipalities to become familiar with the law and had provided numerous outreach programs to discuss compatible land use with airports and their host communities. The

Pennsylvania Airport Land Use Compatibility Guidelines built upon Act 164 to provide both height and land use compatibility within the environs of Pennsylvania’s airports.

The Pennsylvania Airport Land Use Guidelines follows a journalistic approach to format by asking applying the 5 Ws and one H concept (who, what, when, where, why, and how). This format allows the user to make educated and informed decisions related to compatible land use by answering questions that require an answer beyond a simple “yes” or “no.” Further, this format allows the user to follow a simple process in determining whether existing or proposed land uses are compatible with airport environs by providing facts and walking the user through the necessary steps.



Regulations and State Laws

State laws related to planning and compatible land use are spread across a wide range of state regulations and statutes affecting aviation and airports. The complete text of regulations for the Pennsylvania Code and Consolidated Statutes can be found at www.legis.state.pa.us/. Below is a summary of the regulations that pertaining to airports and aviation.

Pennsylvania Code

- Title 67 – Transportation
 - Chapter 479 – Obstruction to Aircraft

Consolidated Statute

- Title 74 – Transportation
 - Chapter 51 – Preliminary Provisions
 - Chapter 53 – Authority of Department of Transportation
 - Chapter 55 – Legal Status of Air Navigation
 - Chapter 57 – Obstructions to Aircraft Operations
 - Chapter 59 – Airport Operation and Zoning
 - Chapter 61 – Aviation Development

Key Plan Highlights

The Pennsylvania Airport Land Use Compatibility Guidelines provide for the collaborative land-use management between local communities and transportation entities that is necessary to contain costs and ensure the state's system has room to grow to meet future demand. The guidelines were designed to answer a series of questions that a layperson might ask. In general, the following provides a description some of the plan's key elements.

- Synopsis of land use compatibility in Pennsylvania - presents an overview of why airport compatibility is important; what are the roles/responsibilities of the various local, state, and federal stakeholders; and how airport land use compatibility issues fit within the state planning structures, including interfacing with local planning processes and local planning responsibilities.
- Airport land use planning concerns – provides a detailed description of the multiple facets of the compatibility issue including safety (e.g. Part 77 airspace surfaces and FAA *Airport Design* criteria), compatibility (e.g. density, wildlife, height, lights, etc.), and noise.
- Techniques and resources for compatible land use planning – provides recommendations for techniques to help prevent incompatible land use development through the following applications:
 - Establishment of airport land use zones (four zones based on airport operations, FAA *Airport Design* criteria, and Part 77 airspace surfaces)
 - Integration into local planning initiatives, including comprehensive plans and airport land use plans
 - Adoption of zoning overlay districts

In addition, the guidelines provide guidance for correcting and remediating existing incompatible uses through land acquisition, easements, development rights, noise mitigation, etc. Resources provided include airport compatibility checklists, implementation measures, a variety of planning templates for airports within different approach categories, and multiple model ordinances and zoning overlays.

It should be noted that while the guidelines are the oldest of the reviewed state documents, PennDOT produced a general transportation and land use toolkit in 2007 that was supplemented by the original airport land use guidelines. This multi-

modal transportation document now serves as the principle toolkit for transportation planning in Pennsylvania.

Specific Compatible Land Use Planning Tools

The 1996 Pennsylvania Airport Land Use Compatibility Guidelines and subsequent programs implemented by PennDOT Bureau of Aviation over the last 15 years provide several tools that are based on the regulations established by the Commonwealth of Pennsylvania.

Key Pennsylvania Land Use Planning Tools	
1	Model zoning ordinance language for Airport District Overlay zones
2	Four recommended land use zones/areas
3	Airport compatibility checklist
4	Implementation measures
5	Mitigation measures
6	The Transportation Land Use and Tool Kit (2007)

E.2 California Airport Land Use Planning Handbook (2002)

The main goal of the California Airport Land Use Planning Handbook is to support the State Aeronautics Act (California Public Utilities Code, Section 21670 et seq.) that established statewide requirements for conducting airport land use compatibility planning. The handbook provides compatibility planning guidance to the state’s system of county commissions, known as Airport Land Use Commissions (ALUCs), which were designed to regulate land planning in the vicinity of airports. The handbook also provides guidance to ALUC staffs and consultants, as well as to the counties and cities having jurisdiction over airport area land uses, and airport proprietors themselves.



In its third edition, the 2002 California Airport Land Use Planning Handbook has evolved from a document that focuses on the “concepts and processes involved in land use planning,” to a handbook that is more “definitive in its guidance.” This change in tone is due to legislation that passed in 1994 which required ALUCs to “be guided” by the handbook. It should be noted that the Airport Land Use Planning Handbook “is not formal state policy or regulation.”

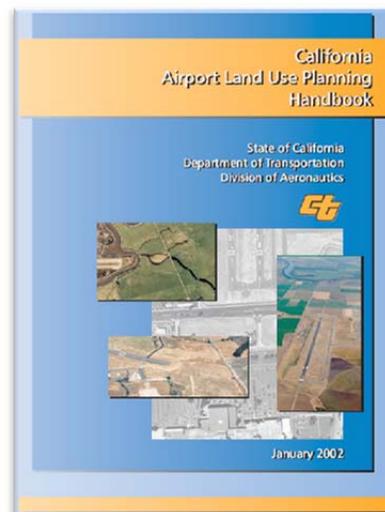
System Facts

State NPIAS Airports	
<i>Primary Service:</i>	28
<i>Commercial Service:</i>	1
<i>Reliever:</i>	37
<u>General Aviation:</u>	<u>125</u>
Total Airports:	191
<hr/>	
Based Aircraft (2010):	22,618
Enplanements (2010):	85,762,322

California regulations require that with limited exceptions, all counties are required to have an ALUC. Their purpose is to...

“Protect health, safety, and welfare by encouraging orderly expansion of airports and the adoption of land use measures that minimizes exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.”

ALUCs have a specific role in the land use planning process. While they have no authority over already developed uses, they do have authority over the redevelopment of these areas as well as undeveloped areas. Each ALUC must prepare a 20-year Airport Land Use Compatibility Plan (ALUCP) that focuses on broadly defined noise and safety impacts, make determinations on the compatibility of all developments around airports, evaluate the compatibility of proposed local agency land use policy actions, and evaluate airport plans with the relevant provisions in the ALUCP.



The handbook has three main strategies in guiding compatible land use that address safety hazards and excessive noise. The primary strategy on the ground is to limit the intensity of use by limiting residential and non-residential densities, as well as activities that attract people in locations most susceptible to off-airport aircraft accidents. The primary strategy in the air is to prevent the intrusion of an airport's airspace by the erection of structures that penetrate the imaginary airspace surfaces that surround an airport. From a noise standpoint, the objective of the handbook is to find the most appropriate land uses for areas exposed to significant levels of aircraft noise. These land uses include those that involve few people and uses that generate significant noise levels themselves such as industrial and manufacturing uses.

Regulations and State Laws

State laws related to planning and compatible land use are spread across a wide range of state administrative codes and statutes affecting aviation and airports. The complete text of sections for the California Law can be found at www.leginfo.ca.gov. Below is a summary of the legal code that the California Airport Land Use Planning Handbook has identified as pertaining to airports and aviation.

- Public Utilities Code
 - Section 21670-21679.5 – Airport Land Use Commission
 - Section 21402-21403 – Regulation of Aeronautics

- Section 21655, 21658, 21659 – Regulation of Obstructions
- Section 21661.5-21664.5 – Regulation of Airports
- Government Code
 - Section 65302.3 – Authority for and Scope of General Plans
 - Section 65943-65945.7 – Application for Development Projects
 - Section 66030-66031 – Mediation and Resolution of Land Use Disputes
 - Section 66455.9 – School Site Review
- Education Code
 - Section 17215 – School Facilities, General Provisions
 - Section 81033 – Community Colleges, School Sites
- Public Resources Code
 - Section 21096 – California Environmental Quality Act, Airport Planning

Key Plan Highlights

The California Airport Land Use Planning Handbook is an expansive document that encompasses many facets of land use compatibility. Following is a general description of the plan's key elements.

- Airport Land Use Commissions (ALUC) – The ALUCs are designed to assist local agencies in ensuring compatible land uses in the vicinity of all new airports and in the vicinity of existing airports to the extent that the land in the vicinity of those airports is not already devoted to incompatible uses. Their primary roles are to both prepare and adopt airport compatibility plans, and to review local agency land use actions and airport plans. Included is a description of the process which ALUCs should follow in reviewing individual land use proposals. Additionally, the responsibilities that local agencies have in promoting airport land use compatibility are described.
- Airport Land Use Compatibility Issues - A thorough description of the issues associated with land use compatibility is provided, including detailed assessments of the noise and safety components of airport land use compatibility planning. Specifically, background data and other information regarding measurement of noise and the characteristics of aircraft accidents are provided. Additionally, information on the development of noise and safety compatibility policies is given including a description of existing policy foundations and basic compatibility concepts, as well as specific guidance on the establishment of appropriate noise and safety compatibility criteria.

Specific Compatible Land Use Planning Tools

The California Airport Land Use Planning Handbook provides several tools that are based on the regulations established by the State of California.

Key California Land Use Planning Tools	
1	Sample documents which include: <ul style="list-style-type: none">- aviation easements,- recorded deed notices, and- zoning ordinances
2	Examples for defining land use compatibility zones
3	Checklists of compatibility plan contents for ALCUs and general plan consistency
4	Definition of stakeholder responsibilities

E.3 Texas Airport Compatibility Guidelines (2003)

The 2003 Texas Airport Compatibility Guidelines are an update and revision of the 1992 Guidelines developed by the Texas Department of Transportation’s (TxDOT) Division of Aviation. The first and second editions of the guidelines provided elected officials, city and county staff responsible for land use planning, and zoning board members with reference material for assuring compatibility between airports and their host communities. With nine percent of air travelers in the United States boarding an airplane in Texas and more than 400 public use airports, compatible land use is an important issue in the Lone Star State and one that TxDOT is committed to supporting.

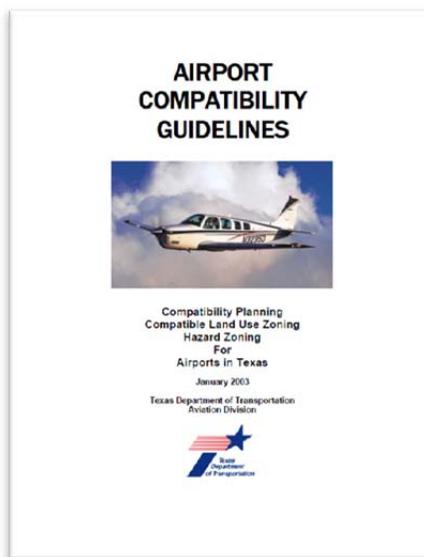
The guidelines were developed in a manner that builds on existing resources developed by the Wisconsin Department of Transportation and the Oregon Department of Transportation. With a system of airports that is projected to have activity levels nearly double over the next ten years, TxDOT is being proactive in revising and updating its guidelines in an effort to encourage airports and communities to have a system that is compatible with the land uses of its surrounding communities.

With most existing conflicts occurring due to a lack of sufficient land use planning, the guidelines encourage airport sponsors and key stakeholders to promote compatible land use



System Facts

State NPIAS Airports	
<i>Primary Service:</i>	25
<i>Commercial Service:</i>	1
<i>Reliever:</i>	24
<u><i>General Aviation:</i></u>	<u>160</u>
Total Airports:	210
<hr/>	
Based Aircraft (2010):	11,696
Enplanements (2010):	69,050,217



through preventative planning. Since 1987, the Texas State Legislature has created and expanded the Texas Airport Zoning Act (Chapter 241 of the Texas Local Government Code), to help protect airports by “providing effective tools to local governments to regulate the development of land and protect the airspace surrounding an airport.”

Regulations and State Laws

State laws related to planning and compatible land use are spread across a wide range of state administrative codes and statutes affecting aviation and airports. The complete text of regulations for the Texas Administrative Code (TAC) and Texas Constitution and Statutes can be found at www.statutes.legis.state.tx.us. Below is a summary of the legal code that the Texas Airport Compatibility Guidelines has identified as pertaining to airports and aviation.

Texas Administrative Code

- Title 43 - Transportation
 - Part 1 – Texas Department of Transportation
 - Chapter 30 - Aviation

Transportation Code

- Title 3 – Aviation

Local Government Code

- Titles 7 – Regulation of Land Use, Structures, Businesses, and Related Activities
 - Chapter 241 – Municipal and County Zoning Authority Around Airports
- Titles 8 – Acquisition, Sale, or Lease of Property
 - Chapter 251 – Municipal Right of Eminent Domain

Key Plan Highlights

The Texas Airport Compatibility Guidelines have been developed to explain what can be done to create an environment compatible with airport uses. They are written to give the reader an understanding of compatibility issues as well as instructions for implementing compatibility plans. Generally, the following provides a description some of the plan’s key elements.

- Overview of current airport land use compatibility issues - describes how airport land use conflicts have developed, why solutions to the problem are the responsibility of the airport sponsor, and what in general can be done to prevent conflicts.

- Planning the airport environment - describes what is involved in planning for an airport-compatible environment. This includes assessing current land use compatibility, as well as planning for and implementing plans for airport land use compatibility.
- Development of airport zoning - outlines the preparation of compatible land use and hazard zoning regulations to insure airport compatible development. This includes a description of the airport zoning act, preparation of airport compatible land use zoning regulations, and preparation of hazard zoning regulations.
- Adoption of airport zoning regulations - explains the procedures for adopting airport zoning. This includes assistance in designing strategies for implementation for zoning regulations and restrictions.

Specific Compatible Land Use Planning Tools

The Texas Airport Compatibility Guidelines provide several tools that are based on the regulations established by the State of Texas.

Key Texas Land Use Planning Tools	
1	Appropriate zoning strategies and implementation strategies
2	Sample documents which include: <ul style="list-style-type: none">- Airport Hazard Zoning Regulations- Airport Hazard Zoning Ordinances- Airport Compatible Land Use Zoning Regulations- Airport Compatible Land Use Zoning Map

E.4 Oregon Airport Compatibility Land Use Guidebook (2003)

Oregon has a long history in airport land use planning that dates to 1974 when the Land Use Planning Act was put into law. In 1978, Oregon developed an airport compatibility guidebook as a “first step to providing the necessary understanding and information in the developing area of land use compatibility in the airport environs.” For more than 30 years, Oregon has been at the forefront of airport compatible land use planning and has updated its airport land use guidance four times with the most recent update occurring in 2003. With each update of the guidelines, Oregon has made an effort to include regulatory changes as well as provide additional tools to assist users of the document as they plan for compatible land uses around airports.



System Facts

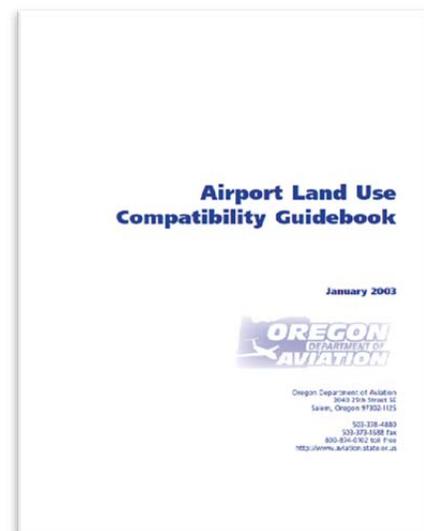
State NPIAS Airports

<i>Primary Service:</i>	7
<i>Commercial Service:</i>	1
<i>Reliever:</i>	2
<u><i>General Aviation:</i></u>	<u>47</u>
Total Airports:	57

Based Aircraft (2010):	4,063
Enplanements (2010):	8,060,973

The purpose of the Oregon Airport Compatibility Land Use Guidebook is to be a comprehensive source of information that can be used to guide the preservation of aviation facilities, and to provide for the safety of individuals near airports through the use of compatible land uses. Further, it is intended to provide the information necessary for local jurisdictions and affected airports to conform to statewide planning goals, statutes, and administrative rules that apply to airport planning.

Oregon’s Airport Compatibility Land Use Guidebook is laid out in an easy-to-follow format and outlines three specific steps to the planning process:



1. *“Review existing documents, issues, and polices related to airport planning,*
2. *Integrate them into local comprehensive plan transportation elements, transportation system plans, airport master plans, and local ordinances and implementing regulations, and*
3. *Provide supporting information regarding the rules, regulations and land use issues.”*

The guidebook walks users through these steps using a “hands-on” method of assessing a comprehensive plan with respect to airport related issues. Chapter 1 of the guidebook provides an introduction to the land use planning and broad overview of state and federal regulations. Chapter 1 also provides users with a detailed questionnaire that users can use at the local level to review comprehensive plans and ensure that they are meeting the appropriate regulations. The remainder of the guidebook (Chapters 2 thru 7) is meant to be reference material for users once they begin the process of developing and/or updating their comprehensive plans or as they face issues regarding compatible land use around their airports.

Regulations and State Laws

State laws related to planning and compatible land use are spread across a wide range of state administrative codes and statutes affecting aviation and airports. The complete text of regulations for the Oregon Administrative Rules (OAR) and Oregon Revised Statutes (ORS) can be found at www.oregon.gov/SOLL/. Below is a summary of the legal code that the Oregon Airport Compatibility Land Use Guidebook has identified as pertaining to airports and aviation.

Oregon Administrative Rules

- Chapter 141, Division 86 – Wetland Conservation Plan
- Chapter 340, Division 35 – Noise Control Regulations for Airports
- Chapter 340, Division 94 – Solid Waste: Municipal Solid Waste Landfills
- Chapter 660, Division 12 – Transportation Planning Rule
- Chapter 660, Division 13 – Airport Planning Rule
- Chapter 660, Division 13 – Exhibits
- Chapter 660, Division 23 – Procedures and Requirements for Complying with Goal 5
- Chapter 738 – Oregon Department of Aviation

Oregon Revised Statutes

- Statute 196 – Oregon Removal-Fill Law
- Statute 197 – Comprehensive Land Use Planning Coordination
- Statute 835 – Aviation Administration
- Statute 836 – Airports and Landing Fields
- Statute 837 – Aircraft Operation
- Statute 838 – Airport Districts

Key Plan Highlights

The Oregon Airport Land Use Compatibility Guidebook as a primer on airports and compatible land uses and is a critical first step in providing understanding and information in the developing area of land use compatibility in the airport environs. Following is a general description some of the plan's key elements.

- Airport land use planning in Oregon synopsis - presents an overview of how airport land use compatibility issues fit within the state planning structures, including interfacing with local planning processes and local planning responsibilities. Additionally, the guidebook provides a synopsis of the state's goals and policies related to land use issues, as well as detailed description of the roles/responsibilities of federal, state, and local stakeholders. This includes a detailed review of federal and state regulations related to airport compatibility land use planning.
- Airport land use planning concerns – provides a detailed description of the multiple facets of the compatibility issue including safety (e.g. Part 77 airspace surfaces and FAA *Airport Design* criteria), compatibility (e.g. density, wildlife, height, lights, etc.), and noise.
- Techniques and resources for compatible land use planning – provides recommendations for techniques to help prevent incompatible land use development through planning applications (e.g. comprehensive plans, statewide plans, transportation system plans, etc.) and ordinances (e.g. overlay zoning, airport development zoning, local ordinances, height restrictions, etc.). In addition, provides guidance for techniques to correct and remediate incompatible uses through land acquisition, easements, development rights, noise mitigation, etc. Resources provided include checklists, a troubleshooting matrix, a variety of planning templates for airports within different approach categories, and multiple model ordinances and zoning overlays.

Specific Compatible Land Use Planning Tools

The Oregon Airport Land Use Compatibility Guidebook provides several tools that are based on the regulations established by the State of Oregon.

Key Oregon Land Use Planning Tools	
1	Preventative techniques for establishing compatible land uses
2	Corrective techniques for establishing compatible land uses
3	Model airport safety and compatibility overlay zone templates
4	Troubleshooting matrix
5	Sample documents which include agreements and easements

E.5 Minnesota Airport Land Use Compatibility Manual (2007)

The State of Minnesota has had protective legislation to prevent incompatible development around airports since 1943. Thirty years later, Minnesota required appropriate airport compatible zoning as a condition for receiving federal and state funding grants. These long standing legislative efforts to protect airports from incompatible land uses are regularly complimented by supporting efforts from the Minnesota State Department of Transportation’s Office of Aeronautics. This office provides airport-related technical assistance to its 136 publicly use airports, as well as publishing the Minnesota Airport Land Use Compatibility Manual and supporting model zoning ordinances to assist local governments and airport sponsors.



System Facts

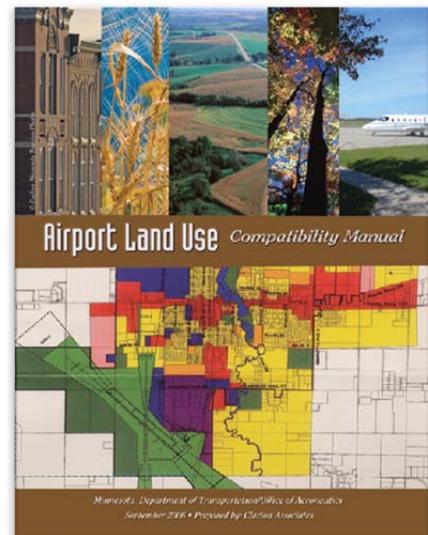
State NPIAS Airports

Primary Service:	7
Commercial Service:	2
Reliever:	7
General Aviation:	81
Total Airports:	97

Based Aircraft (2010):	4,204
Enplanements (2010):	16,759,481

Like many airports across the country, the encroachment of incompatible land uses its many forms is one of the key threats facing airports and their operations in Minnesota. As a result, airports are being forced to spend large sums of money to buy encroaching land uses or to move airport operations to new sites at significant cost. As stated in the Minnesota Airport Land Use Compatibility Manual, “for the State of Minnesota, the reason for this manual is very straightforward and simple - public airports are major economic generators for the state, and its cities, towns, and counties.”

The main focus of the Minnesota Airport Land Use Compatibility Manual are two safety-related



land use compatibility concerns related to airport operations. These concerns are defined in the manual as follows:

- 1) the potential danger to people and property on the ground could be significant, and
- 2) the potential danger to aircraft pilots and occupants from obstructions to flight could be significant.

While the manual acknowledges that noise concerns are an issue for Minnesota airports, it does not focus on noise as a compatibility issue and instead provides a significant amount of resource material, data, and analyses on airport noise controls.

Regulations and State Laws

State laws related to planning and compatible land use are spread across a wide range of state administrative rules and statutes affecting aviation and airports. The complete text of rules and statutes for Minnesota can be found at www.revisor.mn.gov/pubs/. Below is a summary of the rules and statutes that the Minnesota Airport Land use Compatibility Manual has identified as pertaining to airports and aviation.

Minnesota Administrative Rules

- Chapter 8800 – Aeronautics
- Chapter 8800.1100 – Regulations of Structure Heights
- Chapter 8800.1200 – Determining Air Navigation Obstructions
- Chapter 8800.2400 – Airport Zoning Standards

Minnesota Statutes

- Chapter 103G – Wetlands Conservation Act
- Chapter 116C – Environmental Coordination Procedures Act
- Chapter 116D – Environmental Policy
- Chapter 360 – Airports and Aeronautics
 - Chapter 360.011 – Administration
 - Chapter 360.031 – Establishing Airports
 - Chapter 360.061 – Airport Zoning
 - Chapter 360.201 – Reciprocity
 - Chapter 360.305 – Expenditures for Airports – Zoning Required
 - Chapter 360.81 – Regulation of Structure Heights
- Chapter 394 – Planning, Developing, Zoning
 - Chapter 394.21 – Authority to Carry On County Planning and Zoning Activities

- Chapter 394.23 – Comprehensive Plan
- Chapter 394.24 – Official Controls
- Chapter 394.25 – Forms of Control
- Chapter 394.34 – Interim Zoning
- Chapter 462 – Housing, Redevelopment, Planning, and Zoning
 - Chapter 462.351 – Municipal Planning and Development
 - Chapter 462.353 – Authority to Plan
 - Chapter 462.355 – Interim Ordinance
 - Chapter 462.357 – Procedure to Effect Planning: Zoning
- Chapter 473 – Metropolitan Government
 - Chapter 473.192 – Aircraft Noise Attenuation
 - Chapter 473.661 – Budget

Key Plan Highlights

The Minnesota Airport Land Use Compatibility Manual was designed to provide land use compatibility guidance to airport sponsors. Following is a general description some of the plan's key elements.

- Minnesota airport system - presents an overview of the Minnesota aviation system and identifies key stakeholders on the federal, state and local levels including their roles and duties in airport operations and land use compatibility planning. It includes a brief summary of key federal and state aviation laws such as the state model airport zoning law. It concludes with a more detailed discussion of some of the current challenges and shortcomings with the current system.
- Compatible airport land uses - presents details of the primary land use compatibility concerns facing airports today, as well as extensive table of land uses that might be expected to develop around an airport, and assesses the uses' relative safety compatibility.
- Preventive & corrective strategies for airport land use compatibility - presents detailed local strategies for preventing potentially incompatible land uses including planning, regulation, capital investments, acquisition, incentives, and education. It also discusses corrective actions that can be taken by local governments to address incompatible land uses after they are established.
- Applicable laws, statutes, and legal issues – summarizes the most important federal and state aviation laws related to land use compatibility. It also presents the unique aspects of Minnesota land use law that have affected land use planning around airports in the state.

- Model airport safety zoning ordinance and procedural guide - an overview of the legal status of the model zoning ordinance and a summary of its contents. The ordinance reflects modern airport zoning practices as well as minimum requirements under Minnesota law. The intent is to provide more choices and options for local governments to tailor an airport safety zoning ordinance to their own unique circumstances.

Specific Compatible Land Use Planning Tools

The Minnesota Airport Land Use Compatibility Manual provides several tools that are based on the regulations established by the State of Minnesota.

<i>Key Minnesota Land Use Planning Tools</i>	
1	Recommendations for compatible land uses in airport safety zones
2	Preventative strategies and tools
3	Corrective strategies and tools
4	Model airport safety zoning ordinances and procedures

E.6 Iowa Airport Land Use Guidebook (2008)

Iowa's diverse system of over 100 public use airports (78 of which are identified within the NPIAS) serves an essential transportation and economic role in the quality of life for more than three million Iowans. Aviation in Iowa plays a vital role in business, tourism, emergency services, agriculture, and public safety. As demand for development increases, land uses that are incompatible with airport operations can threaten the safety and viability of airports. One of the goals of the Iowa Department of Transportation's Office of Aviation is the preservation of airports from incompatible land uses. The development of the Iowa Airport Land Use Guidebook speak directly to this important goal and provides airport sponsors and community planners with a comprehensive document to guide them in their decision making processes. As stated in the Guidelines, the purpose of the document is to:

- *Identify why land use around airports is a concern*
- *Define compatible and incompatible land uses*
- *Define the local, state, and federal government players in protecting airports and surrounding land uses*
- *Identify how planning can be used to preserve compatible land use*
- *Identify how to mitigate existing incompatible land uses*
- *Identify resources for additional information*

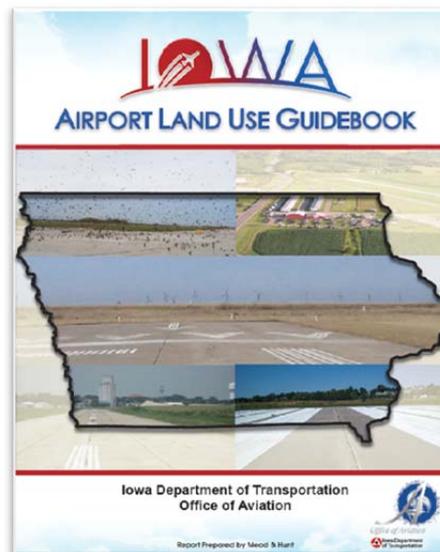


System Facts

State NPIAS Airports

Primary Service:	6
Commercial Service:	2
Reliever:	1
<u>General Aviation:</u>	<u>69</u>
Total Airports:	78

Based Aircraft (2010):	2,204
Enplanements (2010):	11,562,536



- *Provide sample tools, techniques, and forms for use”*

Iowa law enables cities, counties, and airports to enact zoning to protect various land uses. The Iowa Airport Land Use identifies these legal resources, as well as suggests policies and procedures in order to implement effective compatible land use planning around airports. In addition to being a comprehensive resource, it also provides a process for implementing effective land use compatibility planning and zoning.

Regulations and State Laws

State laws related to planning and compatible land use are spread across a wide range of state statutes affecting aviation and airports. The complete text of chapters for the Iowa Code can be found at www.legis.state.ia.us. Below is a summary of the legal code that the Iowa Airport Land Use Guidelines has identified as pertaining to airports and aviation.

Iowa Code

- Chapter 6A – Eminent Domain Law (Condemnation)
- Chapter 28E – Joint Exercise of Governmental Powers
- Chapter 28I – Metropolitan or Regional Planning Commissions
- Chapter 161A – Soil and Water Conservation
- Chapter 303 – Department of Cultural Affairs (Historic Preservation Districts)
- Chapter 316 – Relocation of Persons Displaced by Highways
- Chapter 328 – Aeronautics
- Chapter 329 – Airport Zoning
- Chapter 330 – Airports
- Chapter 335 – County Planning and Zoning
 - Chapter 335.3 – Powers
- Chapter 352 – County Land Preservation and Land Use Commissions
 - Chapter 352.5 – County Land Preservation and Land Use Plan
- Chapter 414 – Municipal Planning and Zoning
- Chapter 455B – Jurisdiction of Department of Natural Resources
- Chapter 455G – Petroleum Storage Tanks – Upgrades & Abatement
- Chapter 456B – Special Provisions – Natural Resources Department
- Chapter 481A – Wildlife Conservation
- Chapter 481B – Endangered Plants and Wildlife
- Chapter 710 – Airport Improvement Program
- Chapter 720 – Iowa Airport Registration

Key Plan Highlights

The Iowa Airport Land Use Guidebook was designed to provide general guidance to airport sponsors who were largely unfamiliar with land use compatibility issues and the options available for addressing them. Thus, this document is largely educational in nature, although some specific tools are provided. Following is a general description some of the plan's key elements.

- Discussion of the importance of land use compatibility for Iowa – This informational review includes the following:
 - Reviews of the airport system and its importance to Iowa
 - Review of the airport land use compatibility-related regulatory requirements/obligations, as well as their safety related considerations.
 - Review of noise and safety-related issues
- Establishment of Land Use Compatibility Zones – Description of state's airport overlay zones that are based on a combination of FAA *Airport Design* criteria and Part 77 airspace surfaces.
- Description of prevention and mitigation strategies – Description of standard industry approaches to land use compatibility, including the following:
 - Planning-related strategies – comprehensive plans, airport master plans, overlay zoning, disclosure requirements, site plan review procedures, and deed restrictions
 - Natural features – wildlife hazards and vegetation
 - Acquisition and notification strategies – acquisition, easements, hold harmless agreements, and real estate disclosures
 - Noise mitigation strategies – sound barriers and sound proofing
 - Implementation strategies – land use planning assessments and checklists

Specific Compatible Land Use Planning Tools

The Iowa Airport Land Use Guidebook provides several tools that are based on the regulations established by the State of Iowa.

Key Iowa Land Use Planning Tools	
1	Identification of airport land use compatibility zones
2	Compatibility assessment charts
3	Prevention and mitigation strategies
4	Sample documents which include aviation easements, disclosure statements, non-suit covenants, and hold harmless agreements
5	Airport land use and height overlay zoning ordinance outline
6	Compatible land use planning checklist
7	Resource contacts

E.7 Florida Airport Compatible Land Use Guidebook (2010)

Through a cooperative effort between the Florida Department of Transportation, Florida Department of Community Affairs, and the Florida Airports Council, the Florida Airport Compatible Land Use Guidebook was developed with a “focus on providing information that helps all applicable parties comply with existing law and regulations.” With more than 130 public-use general aviation and commercial service airports and an economic impact of \$97 billion to the state economy, Florida recognizes the need to protect its airports and aviation infrastructure.

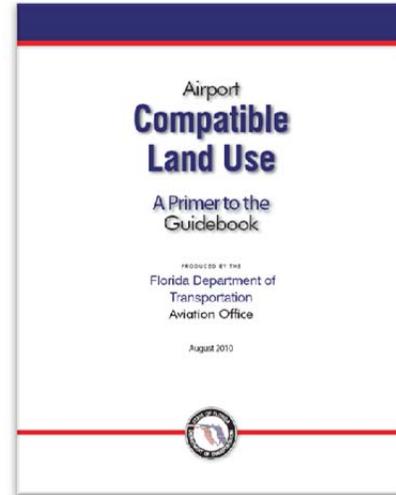


The agencies that sponsored the Florida Airport Compatible Land Use Guidebook had a mission of reviewing, assessing, and recommending potential improvements to the evaluation and permitting process for new development in the vicinity of Florida’s public use airports and military airfields. So, the guidebook has been developed so that it is applicable to a variety of users which include individuals, land developers, airport sponsors, consultants, and local and state planners. Presented in four very distinct but related sections, the guidebook highlights important information and factors that must be considered in the process of evaluating land use compatibility in Florida. The four sections include the following:

System Facts	
<u>State NPIAS Airports</u>	
<i>Primary Service:</i>	20
<i>Commercial Service:</i>	1
<i>Reliever:</i>	21
<u>General Aviation:</u>	<u>58</u>
Total Airports:	100
Based Aircraft (2010):	10,176
Enplanements (2010):	68,161,232

1. Section One: Process for Reviewing Development Applications

2. Section Two: Statutes, Regulations, and Processes Governing Land Use Compatibility
3. Section Three: Principals Underlying Land Use Compatibility Requirements
4. Section Four: Strategies to Prevent or Correct Land Use Incompatibilities



Florida Statute Chapter 333 requires local governments to adopt, administer, and enforce airport zoning. The Florida Airport Compatible Land Use Guidebook provides users with an overview of the steps that must be followed to comply with Chapter 333, F.S., as well as provides users with a better understanding of the appropriate land uses for airport environs.

Regulations and State Laws

State laws related to planning and compatible land use are spread across a wide range of state administrative codes and statutes affecting aviation and airports. The complete text of statutes for Florida can be found at www.flsenate.gov/Laws/Statutes and the Florida Administrative Code can be found at www.flrules.org/. Below is a summary of the legal code that the Florida Airport Compatible Land Use Guidebook has identified as pertaining to airports and aviation.

Florida Statutes

- Title XI – County Organization and Intergovernmental Relations
 - Chapter 163 – Intergovernmental Programs
 - Part II – Growth Policy; County and Municipal Planning; Land Development Regulation
- Title XXV – Aviation
 - Chapter 330 – Regulation of Aircraft, Pilots, and Airports
 - Chapter 331 – Aviation and Aerospace Facilities and Commerce
 - Chapter 332 – Airports and Other Air Navigation Facilities
 - Chapter 333 – Airport Zoning

Florida Administrative Code

- Chapter 9J-5 – Minimum Criteria for Review of Local Government Comprehensive Plan and Plan Amendments, Evaluation Appraisal Reports, Land Development Regulations, and Determination of Compliance

- Chapter 14-60 – Airport Licensing, Registration, and Airspace Protection

Key Plan Highlights

The Florida Airport Compatible Land Use Guidebook is a very robust document that provides planners and policy decision makers with a step-by-step process for evaluating and regulating land uses near airports. Processes are provided based on the size of the airport or airfield that enable reviewers to make specific comments and recommendations on development proposals. In addition, the guidebook provides a wealth of additional information for further reading in the interest of protecting Florida's aviation and land use assets. Following is a general description some of the plan's key elements.

- Process for reviewing development applications – Description of the steps required for local governments to follow when reviewing an application for development
- Detailed review of statutes, regulations, and processes governing land use compatibility
- Listing of principals underlying land use compatibility requirements for Florida – includes the following:
 - Areas around airports that need to be protected
 - Areas around airports that need to be protected from a height standpoint
 - Areas around airports that need to be protected from a noise standpoint
 - Areas around airports that need to protect from a safety standpoint
 - Cumulative height, noise, and safety Areas around civilian airports for compatible land use planning and zoning
 - Areas around military airfields to consider in the land use planning process
- Strategies to prevent or correct land use incompatibilities -
 - Roles and responsibilities for airport compatible land use planning – includes description of roles, responsibilities and processes related to local, state and federal stakeholders
 - Tactics available to achieve land use compatibility
 - Strategies to prevent incompatible land use around airports - planning, zoning, acquisition, and notification
 - Corrective actions to address incompatible land use – land reuse, and noise mitigation/operational procedures

Specific Compatible Land Use Planning Tools

The Florida Airport Compatible Land Use Guidebook provides several tools that are based on the regulations established by the State of Florida.

Key Florida Land Use Planning Tools	
1	Identification of areas around an airport that need to be protected
2	Tactics available to achieve land use compatibility: - Strategies to prevent incompatible land use around airports - Corrective actions to address incompatible land use
3	Examples of land use zoning ordinances
4	Identification of areas around an airport that should be protected from the standpoint of height, noise, and safety
5	State references and contact information

E.8 Idaho Airport Land Use Guidelines (2010)

Although Idaho is still a rural state by most standards, its population is increasing. As development continues, land surrounding many commercial service and general aviation airports is steadily being converted from agricultural or low density uses to higher density uses. This development is starting to encroach on areas surrounding airports that should maintain less intensive land uses. As a result, the Idaho Transportation Department’s (ITD) Division of Aeronautics developed draft Airport Land Use Guidelines in 2010 that is currently being considered for formal adoption. The Guidelines have been assembled as a future aid to local planning and zoning officials throughout Idaho. Since airport land use compatibility planning is an integral aspect of growth management and sound economic development, ITD Division of Aeronautics believes it should become a requisite part of land use plans and programs across the state.



While the Idaho Land Use Guidelines are still “draft” and are being circulated within the state for review and therefore subject to change, ITD Division of Aeronautics intends that the final document provide local planning and/or zoning boards with direction in adopting formal plans and ordinances specifically designed to accommodate aviation facilities. The land use guidelines expand upon topics listed in the Transportation subsection of the ‘Planning Duties’ Idaho Code Section 67-6508 (i) that mandates the preparation of comprehensive planning. Additionally, the guidelines identify the minimum and “best practices” requirements needed to protect airport operations and businesses and citizens living and working near airports. Further, the guidelines provide local boards with the knowledge of, reasons for, and examples needed to enact airport

System Facts

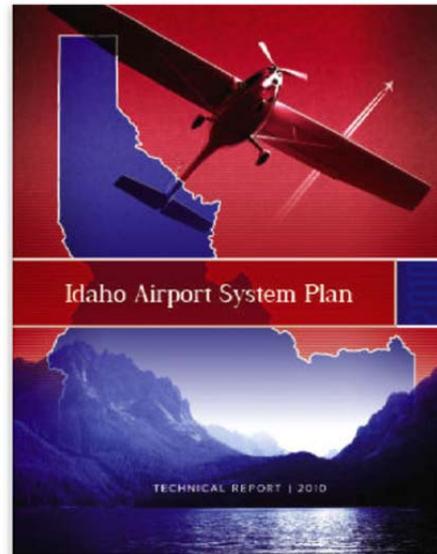
State NPIAS Airports

<i>Primary Service:</i>	6
<i>Commercial Service:</i>	0
<i>Reliever:</i>	1
<u>General Aviation:</u>	<u>30</u>
Total Airports:	37

Based Aircraft (2010):	2,543
Enplanements (2010):	1,909,560

specific comprehensive plans and zoning ordinances that meet or exceed the state requirements found in the Airport Zoning Act.

The organization of the Idaho Land Use Guidelines has been established in a manner that incorporates both an educational and a procedural component in order to meet the differing needs and backgrounds of the state’s aviation community. The document’s organizational structure designed with the specific intent to bring together two divergent groups so that they can mutually understand each other’s interests and cooperatively establish compatible land uses around Idaho’s public use airports. Sections One through Three provide background on the purpose of land use planning and which legal entities have the authority for airport zoning. These first three sections constitute the primary aviation education parts that place the airport and its activities in context with the broader community as a whole. Sections Four through Six provide details on the background and procedures for planning and zoning, while Sections Seven and Eight provide specific ordinance language and examples of agreements that enhance the protections afforded by the ordinance. Finally, Sections Nine and Ten discuss ordinance implementation and operation as well as some future considerations.



Regulations and State Laws

State laws related to planning and compatible land use are spread across a wide range of state rules and statutes affecting aviation and airports. The complete text of chapters for the Idaho Rules and Statutes can be found at www.idaho.gov/laws_rules. Below is a summary of the legal code that the Idaho Airport Land Use Guidelines has identified as pertaining to airports and aviation.

Idaho Statutes

- Title 21 – Aeronautics
 - Chapter 5 – Airport Zoning Act
- Title 67 – State Government and State Affairs
 - Chapter 52 – Idaho Administrative Procedures Act

Idaho Administrative Code

- IDAPA 39.04.02 – Rules Governing Marking Hazards to Air Flight
- IDAPA 39.04.04 – Federal Aviation Regulations (Adopted)
- IDAPA 39.04.04 – Rules Governing Idaho Airport Aid Program

Key Plan Highlights

The Idaho Airport Land Use Guidelines are an ancillary result of the statewide airport system planning efforts and designed to support that plan. Following is a general description of the plan's key elements.

- Authority for Airport Zoning – A description of the local, state and federal responsibilities and authorities for the establishment and enforcement of compatible airport zoning.
- Interrelationships between Airports and Citizens – A description of the manners in which airport operations can impact the local community and vice versa. This includes discussions of the following:
 - Airspace requirements for airport operators
 - Aircraft noise impacts around airports
 - Safety areas around airports
 - Aircraft overflight areas around airports
 - Establishment of Airport Influence Areas and land use guidance
- Six-Step Process for Airport Land Use Planning – A description of the process established for Idaho for airport compatible land use planning.
 1. Integration of airports into local comprehensive planning efforts
 2. Establishment of joint multi-jurisdictional airport land use planning and zoning commissions
 3. Definition of a general airport zoning ordinance
 4. Definition of specific airport zoning ordinance elements
 - Zoning
 - Height restrictions
 - Airport compatible land use zones
 - Regulations and enforcement
 5. Attachments to the Airport Zoning Ordinance
 - Compatibility zoning tables
 - Fair disclosure statements
 - Easements
 - Other agreements
 6. Adoption and maintenance of the ordinance

Specific Compatible Land Use Planning Tools

The Idaho Airport Land Use Guidelines provides several tools that are based on the regulations established by the State of Idaho.

<i>Key Idaho Land Use Planning Tools</i>	
1	Six-step process for airport land use planning
2	Land use compatible zoning chart
3	Identification of airport influence areas
4	Sample ordinance language, zoning and regulations
5	Sample airport influence area map descriptions

E.9 Washington Airports and Compatible Land Use Guidebook (2011)

The Washington Department of Transportation (WSDOT) Aviation Division developed a technical assistance program to protect public use airports from incompatible land use development. The Washington Airport Land Use Compatibility Program is over 15 years old and is continually updated as issues and environs change. In 1996, the Washington State Legislature recognized the importance of protecting aviation facilities from incompatible land uses and amended the Washington State Growth Management Act. Through the amendment, the state recognized the social and economic benefits of aviation. Further, the law requires every community (city, town, county, etc) that has a general aviation airport within its jurisdiction to discourage the siting of incompatible land uses with the airport.



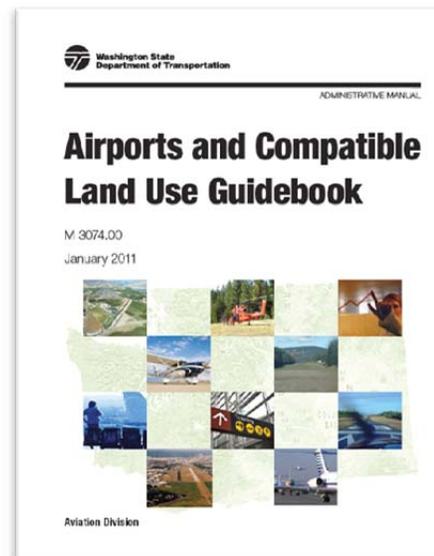
System Facts

State NPIAS Airports

Primary Service:	11
Commercial Service:	1
Reliever:	5
General Aviation:	47
Total Airports:	64

Based Aircraft (2010):	5,883
Enplanements (2010):	18,335,172

The Washington State Growth Management Act empowers the state to offer technical assistance and policy advice to cities and counties through the Airport Land Use Compatibility Program. This act along with three other state laws are the primary regulations in place in Washington to provide guidance on compatible land use planning around airports. Specifically, the Washington State Growth Management Act requires all communities with a general aviation airport within its jurisdictions to discourage incompatible development surround the



airport.

The Washington Airports and Compatible Land Use Guidebook is a direct result of WSDOT's Airport Land Use Compatibility Program. Last updated in January 2011, the guidebook was developed to help airports, communities, and stakeholders work together toward preventing incompatible development around airports in Washington. WSDOT Aviation developed a compatibility planning checklist as part of the guidebook to provide users with a step-by-step process that is easy to use and understand. The checklist is a six step process (shown below) that walks the user through the appropriate steps needed to make informed decisions regarding compatible land use around their airports.

1. Getting started and gathering data
2. Delineate the airport influence area
3. Identify compatibility concerns
4. Prepare comprehensive plan
5. Adopt the comprehensive plan
6. Implement the airport land use compatibility policies

Regulations and State Laws

State laws related to planning and compatible land use are spread across a wide range of state administrative codes and statutes affecting aviation and airports. The complete text of chapters for the Revised Code of Washington can be found at <http://apps.leg.wa.gov/rcw>. Below is a summary of the legal code that the Washington Airports and Compatible Land Use Guidebook has identified as pertaining to airports and aviation.

Revised Code of Washington

- Title 14 - Aeronautics
 - Chapter 14.07 – Municipal airports – 1941 act.
 - Chapter 14.08 – Municipal airports – 1945 act.
 - Chapter 14.12 – Airport zoning
- Title 35 – Cities and towns
 - Chapter 35.22.415 – Municipal airport located in unincorporated area – subject to county comprehensive plan and zoning ordinances
 - Chapter 35.63 – Planning commissions
- Title 35A – Optional municipal code
 - Chapter 35A.63.270 – General aviation airports

- Title 36 - Counties
 - Chapter 36.70.320 – Comprehensive plan
 - Chapter 36.70.547 – General aviation airports – siting of incompatible uses
 - Chapter 36.70A – Growth management – planning by selected counties and cities
 - Chapter 36.70A.070 – Comprehensive plans – mandatory elements
 - Chapter 36.70A.110 – Comprehensive plans – urban growth areas
 - Chapter 36.70A.200 – Siting of essential public facilities – limitation on liability
 - Chapter 36.70A.210 – Countywide planning policies
 - Chapter 36.70A.510 – General aviation airports
 - Chapter 47 – Public highways and transportation
 - Chapter 47.68 – Aeronautics
- Title 70 – Public health and safety
 - Chapter 70.93.095 – Marinas and airports – recycling
- Title 84 – Property Taxes
 - Chapter 84.12 – Assessment and taxation of public utilities

Key Plan Highlights

The Washington Airports and Compatible Land Use Guidebook is designed to help airports, communities, and jurisdictions work cooperatively and proactively toward preventing incompatible development around airports in Washington State. Jurisdictions can use the tools and resources found in the guidelines to develop policies and development regulations that discourage the encroachment of incompatible land use adjacent to public use general aviation facilities. It does not prescribe a one size fits all approach to land use compatibility planning, rather it provides recommended best management practices for local land use jurisdictions. Generally, the following provides a description some of the plan’s key elements.

- Overview of current airport land use compatibility issues – provides an overview of the airport system and its importance to Washington. It also describes how airport land use conflicts have developed and their potential consequences, who is responsible for addressing these issues, and what is the legal framework for compatibility planning.
- Airport land use compatibility step by step - describes the following six step process for airport land use compatibility planning.
 1. Getting started and gathering data

2. Delineate the airport influence area
 3. Identify compatibility concerns
 4. Prepare comprehensive plan
 5. Adopt the comprehensive plan
 6. Implement the airport land use compatibility policies
- Airport land use compatibility implementation strategies and toolkit – provides a comprehensive package of planning templates, model zoning ordinances, policy recommendations, and other supporting technical data.

Specific Compatible Land Use Planning Tools

The Washington Airports and Compatible Land Use Guidebook provides several tools that are based on the regulations established by the State of Washington.

<i>Key Washington Land Use Planning Tools</i>	
1	A six-step planning process
2	Compatibility strategies, including influence zones
3	Tools for addressing specific airport land use compatibility issues
4	Tools for enhancing compatibility
5	Model documents

E.10 How do these other state programs compare to each other?

In their efforts to ensure compatible land use, all statewide airport systems have some commonalities. For example, all states' land use compatibility programs are rooted in the requirements and limitations detailed in each state's aviation-related laws and regulations. These laws and regulations typically provide detail regarding the extent of a state's responsibilities with respect to aviation, and by extension, with respect to airport compatible land use. Additionally, they may provide specific details regarding that state's current compatible land use approach and policies.

The following matrix summarizes the various categories of regulations and statutes that shape the content and structure of each of the reviewed state's airport compatibility program. Since every state's regulations and statutes are unique, the categories that are shown in the following table have been generalized to reflect their primary areas of focus. The purpose for this is to provide an overview of where state legislation and regulations are centered with respect to airport compatibility and aviation in general. A "federal" line has been included to reflect the primary areas of focus for federal regulations (principally through FAA) with respect to airport land use compatibility.

As reflected in the following table, the states' statutory and regulatory areas of focus are most often based on airport zoning concerns, comprehensive planning compatibility, system operations and management, and airspace obstructions clearance. It should also be noted that the statutes and regulations reviewed in the table were only those related specifically to aviation.

Land Use Regulations/Statutes Comparison

States	State Aviation Regulations / Statutes Areas of Focus							
	Compatible Land Use	Airport Zoning	Comprehensive Planning	Noise Related	Environmental Related	Land Acquisition	Operations & Management	Obstructions, Airspace & Height
PA		✓	✓				✓	✓
CA	✓			✓	✓		✓	✓
TX	✓	✓	✓	✓			✓	
OR			✓	✓	✓	✓	✓	
MN		✓	✓	✓	✓		✓	✓
IA		✓			✓	✓	✓	✓
FL		✓	✓				✓	✓
ID		✓					✓	✓
WA	✓	✓	✓				✓	
Federal				✓	✓	✓	✓	✓

Source: Wilbur Smith Associates

Beyond individual statutes and regulations, state airport compatibility programs also typically share many similar characteristics. As evidenced in the earlier sections of this chapter, there is a wide array of potential options that states can employ in addressing their airport compatible land use challenges. However, in reviewing the nine states examined included in this analysis, it is apparent that there are some particular options and tools that are preferred for use by the states. The table below provides a summary of the tools that each state’s airport compatible land use program utilizes. Note that for the purposes of this summary, the listing of tools has been generalized and that they may not be applied the same in every state.

Summary of Noise Related Land Use Compatibility Techniques

States	Land Use Planning Tools							
	Defined Planning Process / Checklist	Compatible Land Use Zones	Airport Land Use Zones / Hazard Areas	Stakeholder Roles in the Process	Preventive & Corrective Strategies / Tools	Overlay Zones for Land Use Compatibility	Customized Planning Tools	Example Documents (Zoning, Deed Notices, Avigation Easements)
PA	✓	✓		✓	✓		✓	✓
CA	✓	✓		✓	✓		✓	✓
TX	✓	✓	✓	✓	✓		✓	✓
OR		✓		✓	✓	✓	✓	✓
MN		✓		✓	✓			✓
IA	✓	✓		✓	✓	✓	✓	✓
FL		✓	✓	✓	✓		✓	✓
ID	✓	✓	✓	✓				✓
WA	✓	✓	✓	✓	✓		✓	✓

Source: Wilbur Smith Associates

When reviewing the previous table, there are some broad conclusions that can be drawn regarding the composition of a “typical” state airport compatibility program:

- They define a specific planning process that can include checklists.
- They establish defined zones around airports to promote appropriate land use compatibility.
- They clearly identify airport land use compatibility planning stakeholders and their responsibilities.
- They advocate recommended land use compatibility strategies for implementing the program and/or mitigating existing conditions.
- They establish specific tools customized to the specific needs of their state, the airports and the host communities.
- They provide example documentation (e.g. zoning, deed notifications, etc.) for use by airports and host communities.

There are many similarities among the state airport land use compatibility programs. Nevertheless, each program is uniquely constructed to meet the needs of the individual state and stakeholder groups. The table below provides the key highlights of each state airport land use compatibility program. These programs have been designed and adopted over an extended period of time. It can be assumed that the approaches for addressing airport land use compatibility issues have also evolved over that same period.

Therefore, it may be reasonably inferred that the more recent state programs will more likely reflect the latest industry practices.

Highlights of Reviewed State Airport Land Use Compatibility Programs

State (publication date)	Total System Airports	Key Plan Highlights
Pennsylvania (1996)	63	<ol style="list-style-type: none"> 1. Model zoning ordinance language for Airport District Overlay zones 2. Four recommended land use zones/areas 3. Airport compatibility checklist 4. Implementation measures 5. Mitigation measures 6. The Transportation Land Use and Tool Kit (2007)
California (2002)	191	<ol style="list-style-type: none"> 1. Sample documents which include: <ul style="list-style-type: none"> - aviation easements, - recorded deed notices, and - zoning ordinances 2. Examples for defining land use compatibility zones 3. Checklists of compatibility plan contents for ALCUs and general plan consistency 4. Definition of stakeholder responsibilities
Texas (2003)	210	<ol style="list-style-type: none"> 1. Appropriate zoning strategies and implementation strategies 2. Sample documents which include: <ul style="list-style-type: none"> - Airport Hazard Zoning Regulations - Airport Hazard Zoning Ordinances - Airport Compatible Land Use Zoning Regulations - Airport Compatible Land Use Zoning Map
Oregon (2003)	57	<ol style="list-style-type: none"> 1. Preventative techniques for establishing compatible land uses 2. Corrective techniques for establishing compatible land uses 3. Model airport safety and compatibility overlay zone templates 4. Troubleshooting matrix 5. Sample documents which include agreements and easements
Minnesota (2007)	97	<ol style="list-style-type: none"> 1. Recommendations for compatible land uses in airport safety zones 2. Preventative strategies and tools 3. Corrective strategies and tools 4. Model airport safety zoning ordinances and procedures

Table 2-8. Highlights of Reviewed State Airport Land Use Compatibility Programs
(continued)

State (publication date)	Total System Airports	Key Plan Highlights
Iowa (2008)	78	<ol style="list-style-type: none"> 1. Identification of airport land use compatibility zones 2. Compatibility assessment charts 3. Prevention and mitigation strategies 4. Sample documents which include aviation easements, disclosure statements, non-suit covenants, and hold harmless agreements 5. Airport land use and height overlay zoning ordinance outline 6. Compatible land use planning checklist 7. Resource contacts
Florida (2010)	100	<ol style="list-style-type: none"> 1. Identification of areas around an airport that need to be protected 2. Tactics available to achieve land use compatibility: <ul style="list-style-type: none"> - Strategies to prevent incompatible land use around airports - Corrective actions to address incompatible land use 3. Examples of land use zoning ordinances 4. Identification of areas around an airport that should be protected from the standpoint of height, noise, and safety 5. State references and contact information
Idaho (2010)	37	<ol style="list-style-type: none"> 1. Six-step process for airport land use planning 2. Land use compatible zoning chart 3. Identification of airport influence areas 4. Sample ordinance language, zoning and regulations 5. Sample airport influence area map descriptions
Washington (2011)	64	<ol style="list-style-type: none"> 1. A six-step planning process 2. Compatibility strategies, including influence zones 3. Tools for addressing specific airport land use compatibility issues 4. Tools for enhancing compatibility 5. Model documents

Source: Wilbur Smith Associates

E.11 Summary

Airport land use compatibility is a challenging concern that continues to evolve over time. Various approaches and strategies taken within the airport industry as well as by specific states likewise continue to change and develop. This appendix provides an overview of nine state airport land use compatibility programs to review how other states are actively tackling these issues today. This overview is important to the planning process for Rhode Island in that it provides context for the current “state-of-the-industry” approaches to land use compatibility, which will serve to help define the spectrum of potential land use compatibility tools that could be utilized within the State.

Sample Airport Compatible Land Use Analysis Checklist

Airport land use compatibility issues and requests for analysis often arise on a daily basis. In order to make that process as effective and efficient as possible, it is important to establish structure in the review process. This is most often accomplished through the use of standardized forms and applications. While each local municipality will likely have their own requirements for their forms, an example Airport Compatible Land Use Analysis Checklist has been included in the following pages for consideration.

This Page Intentional Left Blank

Sample Airport Compatible Land Use Analysis Checklist

CONTACT INFORMATION

Applicant Information

Name _____

Contact _____

Address _____

City/State/Zip _____

Phone _____

Fax _____

Engineer/Architect Information

Name _____

Contact _____

Address _____

City/State/Zip _____

Phone _____

Fax _____

STRUCTURE INFORMATION

Type of Construction

_____ New Construction _____ Alteration Ground Elevation _____ (MSL)

_____ Permanent _____ Temporary Height of Structure + _____ (AGL)

Top Elevation = _____ (MSL)

Description and Use of Structure (dimensions, type of construction, purpose, etc):

SITE INFORMATION

<u>Site Address</u> _____	<u>City/Town</u> _____
<u>City/State/Zip</u> _____	<u>Latitude</u> _____
<u>Nearest Road Intersection</u> _____	<u>Longitude</u> _____

DRAWING INFORMATION

Request will not be considered without an engineered drawing/plan set which illustrates the following:

_____ Drawing Identification (file name or #) and Date	_____ Engineers Seal
_____ Scale	_____ Contact Information
_____ Site Map	_____ Profile View of Structure

REMARKS

CERTIFICATION

I hereby certify that all statements on this application are true and correct

Signature _____	Date _____
Name and Title of Person Filing the Notice _____	
Phone of Person Filing Notice _____	

OFFICAL USE ONLY

Site Location	_____ Zone A	_____ Zone B	_____ Zone C
	_____ Zone D	_____ Zone E	

Elevation Information	Ground Elevation at Site	_____
	Height of Structure	_____
	Top Elevation	_____
	Allowable Elevation	_____

IDENTIFY CURRENT AND POTENTIAL COMPATIBILITY CONCERNS

The purpose of this step is to begin to understand and identify airport land use compatibility concerns, both issues that already exist and ones that may arise if current airport activity and land use development patterns persist into the future.

- To what extent are generally recognized types or compatibility concerns apparent locally?
- How does the community feel about these concerns?
- What land use or airport-related actions are being taken to minimize the concerns?

Issues to Consider

1. Noise sensitivity related issues
 - a. Extent of noise impact in relation of the airports environs
 - b. Anticipated growth of airport
 - c. Extent of soundproofing
 - d. Extent of sound barriers
2. High concentrations of people
 - a. Number of people in a given area at one time
 - b. Anticipated growth of the development
 - c. Type of development and location of development relative to the runway ends and runway centerlines
2. Tall structures
 - a. Height of structure
 - b. Location of structure relative to the runway ends and runway centerlines
 - c. FAA Form 7460
3. Visual obstructions
 - a. Amount of dust, glare, light emissions, smoke, steam, or smog the development will emit
 - b. Location of lighting fixtures relative to the runway ends and runway centerlines
 - c. Glare or reflection from glass windows or open water bodies such as retention ponds

4. Wildlife and bird attractants

- a. Select and space vegetation species to minimize habitats
- b. Maintain appropriate grass lengths to minimize wildlife attractants
- c. Prohibit certain agricultural crops near airport
- d. Eliminate standing water
- e. Use of repellents to disperse wildlife in a humane manner

Resources for Identifying Compatible Land Uses

- Rhode Island Airport Corporation (RIAC)
 - Rhode Island Airport Land Use Compatibility Guidebook
 - Staff
- Local municipal zoning
 - Airport overlay zoning ordinance
 - Airport Hazard Area
- Federal Aviation Administration
 - Regulations
 - FAR Part 77 standards for airspace protection
 - FAR Part 150 noise compatibility study guidance
 - Advisory Circulars
 - Land use compatibility
 - Wildlife hazards
 - Model zoning ordinance
 - Various pamphlets and other materials
 - FAA and other state and federal web sites

DEVELOP COMPATIBLE CRITERIA

This step includes the process to determine the compatibility of the development relative to the airport.

Identify Primary Areas of Interest

- Noise Sensitivity Related Issues
- Safety Related Issues
 - High concentrations of people
 - Tall structures
 - Visual obstructions
 - Wildlife and bird attractants

High Concentrations of People

YES	NO	MAYBE	LAND USE CONCERNS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Could the land use attract a concentration of people?</u>

If YES, then consider the following items:

What is the size of concentration of people?

What is the frequency of use at any given time?

Are there outdoor activities associated with the use?

Can the structure and/or land use be shifted within the site to allow a more compatible location?

Other:

Tall Structures

YES	NO	MAYBE	LAND USE CONCERNS
			<u>Could the land use exceed height standards?</u>

If YES, then consider the following items:

Can the structure and/or land use be lowered?

Can the structure and/or land use be shifted within the site to allow a more compatible location?

The applicant **MUST** submit an FAA Form 7460 to the FAA.

Response from the FAA regarding Form 7460 is attached to the report for reference. However, FAA determination does not guarantee local approval.

Other:

Visual Obstructions

YES	NO	MAYBE	LAND USE CONCERNS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Could the land use cause light or glare reflection upward?</u>

If YES, then consider the following items:

Can installation of down shielded light fixtures be utilized?

Can the number of lighting fixtures be reduced while still illuminating the land use area?

Can lighting be configured in a linear manner such that it does not align with a runway or airport facility making it difficult for a pilot to distinguish?

Can reflective building materials (such a mirrored/reflective glass, solar panels, metal roofs, etc) be limited within the vicinity of an airport?

Can areas of water be located away from the airport, due to possible reflection concerns?

Other:

Visual Obstructions (continued)

YES	NO	MAYBE	LAND USE CONCERNS
			<u>Could the land use create or emit smoke, steam, or dust?</u>

If YES, then consider the following items:

Can the structure and/or land use be shifted within the site so that the prevailing wind directions carries the smoke, steam, or dust away from the airport to allow a more compatible land use?

Can the land use activity be changed to reduce/limit emissions of smoke, steam, etc.?

Land uses that create or emit smoke and steam generally contain stacks that could also be a height concern. (

Other:

Wildlife and Bird Attractants

YES	NO	MAYBE	LAND USE CONCERNS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Could the land use have or create areas of standing water?</u>

If YES, then consider the following items:

Does the standing water have wildlife controls in place such as wires, balls, etc across the water body that detracts birds from landing, roosting, or resting in the vicinity of an airport?

Can the detention area be constructed in such a manner that standing water is dispersed within 48 hours?

If the standing water is associated with a detention area, can the detention area be located underground or have the depth increased to reduce surface area?

Other:

Additional Considerations

YES	NO	MAYBE	LAND USE CONCERNS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Could the land use contain flammable substances or materials?</u>

If YES, then consider the following items:

Can the structure and/or land use be shifted within the site to allow a more compatible location?

Other:

Additional Considerations

YES	NO	MAYBE	LAND USE CONCERNS

Could the land use cause a source of electrical, navigational, or radio interference?

If YES, then consider the following items:

Has the applicant coordinated with the FAA, through the FAA Form 7460 to evaluate potential concerns?

Has the response from the FAA regarding Form 7460 been received? (attach to report for reference)
(FAA determination does not guarantee local approval)

Other:

Land Use Concerns

Number of YES's _____

Number of NO's _____

Findings

Recommendations

Approved

YES

NO

Reviewer's Name: _____

Date _____

Model Documents

This appendix contains example documents relevant to airport land use compatibility. They have been included simply for consideration and should not be viewed as being specifically endorsed by the Rhode Island Airport Corporation (RIAC) as of the publication date of this Guidebook (April 2013). As this Guidebook is developed and employed over time in Rhode Island, RIAC-endorsed documents will be included in this appendix.

Sample Agreements and Easements included in this Appendix

1. Disclosure Statement
2. Suggested Disclosure to Real Estate Buyers
3. Aviation Activity Notice
4. Avigation Easement For Easements Outside Runway Protection Zone
5. Avigation Easement For Easements Inside Runway Protection Zone
6. Hold Harmless Agreement

This Page Intentional Left Blank

SAMPLE

Disclosure Statement

A disclosure statement, adhering to the form of the statement below, shall be provided to and signed by each potential purchaser of property within the Airport Hazard Area as shown on the approved Airport Land Use Drawing. The signed statement will then be affixed by the Seller to the agreement of the sale.

The tract of land situated at _____ in _____, consisting of approximately _____ acres (City/Town and State) which is being conveyed from _____ to _____ lies within _____ miles of (airport name) may be subjected to varying noise levels, as the same is shown and depicted on the official Zoning Maps.

Certification

The undersigned purchaser(s) of said tract of land certify(ies) that (he) (her) (they) (has) (have) read the above disclosure statement and acknowledge(s) the pre-existence of the airport named above and the noise exposure due to the operation of said airport.

(SIGNED)

This Page Intentional Left Blank

SAMPLE

Suggested Disclosure to Real Estate Buyers

Customarily, someone will request a letter from the municipality about outstanding charges and assessments against a property. Something similar to this language, adapted for your airport, can be incorporated into a letter sent to buyers and title companies in preparation for closing.

“Please be advised that the subject property is located within the Airport Hazard Area of the _____ Airport, or is located within a similar distance from the airport. It is conceivable that standard flight patterns would result in aircraft passing over (or nearly so) the property at altitudes of less than _____ feet. Current airport use patterns suggest that the average number of takeoffs/touchdowns exceeds _____ annually. A property buyer should be aware that use patterns vary greatly, with the possibility of increased traffic on _____. The airport presently serves primarily business and recreational aircraft, and there are no development initiatives being considered or planned that would change that. However, it is always possible that some future airport development plans could impact the number, size and types of aircraft that operate at the airport. Generally, it is not practical to redirect or severely limit airport usage and/or planned-for expansion. As such, residential development proximate to the airport ought to assume, at some indefinite date, an impact from air traffic.”

This Page Intentional Left Blank

SAMPLE

Aviation Activity Notice

WHEREAS, _____ are the owners in fee of that certain parcel of land situated in the City/Town of _____, in the State of Rhode Island, more particularly described as follows:

(Insert legal description of property)

NOW, THEREFORE, notice is given to all future property owners that: “The subject property is located adjacent to and within close proximity and flight paths of _____ Airport and may impact the property from a variety of aviation activities. Such activities may include but are not limited to noise, vibration, chemical, odors, hours of operation, low overhead flights and other associated activities.”

AND, current and future property owners are also notified that the Federal Aviation Administration (FAA) establishes standards and notification requirements for potential height hazards that may be caused by structures, building, trees and other objects affecting navigable air space through 14 CFR Federal Aviation Regulations (FAR) Part 77 Civil Aviation Imaginary Surfaces. Any questions on establishing on height hazards or obstructions should be directed to (local jurisdiction name) (airport sponsor name) or the FAA.

Signed _____ day of _____, 20____.

Legal Property Owner(s)

Aviation Activity Notice

NOTARY ACKNOWLEDGEMENT

STATE OF RHODE ISLAND }

COUNTY OF _____ } ss.

On this _____ day of _____, 20 ____, before me, a Notary Public, in and for said City/Town, personally appeared _____ to me known to be the same person(s) described in, and who executed the within instrument, who acknowledged the same to be _____ free act and deed.

Notary Public, County of _____, Rhode Island,
My Commission Expires: _____

Parcel No.: _____

Name: _____

Project No.: _____

SAMPLE

Avigation Easement

(For Easements Outside Runway Protection Zone)

THIS INDENTURE is made this _____ day of _____, 20 ____ between _____, whose address is _____, _____, Rhode Island (“GRANTOR”); and _____, whose address is _____, _____, Rhode Island (“GRANTEE”).

WHEREAS, the GRANTEE is the owner and operator of the _____ Airport (“AIRPORT”), situated in the City/Town of _____, Rhode Island, and in close proximity to the GRANTOR’s property, as described below, and the GRANTEE desires to obtain and preserve for the use and benefit of the public a right of free and unobstructed flight for aircraft landing upon, taking off from, or maneuvering about the AIRPORT.

NOW THEREFORE, for and in consideration of the sum of \$_____ dollars (\$_____) and other good and valuable consideration, the receipt and sufficiency of which is acknowledged, the GRANTOR grants, bargains, sells and conveys to the GRANTEE, its successors and assigns, for the benefit of the general public at large, an easement and right-of-way for the free, unobstructed passage of aircraft, by whomsoever owned or operated, in and through the air space over and across those parts of the GRANTOR’s land containing _____ acres of land within the boundary described as follows:

(See Property Description)

provided, however, that the air space in which that easement and right-of-way is granted shall be that which lies above the heights described and depicted on the attached Exhibit X, which is incorporated by reference.

The GRANTEE and its successors and assigns are to have and to hold that easement and all rights appertaining to it until the AIRPORT is abandoned and no longer used for airport purposes.

In furtherance of this easement and right-of-way, the GRANTOR, for the consideration recited above, grants and conveys to the GRANTEE, its successors and assigns:

_____ Initial
 _____ Initial

AVIGATION EASEMENT (outside RPZ)

- (a) a continuing right to keep the air space above the heights described and depicted on Exhibit X clear and free from any and all fences, crops, trees, poles, buildings, and other obstructions of any kind or nature which now extend, or which may at any time in the future extend, above those heights;
- (b) a continuing right, at the GRANTEE's option, to remove to ground level any or all natural growths which extend on the above property above the heights described and depicted on the attached Exhibit X to extent such action is needed. The GRANTEE may determine such action is needed because the GRANTEE in the GRANTEE'S sole discretion finds (i) trimming is unsafe or not reasonably possible, (ii) the species of the tree or other natural growth is too fast growing, or (iii) trimming would have a reasonable probability of killing the tree or other natural growth or causing it to be too susceptible to disease;
- (c) The GRANTEE shall have the right of ingress to, egress from, and passage over the GRANTOR's land described above for the purpose of removing obstructions. Except in cases of imminent danger to health, safety, or welfare, the GRANTEE shall provide the property owner at least 20 days advance written notice of its use this right.

In addition, for the consideration recited above, the GRANTOR covenants, both on the GRANTOR's own behalf and on behalf of the GRANTOR's heirs, executors, administrators and assigns, for and during the life of this easement, as follows:

- (1) The GRANTOR shall not construct nor permit nor suffer to remain upon the GRANTOR's land any present or future obstruction that extends above the heights described and depicted on the attached Exhibit X. Provided, however, that any removal or trimming of trees or other natural growth on the GRANTOR's land as described above which extends above the heights set forth in the Exhibit X shall be conducted by the GRANTEE or the GRANTEE's agents and at no cost to the GRANTOR.
- (2) The GRANTOR shall not use nor permit nor suffer use of the GRANTOR's land described above in such a manner as to create electrical interference with radio communication between the installation upon the AIRPORT and aircraft or as to make it difficult for fliers to distinguish between airport lights and others, or as to result in glare in the eyes of fliers using the AIRPORT, or as to impair visibility in the vicinity of the AIRPORT, or as otherwise to endanger the landing, taking-off or maneuvering of aircraft; and

____ Initial
____ Initial

AVIGATION EASEMENT (outside RPZ)

- (3) There is reserved to the GRANTEE, its successors and assigns for the use and the right to cause in said air space such noise, vibration, fumes, dust, and fuel particulates, as may be inherent in the operation of aircraft, now known or hereafter used for navigation of or flight in air, using said air space for landing at, taking off from, or operating on the AIRPORT;
- (4) The GRANTOR shall not use nor permit, nor suffer use of the GRANTOR’s land described above for land fills, open dumps, waste disposal sites, etc., storm water retention ponds, creation of new wetlands, crops that would attract or sustain hazard bird movements, or any use that would be incompatible with the maintenance and operation of the AIRPORT.

These covenants shall run with the GRANTOR’s land described above, for the benefit of the GRANTEE and its successors and assigns in the ownership and operation of the AIRPORT.

SIGNED THIS _____ DAY OF _____, 20__:

PRINTED NAME

SIGNATURE

_____ (L.S.)

_____ (L.S.)

____ Initial
____ Initial

AVIGATION EASEMENT (outside RPZ)

NOTARY ACKNOWLEDGEMENT

STATE OF RHODE ISLAND }

COUNTY OF _____ } ss.

On this _____ day of _____, 20 ____, before me, a Notary Public, in and for said Town, personally appeared _____ to me known to be the same person(s) described in, and who executed the within instrument, who acknowledged the same to be _____ free act and deed.

Notary Public, County of _____, Rhode Island,
My Commission Expires: _____

Parcel No.: _____

Name: _____

Project No.: _____

AVIGATION EASEMENT (outside RPZ)

Property Tax Code:	Parcel No.:
---------------------------	--------------------

PROPERTY DESCRIPTION:

Insert EXHIBIT X Avigation Easement (outside RPZ) here

This Page Intentional Left Blank

SAMPLE

Avigation Easement

(For Easements inside Runway Protection Zone)

THIS INDENTURE is made this _____ day of _____, 20 ____ between _____, whose address is _____, _____, Rhode Island (“GRANTOR”); and _____, whose address is _____, _____, Rhode Island (“GRANTEE”).

WHEREAS, the GRANTEE is the owner and operator of the _____ Airport (“AIRPORT”), situated in the City/Town of _____, Rhode Island, and in close proximity to the GRANTOR’s property, as described below, and the GRANTEE desires to obtain and preserve for the use and benefit of the public a right of free and unobstructed flight for aircraft landing upon, taking off from, or maneuvering about the AIRPORT.

NOW THEREFORE, for and in consideration of the sum of \$_____ dollars (\$_____) and other good and valuable consideration, the receipt and sufficiency of which is acknowledged, the GRANTOR grants, bargains, sells and conveys to the GRANTEE, its successors and assigns, for the benefit of the general public at large, an easement and right-of-way for the free, unobstructed passage of aircraft, by whomsoever owned or operated, in and through the air space over and across those parts of the GRANTOR’s land containing _____ acres of land within the boundary described as follows:

(See Property Description)

provided, however, that the air space in which that easement and right-of-way is granted shall be that which lies above the heights described and depicted on the attached Exhibit X, which is incorporated by reference.

The GRANTEE and its successors and assigns are to have and to hold that easement and all rights appertaining to it until the AIRPORT is abandoned and no longer used for airport purposes.

In furtherance of this easement and right-of-way, the GRANTOR, for the consideration recited above, grants and conveys to the GRANTEE, its successors and assigns:

____ Initial
____ Initial

AVIGATION EASEMENT (inside RPZ)

- (a) a continuing right to keep the air space above the heights described and depicted on Exhibit X clear and free from any and all fences, crops, trees, poles, buildings, and other obstructions of any kind or nature which now extend, or which may at any time in the future extend, above those heights;
- (b) a continuing right, at the GRANTEE's option, to remove to ground level any or all natural growths which extend on the above property above the heights described and depicted on the attached Exhibit X to extent such action is needed. The GRANTEE may determine such action is needed because the GRANTEE in the GRANTEE'S sole discretion finds (i) trimming is unsafe or not reasonably possible, (ii) the species of the tree or other natural growth is too fast growing, or (iii) trimming would have a reasonable probability of killing the tree or other natural growth or causing it to be too susceptible to disease;
- (c) The GRANTEE shall have the right of ingress to, egress from, and passage over the GRANTOR's land described above for the purpose of removing obstructions. Except in cases of imminent danger to health, safety, or welfare, the GRANTEE shall provide the property owner at least 20 days advance written notice of its use this right.

In addition, for the consideration recited above, the GRANTOR covenants, both on the GRANTOR's own behalf and on behalf of the GRANTOR's heirs, executors, administrators and assigns, for and during the life of this easement, as follows:

- (1) The GRANTOR shall not construct nor permit nor suffer to remain upon the GRANTOR's land any present or future obstruction that extends above the heights described and depicted on the attached Exhibit X. Provided, however, that any removal or trimming of trees or other natural growth on the GRANTOR's land as described above which extends above the heights set forth in the Exhibit X shall be conducted by the GRANTEE or the GRANTEE's agents and at no cost to the GRANTOR. This easement prohibits any ground structures, natural growth, storage of equipment, vehicles or aircraft, flammable material storage facilities, or activities which encourage the congregation of people or create an incompatible use in the Runway Protection Zone as referenced in paragraph (5) of this easement.
- (2) The GRANTOR shall not use nor permit nor suffer use of the GRANTOR's land described above in such a manner as to create electrical interference with radio communication between the installation upon the AIRPORT and aircraft or as to make it difficult for fliers to distinguish between airport lights and others, or as to result in glare in the eyes of fliers using the AIRPORT, or as to impair visibility in the vicinity of the AIRPORT, or as otherwise to endanger the landing, taking-off or maneuvering of aircraft.

____ Initial
____ Initial

AVIGATION EASEMENT (inside RPZ)

- (3) There is reserved to the GRANTEE, its successors and assigns for the use and the right to cause in said air space such noise, vibration, fumes, dust, and fuel particulates, as may be inherent in the operation of aircraft, now known or hereafter used for navigation of or flight in air, using said air space for landing at, taking off from, or operating on the AIRPORT;
- (4) The GRANTOR shall not use, nor permit, nor suffer use of the GRANTOR's land described above for land fills, open dumps, waste disposal sites, etc., storm water retention ponds, creation of new wetlands, crops that would attract or sustain hazard bird movements, or any use that would be incompatible with the maintenance and operation of the AIRPORT.
- (5) The GRANTOR shall not use nor permit construction on the GRANTOR's land described above, any structure that is a hazard to the general public or air navigation including the construction of new residences, fuel handling and storage facilities, smoke-generating activities, or places of public assembly, such as churches, schools, office buildings, shopping centers, and stadiums.

These covenants shall run with the GRANTOR's land described above, for the benefit of the GRANTEE and its successors and assigns in the ownership and operation of the AIRPORT.

SIGNED THIS _____ DAY OF _____, 20__:

PRINTED NAME

SIGNATURE

_____ (L.S.)

_____ (L.S.)

____ Initial
____ Initial

AVIGATION EASEMENT (inside RPZ)

NOTARY ACKNOWLEDGEMENT

STATE OF RHODE ISLAND }

COUNTY OF _____ } ss.

On this _____ day of _____, 20 ____, before me, a Notary Public, in and for said Town, personally appeared _____ to me known to be the same person(s) described in, and who executed the within instrument, who acknowledged the same to be _____ free act and deed.

Notary Public, County of _____, Rhode Island,
My Commission Expires: _____

Parcel No.: _____

Name: _____

Project No.: _____

This Page Intentional Left Blank

This Page Intentional Left Blank

Airport Hazard Area Overlay Zoning Ordinance Guidance

This appendix includes an **overview** of the assumed components for an Airport Hazard Area Overlay Zoning Ordinance. It is intended to provide municipalities with a general understanding of the key components suggested for developing an ordinance to regulate land use and height around state airports. Municipalities that contain any part of an Airport Hazard Area must establish an Airport Hazard Overlay Zoning Ordinance in order to comply with the requirements of Rhode Island General Laws (R.I.G.L.) Title 1, *Aeronautics*, Chapter 1-3, *Airport Zoning* (see **Appendix C** for a complete listing of those Rhode Island laws).

It is important to note that this appendix does not include recommended samples or language to be used in an airport zoning ordinance. This was intentionally done for two reasons. First, it was determined that a single, static sample ordinance would not be able to adequately accommodate the diverse needs of the wide variety of individual requirements associated with those various municipalities containing an airport hazard area. Second, given that a single document cannot meet all of these diverse needs, it is important that RIAC assist municipalities to interpret the FAA Part 77 and State of Rhode Island airport hazard zoning requirements to ensure that the recommendations of this guidebook are properly developed and implemented. Therefore, when a municipality begins the process of establishing or amending an airport overlay zone, it will be useful for RIAC to be involved to provide guidance and support.

This Page Intentional Left Blank

Airport Hazard Area Overlay Zoning Ordinance Outline

The following outline provides municipalities with guidance to develop an airport land use and height overlay zoning ordinance or to update existing height limitations ordinances to include land use. The *Rhode Island Airport Land Use Compatibility Guidebook* provides specific references regarding compatible land uses on and near an airport's environs and should be consulted when drafting an Airport Hazard Area Zoning ordinance. The following outline can be tailored to meet the specific needs and requirements of local communities.

Sample sections of an ordinance may include:

- Section 1 - Title and Introduction
- Section 2 - Statement of Purpose and Consistency with the Comprehensive Plan
- Section 3 - Definitions
- Section 4 - Airport Height Zones
- Section 5 - Land Use Zones
- Section 6 - Jurisdictional Boundaries
- Section 7 - Airport Overlay Zoning Map
- Section 8 - Ordinance Administration
- Section 9 - Airport Overlay Zoning Permits
- Section 10 - Hazardous Markings and Lighting
- Section 11 - Height Limitation
- Section 12 - Variances
- Section 13 - Appeals
- Section 14 - Penalties
- Section 15 - Conflicting Regulations
- Section 16 - Severability
- Section 17 - Effective Date
- Exhibit A - Airport Approach Plans
- Exhibit B - Airport Hazard Area Overlay Zone Map

Each section contained herein includes a brief narrative that describes the purpose of the specific section. The specific language to be utilized for the individual ordinance is at the discretion of the municipality.

SECTION 1 - Title and Introduction

This section identifies the title (e.g. *Airport Hazard Area Overlay Zoning Ordinance*) and provides an introduction to the ordinance. For example, the introduction could include a description of the purpose and policies associated with the overlay zone to regulate and restrict the height of structures, objects, and growth of natural vegetation, as well as land uses, and otherwise regulating the use of property, within the vicinity of the airport. This zone would be based on the Airport Hazard Area Zoning Maps that are mandated by state law (R.I.G.L. Title 1, *Aeronautics*, Chapter 1-3, *Airport Zoning*, requires local municipalities to zone airports including height restrictions and land uses). These are described in detail in Chapter 3 of the Guidebook. The current maps are also maintained by RIAC.

SECTION 2 - Statement of Purpose and Consistency with the Comprehensive Plan

This section establishes the importance of the airport to the community while acknowledging hazards posed to public health, safety, and quality of life to individuals impacted by airport operations. Additionally, this section identifies the importance of linking this ordinance to the existing municipal comprehensive plan. For detailed descriptions of potential airport hazards, refer to Chapter 2 of the *Rhode Island Airport Land Use Compatibility Guidebook*, and to R.I.G.L. Title 1, *Aeronautics*, Section 1-3-3, *Declaration of Policy*. This section complies with the requirements of the Rhode Island Zoning Enabling Act (see R.I.G.L. 45-24-32(1)).

SECTION 3 - Definitions

This section defines terms contained within the Airport Hazard Area Overlay Zoning ordinance. Use of these definitions in whole or part is at the discretion of the local municipality as the ordinance is developed. Additional definitions may need to be included to accurately define text contained in the ordinance for each municipality. Note that **Appendix A** of the Guidebook provides an extensive listing of potentially relevant terms.

SECTION 4 – Airport Height Zones

This section establishes the standards related to height restrictions on and around the state airports. Per R.I.G.L. Title 1, *Aeronautics*, Section 1-3-4, *Airport approach plans*, RIAC is charged with formulating, adopting and revising, when necessary, an

Airport Obstruction Plan for each publicly owned airport in the state. It is understood that these plans should be based on CFR Title 14 Part 77 since R.I.G.L. Title 1, *Aeronautics*, Section 1-3-5, *Zoning Powers of Political Subdivisions* specifically states that Part 77 must be included or referenced in the ordinance. It is important to note that it is possible that a municipality has already adopted an airport-related height zoning ordinance not directly associated with an Airport Hazard Area. If that is the case, that Airport Height Zoning ordinance must be referenced directly in any new airport zoning ordinance. If no such airport height zoning ordinance exists, this height zoning component must be included directly in the new airport zoning ordinance.

Note that RIAC will provide guidance to establish these specific airport height zoning restrictions through application of the current Airport Approach Plans (see Exhibit A - Airport Approach Plans) Additional resources and information can be found in Chapter 2, *Introduction to Airport Land Use Compatibility Planning*, and Chapter 3, *Airport Land Use Compatibility Planning: Step-by-Step*, of the *Rhode Island Airport Land Use Compatibility Guidebook*.

SECTION 5 – Airport Land Use Zones

This section identifies the specific airport land use overlay zones associated with this ordinance. These zones are based on the Airport Hazard Area. RIAC is responsible for establishing and maintaining for each publicly-owned airport in Rhode Island. (Note that Chapter 3, *Airport Land Use Compatibility Planning: Step-by-Step*, of the *Rhode Island Airport Land Use Compatibility Guidebook* provides details on how those Airport Hazard Areas are constructed.)

Additionally, this section identifies the land use standards associated with each of the various airport overlay zones. It is important to note that these standards should be individually established based on the specific process and format of the municipality creating this ordinance. To assist in this process, recommended land use standards related to these airport overlay zones are provided in Chapter 3, of this *Rhode Island Airport Land Use Compatibility Guidebook*. The standards in Tables 3-4 through 3-10 in Chapter 3 are based solely on the current aviation industry recommended approach to establishing compatible land uses on and around airports. As such, they should be utilized to evaluate the applicability to

land use compatibility for various land use classifications within the airport overlay zones.

SECTION 6 – Jurisdictional Boundaries

This section identifies the jurisdictional boundaries and those properties encompassed within the Airport Hazard Area Overlay Zones. In addition, the official Airport Hazard Area Overlay Zoning Map and the Airport Approach Plan should be attached to the ordinance as exhibits. In some instances, runway dimensions and approach types may be specified for each runway at the airport.

SECTION 7 - Airport Hazard Area Overlay Zoning Maps

This section provides the official Airport Hazard Area Overlay Zoning Maps as part of the ordinance.

SECTION 8 - Ordinance Administration

This section identifies the entity that will administer and enforce the regulations prescribed in the ordinance. The section will also define the powers given to the administrator to exercise their duties and procedures within the provision of the ordinance. R.I.G.L. Title 1 *Aeronautics*, Chapter 1-3-17, *Delegation of administration and enforcement duties*, provides specific guidance.

SECTION 9 - Airport Overlay Zoning Permits

This section is designed to establish requirements for application and review of Airport Hazard Area Overlay Zone permits. The application requirements should include specific information that would be consistent with the municipality's current Development Plan Review application process found in most Rhode Island zoning ordinances. RIAC is available to assist in establishing a formal listing of additional requirements that would be specifically associated with Airport Overlay Zone permits. Also note that the use of the *Sample Compatible Land Use Planning Checklist* found in **Appendix H** of the *Rhode Island Airport Land Use Compatibility Guidebook* can assist in the review of land uses as part of the permitting process.

SECTION 10 - Hazardous Markings and Lighting

This section provides for safe aircraft operations, as well as the health, safety, and welfare of individuals on the ground within the vicinity of the airport by identifying lighting and marking requirements. Lighting and marking requirements are typically determined through the filing of an FAA Form 7460-1 *Notice of Proposed Construction On or Near and Airport*. This section should require that the owner of any structure, object, natural vegetation, or terrain install, operate, and maintain such markers, lights, and other aids to navigation necessary to indicate to the aircraft operators in the vicinity of an airport the presence of an airport hazard. It should also acknowledge that the cost of installing, operating and maintaining hazardous markers be borne by the responsible party. R.I.G.L. Title 1 *Aeronautics*, Chapter 1-3-16, *Obstruction Markers*, provides additional guidance.

SECTION 11 - Height Limitations

This section provides for safe aircraft operations, as well as the health, safety, and welfare of individuals on the ground within the vicinity of the airport by requiring compliance with defined height limitations. These limitations are mandated by R.I.G.L. Title 1, *Aeronautics*, Section 1-3-5, *Zoning Powers of Political Subdivisions*, and referenced above in *Section 4 – Airport Height Zones*. Specifically, this section should stipulate that no structure, object, natural vegetation, or terrain be erected, altered, allowed to grow or be maintained within any airport zoning district established by this ordinance to a height in excess of the applicable height limitations set forth above in Section 4. This section should also require that an FAA Form 7460-1 airspace review be filed in order to assess the potential height impacts of any development. Additionally, RIAC should be informed of that FAA Form 7460-1 filing.

SECTION 12 - Variances

This section establishes criteria for the variance process, as well as identifies the entity responsible for the implementation and enforcement of variance applications. R.I.G.L. Title 1 *Aeronautics*, Chapter 1-3-15, *Variances*, provides guidance with respect to a variance from the airport overlay zoning regulations.

SECTION 13 - Appeals

This section defines the appeals process. For Rhode Island, this means that any person, property owner, or taxpayer impacted by any decision of this ordinance, may appeal to the Board of Appeals. The details regarding procedures for the appeals process is defined in following sections of R.I.G.L. Title 1 *Aeronautics*, Chapter 1-3, *Airport Zoning*:

- Section 1-3-18 - *Powers of board of appeals*
- Section 1-3-19 - *Composition of board of appeals*
- Section 1-3-20 - *Rules, meetings, and witnesses of board of appeals*
- Section 1-3-21 - *Parties entitled to appeal – Filing*
- Section 1-3-22 - *Stay of proceedings by appeal*
- Section 1-3-23 - *Hearing of appeals*
- Section 1-3-24 - *Decisions by board of appeals*
- Section 1-3-25 - *Majority vote of board of appeals*
- Section 1-3-26 - *Records of board of appeals*
- Section 1-3-27 - *Judicial review*
- Section 1-3-31 - *Costs against board of appeals*

SECTION 14 - Penalties

This section defines the method to enforce penalties for non-compliance with the ordinance as provided in R.I.G.L. Title 1, Section 1-3-32, *Penalty for violations - Enforcement by Injunction*.

SECTION 15 - Conflicting Regulations

This section defines the method to address conflicting regulations that may result due to enforcement this ordinance. R.I.G.L. Title 1 *Aeronautics*, Chapter 1-3-13, *Conflict with general zoning regulations*, provides guidance with respect to conflicting regulations.

SECTION 16 - Severability

This section defines the severability of the ordinance as provided in R.I.G.L. Title 1, Section 1-3-33, *Severability*.

SECTION 17 - Effective Date

This section establishes the date of adoption and certification of the appropriate governing body. This may be similar or even identical to existing procedures outlined in an existing ordinance.

Exhibit A – Airport Approach Plans

The exhibit provides the official Airport Approach Plans to be kept on file with the appropriate governmental entities. RIAC is responsible for establishing and maintaining these plans, including amending them when changes occur within the jurisdictional boundaries. The plans must be prepared and adopted concurrently with the ordinance.

Exhibit B - Airport Hazard Area Overlay Zoning Maps

The exhibit provides the official Airport Hazard Area Overlay Zoning Maps to be kept on file with the appropriate governmental entities. RIAC is responsible for establishing and maintaining these maps, including amending them when changes occur within the jurisdictional boundaries. The maps must be prepared and adopted concurrently with the ordinance.

This Page Intentional Left Blank

FAA Form 7460-1

Notice of Proposed Construction or Alteration

In administering Title 14 of the Code of Federal Regulations CFR Part 77, the prime objectives of the FAA are to promote air safety and the efficient use of the navigable airspace. To accomplish this mission, aeronautical studies are conducted based on information provided by proponents on an FAA Form 7460-1, *Notice of Proposed Construction or Alteration*. This form must be filled out and filed electronically through an online FAA application at <https://oeaaa.faa.gov/oeaaa/external/portal.jsp> . In preparation of that electronic filing, a hard copy of that form has been included in the following pages.

This Page Intentional Left Blank

NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

§ 77.7 Form and time of notice.

(a) If you are required to file notice under §77.9, you must submit to the FAA a completed FAA Form 7460-1, Notice of Proposed Construction or Alteration. FAA Form 7460-1 is available at FAA regional offices and on the Internet.

(b) You must submit this form at least 45 days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earliest.

(c) If you propose construction or alteration that is also subject to the licensing requirements of the Federal Communications Commission (FCC), you must submit notice to the FAA on or before the date that the application is filed with the FCC.

(d) If you propose construction or alteration to an existing structure that exceeds 2,000 ft. in height above ground level (AGL), the FAA presumes it to be a hazard to air navigation that results in an inefficient use of airspace. You must include details explaining both why the proposal would not constitute a hazard to air navigation and why it would not cause an inefficient use of airspace.

(e) The 45-day advance notice requirement is waived if immediate construction or alteration is required because of an emergency involving essential public services, public health, or public safety. You may provide notice to the FAA by any available, expeditious means. You must file a completed FAA Form 7460-1 within 5 days of the initial notice to the FAA. Outside normal business hours, the nearest flight service station will accept emergency notices.

§ 77.9 Construction or alteration requiring notice.

If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of:

(a) Any construction or alteration that is more than 200 ft. AGL at its site.

(b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:

(1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.

(2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.

(c) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) or (b) of this section.

(d) Any construction or alteration on any of the following airports and heliports:

(1) A public use airport listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications;

(2) A military airport under construction, or an airport under construction that will be available for public use;

(3) An airport operated by a Federal agency or the DOD.

(4) An airport or heliport with at least one FAA-approved instrument approach procedure.

(e) You do not need to file notice for construction or alteration of:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation;

(2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device meeting FAA-approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose;

(3) Any construction or alteration for which notice is required by any other FAA regulation.

(4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure.

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
2601 Meacham Boulevard
Fort Worth, TX 76193
Fax: (817) 321-7765
Phone: (817) 321-7750

Website: <https://oeaaa.faa.gov>

INSTRUCTIONS FOR COMPLETING FAA FORM 7460-1

PLEASE TYPE or PRINT

ITEM #1. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #2. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #3. New Construction would be a structure that has not yet been built.

Alteration is a change to an existing structure such as the addition of a side mounted antenna, a change to the marking and lighting, a change to power and/or frequency, or a change to the height. The nature of the alteration shall be included in ITEM #21 "Complete Description of Proposal".

Existing would be a correction to the latitude and/or longitude, a correction to the height, or if filing on an existing structure which has never been studied by the FAA. The reason for the notice shall be included in ITEM #21 "Complete Description of Proposal".

ITEM #4. If Permanent, so indicate. If Temporary, such as a crane or drilling derrick, enters the estimated length of time the temporary structure will be up.

ITEM #5. Enter the date that construction is expected to start and the date that construction should be completed.

ITEM #6. Please indicate the type of structure. DO NOT LEAVE BLANK.

ITEM #7. In the event that obstruction marking and lighting is required, please indicate type desired. If no preference, check "other" and indicate "no preference" DO NOT LEAVE BLANK. NOTE: High Intensity lighting shall be used only for structures over 500' AGL. In the absence of high intensity lighting for structures over 500' AGL, marking is also required.

ITEM #8. If this is an existing tower that has been registered with the FCC, enter the FCC Antenna Structure Registration number here.

ITEM #9 and #10. Latitude and longitude must be geographic coordinates, accurate to within the nearest second or to the nearest hundredth of a second if known. Latitude and longitude derived solely from a hand-held G P S instrument is NOT acceptable. A hand-held GPS is only accurate to within 100 meters (328 feet) 95 percent of the time. This data, when plotted, should match the site depiction submitted under ITEM #20.

ITEM #11. NAD 83 is preferred; however, latitude and longitude may be submitted in NAD 27. Also, in some geographic areas where NAD 27 and NAD 83 are not available other datum may be used. It is important to know which datum is used. DO NOT LEAVE BLANK.

ITEM #12. Enter the name of the nearest city and state to the site. If the structure is or will be in a city, enter the name of that city and state.

ITEM #13. Enter the full name of the nearest public-use (not private-use) airport or heliport or military airport or heliport to the site.

ITEM #14. Enter the distance from the airport or heliport listed in #13 to the structure.

ITEM #15. Enter the direction from the airport or heliport listed in #13 to the structure.

ITEM #16. Enter the site elevation above mean sea level and expressed in whole feet rounded to the nearest foot (e.g. 17'3" rounds to 17', 17'6" rounds to 18'). This data should match the ground contour elevations for site depiction submitted under ITEM #20.

ITEM #17. Enter the total structure height above ground level in whole feet rounded to the next highest foot (e.g. 17'3" rounds to 18'). The total structure height shall include anything mounted on top of the structure, such as antennas, obstruction lights, lightning rods, etc.

ITEM #18. Enter the overall height above mean sea level and expressed in whole feet. This will be the total of ITEM #16 + ITEM #17.

ITEM #19. If an FAA aeronautical study was previously conducted, enter the previous study number.

ITEM #20. Enter the relationship of the structure to roads, airports, prominent terrain, existing structures, etc. Attach an 8-1/2" x 11" non-reduced copy of the appropriate 7.5 minute U.S. Geological Survey (USGS) Quadrangle Map MARKED WITH A PRECISE INDICATION OF THE SITE LOCATION. To obtain maps, contact USGS at 1-888-275-8747 or via internet at "<http://store.usgs.gov>". If available, attach a copy of a documented site survey with the surveyor's certification stating the amount of vertical and horizontal accuracy in feet.

ITEM #21.

- For transmitting stations, include maximum effective radiated power (ERP) and all frequencies.
- For antennas, include the type of antenna and center of radiation (Attach the antenna pattern, if available).
- For microwave, include azimuth relative to true north.
- For overhead wires or transmission lines, include size and configuration of wires and their supporting structures (Attach depiction).
- For each pole/support, include coordinates, site elevation, and structure height above ground level or water.
- For buildings, include site orientation, coordinates of each corner, dimensions, and construction materials.
- For alterations, explain the alteration thoroughly.
- For existing structures, thoroughly explain the reason for notifying the FAA (e.g. corrections, no record or previous study, etc.).

Filing this information with the FAA does not relieve the sponsor of this construction or alteration from complying with any other federal, state or local rules or regulations. If you are not sure what other rules or regulations apply to your proposal, contact local/state aviation's and zoning authorities.

Paperwork Reduction Work Act Statement: This information is collected to evaluate the effect of proposed construction or alteration on air navigation and is not confidential. Providing this information is mandatory or anyone proposing construction or alteration that meets or exceeds the criteria contained in 14 CFR, part 77. We estimate that the burden of this collection is an average 19 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information. A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB control number associated with this collection is 2120-0001. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.

This Page Intentional Left Blank

Airport Hazard Areas

(Published February 2013)

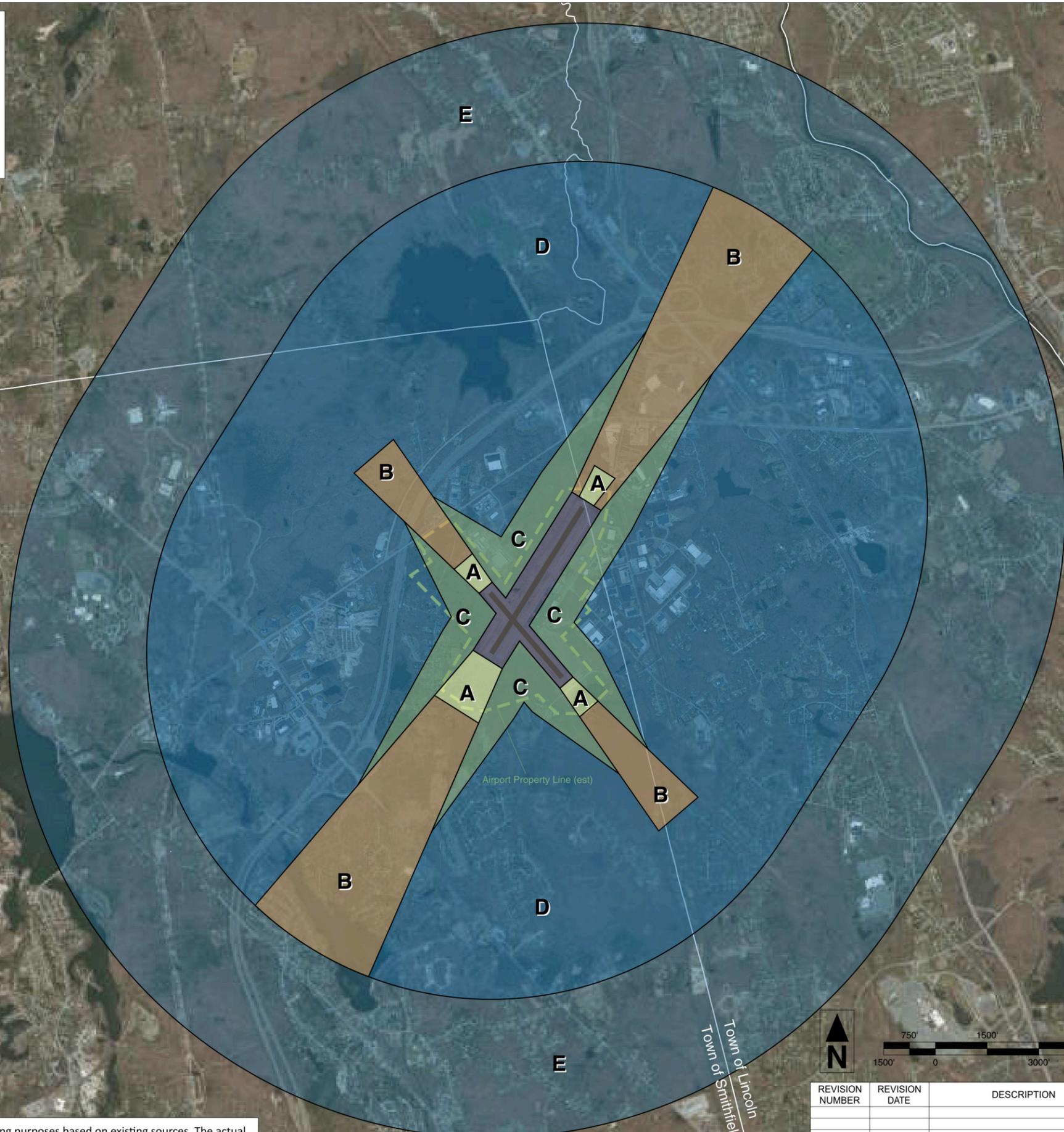
Pursuant to Title 1 Aeronautics of the Rhode Island General Laws (specifically, Chapter 1-2, *Airports and Landing Fields*, Chapter 1-3, *Airport Zoning*, Chapter 1-4, *Uniform Aeronautical Regulatory Act*, and Chapter 1-5, *Permanent Noise Monitoring Act*), the Rhode Island Airport Corporation (RIAC) is mandated to formulate airport approach plans and Airport Hazard Areas for each state airport. RIAC regularly updates airport approach plans as part of each airport's Airport Layout Plan (additional copies of the current plans are available for municipalities upon request). Additionally, RIAC is responsible for producing and maintaining current Airport Hazard Areas for each state airport, following the process described in Chapter 3A, *Airport Land Use Compatibility Planning: Step-by-Step*. The current Airport Hazard Area plans for Rhode Island's general aviation airports are included in the following pages.

This Page Intentional Left Blank

**NORTH CENTRAL AIRPORT
AIRPORT HAZARD AREA**

The letters shown on this plan (A, B, C, D, and E) reflect specific zones that comprise the entirety of the Airport Hazard Area. For specific details regarding these zones, including their basis, their standards, and their land use implications, please refer to Chapter 3 of the current *Rhode Island Airport Land Use Compatibility Guidebook*.

Town of North Smithfield
Town of Smithfield



Airport Property Line (est)

Town of Cumberland
Town of Lincoln

Town of Smithfield
Town of Lincoln



Note: The airport property line has been estimated for planning purposes based on existing sources. The actual airport property line as legally defined can be found on the airport's current Exhibit-A, as maintained by RIAC.


Rhode Island Airport Corporation

WARWICK, RHODE ISLAND

SHEET TITLE
**NORTH CENTRAL AIRPORT
AIRPORT HAZARD AREA**

DESIGNED	JBM	DRAWN	JBM	CHECKED	000	APPROVED	000
CDM Smith 260 W Exchange St. Providence, RI 02903 (401) 457-0314						PROJECT NO.	00000
						DATE:	FEB 2013
						SHEET	1

REVISION NUMBER	REVISION DATE	DESCRIPTION

This Page Intentional Left Blank

QUONSET AIRPORT AIRPORT HAZARD AREA

The letters shown on this plan (A, B, C, D, and E) reflect specific zones that comprise the entirety of the Airport Hazard Area. For specific details regarding these zones, including their basis, their standards, and their land use implications, please refer to Chapter 3 of the current *Rhode Island Airport Land Use Compatibility Guidebook*.

Extended approach area for precision instrument approach to RW 16. Consult with RIAC regarding potential land use implications.

City of Warwick

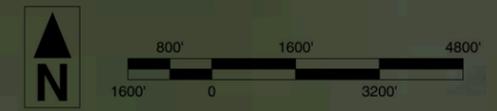
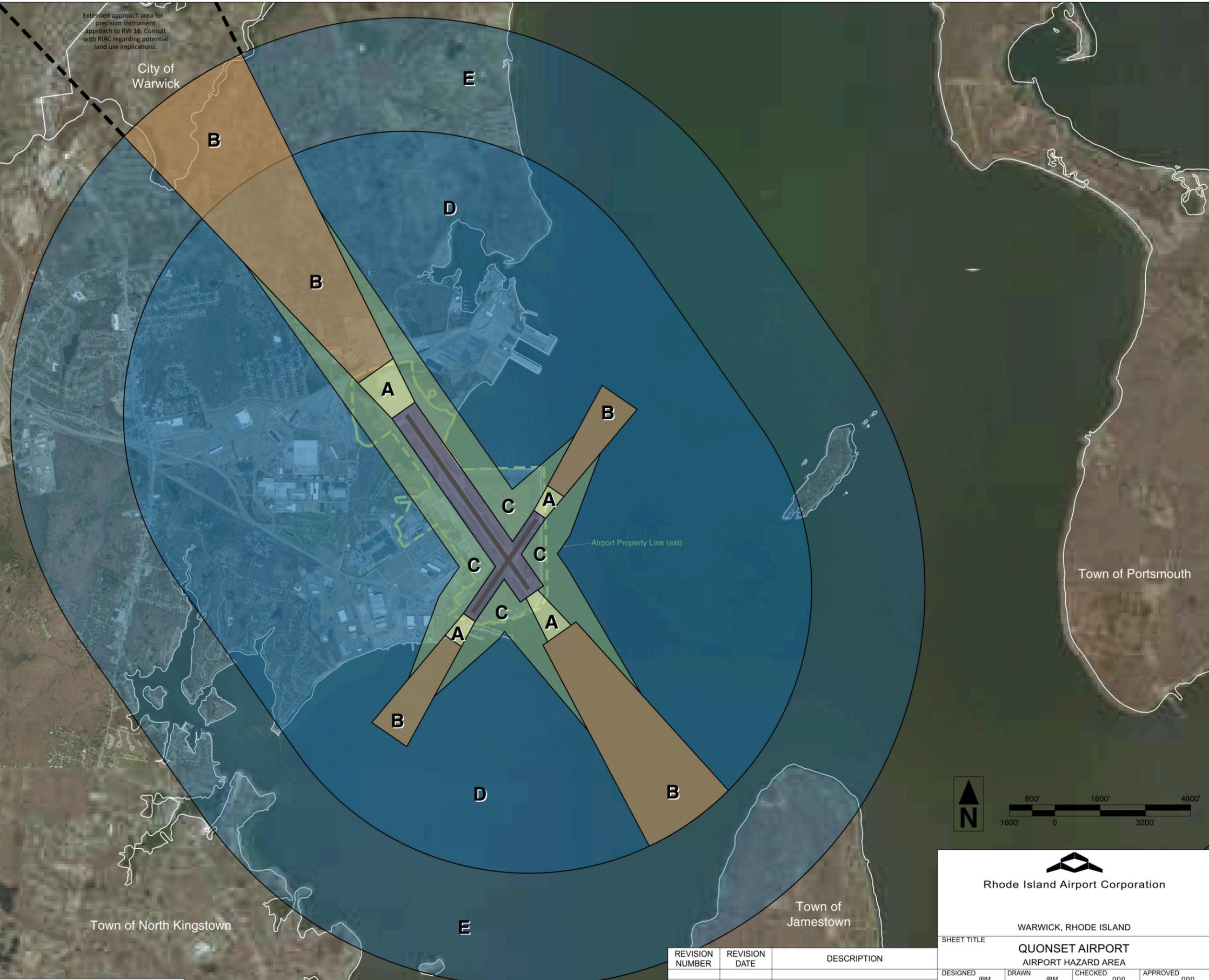
Town of Greenwich
Town of North Kingstown

Town of Portsmouth

Town of Jamestown

Town of North Kingstown

Note: The airport property line has been estimated for planning purposes based on existing sources. The actual airport property line as legally defined can be found on the airport's current Exhibit-A, as maintained by RIAC.



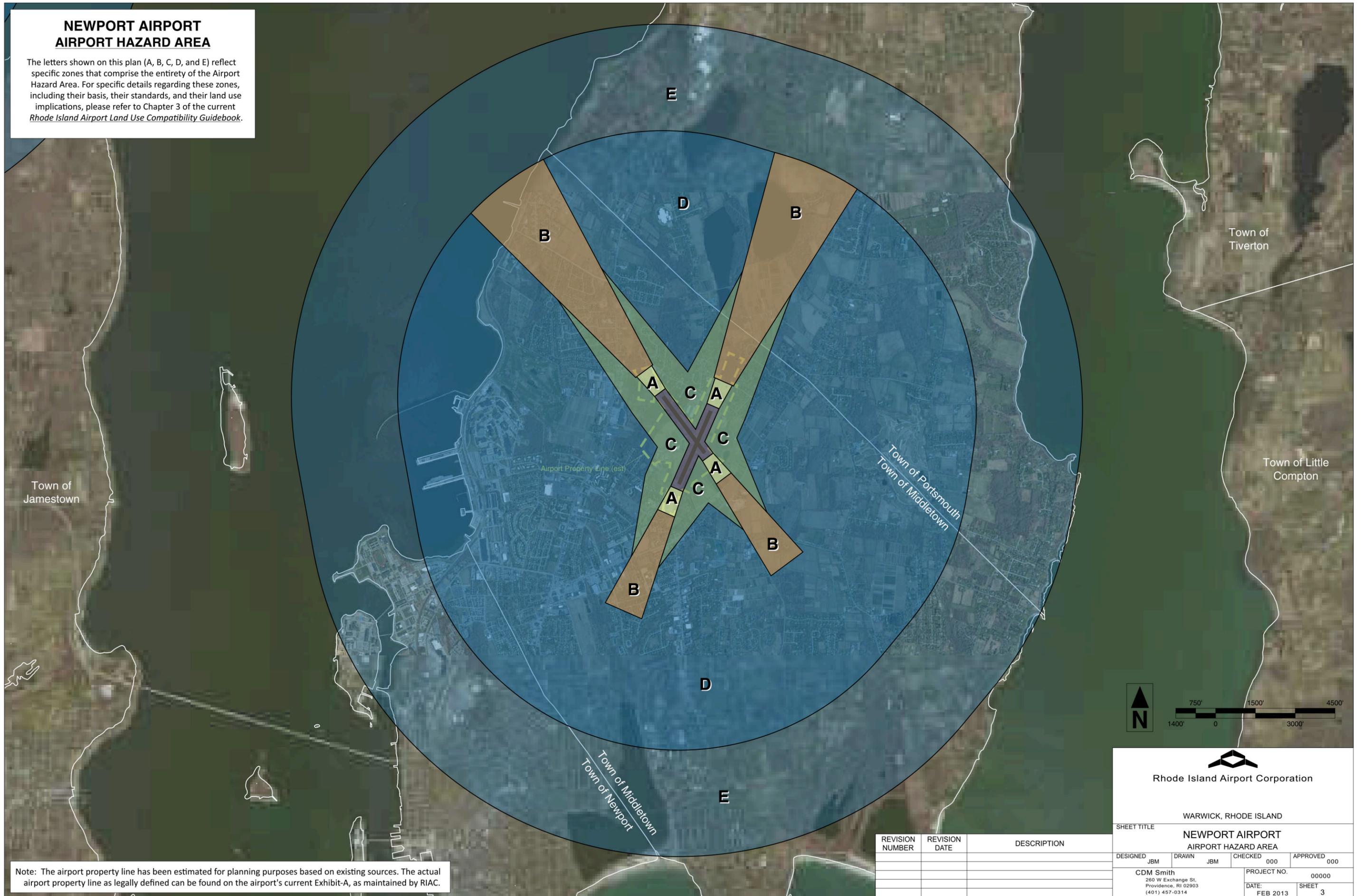
Rhode Island Airport Corporation					
WARWICK, RHODE ISLAND					
SHEET TITLE QUONSET AIRPORT AIRPORT HAZARD AREA					
DESIGNED	JBM	DRAWN	JBM	CHECKED	000
				APPROVED	000
CDM Smith 260 W Exchange St. Providence, RI 02903 (401) 457-0314				PROJECT NO.	00000
				DATE:	FEB 2013
				SHEET	2

REVISION NUMBER	REVISION DATE	DESCRIPTION

This Page Intentional Left Blank

NEWPORT AIRPORT AIRPORT HAZARD AREA

The letters shown on this plan (A, B, C, D, and E) reflect specific zones that comprise the entirety of the Airport Hazard Area. For specific details regarding these zones, including their basis, their standards, and their land use implications, please refer to Chapter 3 of the current *Rhode Island Airport Land Use Compatibility Guidebook*.



Note: The airport property line has been estimated for planning purposes based on existing sources. The actual airport property line as legally defined can be found on the airport's current Exhibit-A, as maintained by RIAC.

REVISION NUMBER	REVISION DATE	DESCRIPTION

Rhode Island Airport Corporation

WARWICK, RHODE ISLAND

SHEET TITLE: **NEWPORT AIRPORT
AIRPORT HAZARD AREA**

DESIGNED	JBM	DRAWN	JBM	CHECKED	000	APPROVED	000	
CDM Smith 260 W Exchange St. Providence, RI 02903 (401) 457-0314						PROJECT NO.	00000	
DATE:						FEB 2013	SHEET	3

This Page Intentional Left Blank

WESTERLY AIRPORT AIRPORT HAZARD AREA

The letters shown on this plan (A, B, C, D, and E) reflect specific zones that comprise the entirety of the Airport Hazard Area. For specific details regarding these zones, including their basis, their standards, and their land use implications, please refer to Chapter 3 of the current *Rhode Island Airport Land Use Compatibility Guidebook*.



Note: The airport property line has been estimated for planning purposes based on existing sources. The actual airport property line as legally defined can be found on the airport's current Exhibit-A, as maintained by RIAC.

REVISION NUMBER	REVISION DATE	DESCRIPTION

Rhode Island Airport Corporation

WARWICK, RHODE ISLAND

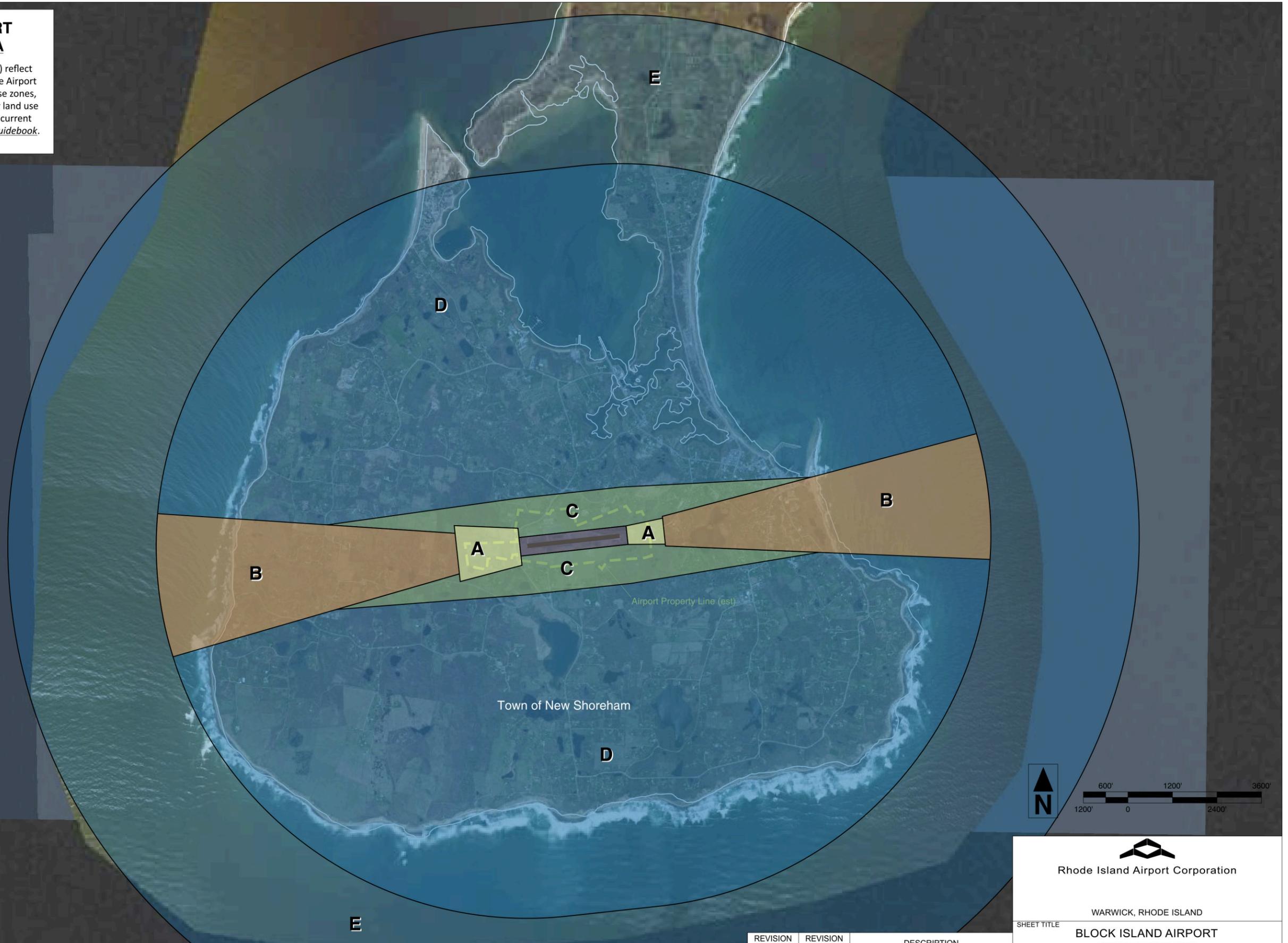
SHEET TITLE: **WESTERLY AIRPORT
AIRPORT HAZARD AREA**

DESIGNED: JBM	DRAWN: JBM	CHECKED: 000	APPROVED: 000
CDM Smith 260 W Exchange St, Providence, RI 02903 (401) 457-0314		PROJECT NO. 00000	DATE: FEB 2013
		SHEET 4	

This Page Intentional Left Blank

**BLOCK ISLAND AIRPORT
AIRPORT HAZARD AREA**

The letters shown on this plan (A, B, C, D, and E) reflect specific zones that comprise the entirety of the Airport Hazard Area. For specific details regarding these zones, including their basis, their standards, and their land use implications, please refer to Chapter 3 of the current *Rhode Island Airport Land Use Compatibility Guidebook*.



Note: The airport property line has been estimated for planning purposes based on existing sources. The actual airport property line as legally defined can be found on the airport's current Exhibit-A, as maintained by RIAC.

REVISION NUMBER	REVISION DATE	DESCRIPTION

DESIGNED		JBM	DRAWN		JBM	CHECKED		000	APPROVED		000
CDM Smith						PROJECT NO.		00000			
260 W Exchange St. Providence, RI 02903 (401) 457-0314						DATE:		FEB 2013		SHEET 5	

Rhode Island Airport Corporation

WARWICK, RHODE ISLAND
SHEET TITLE
**BLOCK ISLAND AIRPORT
AIRPORT HAZARD AREA**

This Page Intentional Left Blank

Guidebook Coordination Effort Meeting Minutes

In order to create an appropriate and effective Guidebook, the framers of this document recognized that it was critical to seek input from key planning stakeholders throughout Rhode Island. In establishing this Guidebook, the Rhode Island Airport Corporation (RIAC) was assisted by a Technical Advisory Committee (TAC) composed of professional planners representing the following:

- RI Statewide Planning Program
- Quonset Development Corporation (QDC)
- RI Economic Development Commission (RIEDC)
- Federal Aviation Administration (FAA).

Additionally, RIAC coordinated with planning representatives from the following Rhode Island towns, all of which have a state airport within their boundaries.

- Town of Lincoln
- Town of Middletown
- Town of New Shoreham
- Town of North Kingstown
- Town of Smithfield

This appendix contains the meeting notes that were compiled after each coordination meeting with these various entities.

This Page Intentional Left Blank

RHODE ISLAND AIRPORT CORPORATION

AIRPORT COMPATIBLE LAND USE STUDY

TECHNICAL ADVISORY COMMITTEE (TAC) MEETING #1

MEETING NOTES

November 23, 2010 (1 PM)

RIAC Offices

T.F. Green Airport

Warwick, RI

1. MEETING ATTENDANCE

TAC Member Attendees:

<i>Member Name</i>	<i>Affiliation</i>
Ann L Clarke	Rhode Island Airport Corporation
Vince Scarano	Rhode Island Airport Corporation
Michael Walker	Rhode Island Economic Development Corporation
Gail Lattrell	Federal Aviation Administration
Jared Rhodes	Rhode Island Statewide Planning
Lindsey Cameron	Rhode Island Statewide Planning

Absent TAC Member Attendees:

None

Other Meeting Attendees:

James Miklas Wilbur Smith Associates

A copy of the sign-in sheet is attached to these meeting notes.

2. MEETING PURPOSE

The purpose of this meeting was to accomplish the following:

- Introduce the purpose and role of the Technical Advisory Committee (TAC)
- Review of study purpose, process, & schedule
- Establish/refine a vision for the airport system
- Identify goals for the study



3. MEETING HANDOUTS

At the meeting, a paper presentation was provided to the TAC that was used as the basis of the meeting

4. MEETING AGENDA TOPICS / POINTS OF DISCUSSION

A. Introductions / Opening Remarks

Generally stated, the purpose of this planning effort is to promote airport compatibility with the human and natural environment for three of Rhode Island's General Aviation (GA) airports (North Central Airport, Quonset Airport, and Newport Airport). Establishing this compatibility is critical in achieving the primary goal of helping to ensure safety both in the air and on the ground, as well as helping to maximize the usability and value of these transportation assets. It is also RIAC's goal to provide a toolbox through this effort to assist in the implementation and application of airport compatibility tools that are useful, manageable and not burdensome for host airport communities.

B. Purpose and Role of TAC

The purpose of the TAC is to serve as advisors to RIAC in order to ensure that the study addresses the key issues and considerations related airport land use compatibility. Specifically, the role of the TAC will be to assist in the following manners.

- Attend up to six (6) project meetings
- Review and comment on draft study products
- Provide link to agencies and other constituencies that are represented by TAC membership

Note that the primary means of communication will be via email.

C. Study Background

Across the United States, incompatible land use development around existing airports has evolved from a growing concern to a critical issue in the fight to maintain the capacity and safety of the nation's aviation transportation system. To appreciate the full importance of this issue nationally, it should be recognized that airports create an estimated \$507 billion annually in economic activities nationwide, with 6.7 million airport-related jobs, and \$33.5 billion generated in local, state, and federal taxes. With respect to the far-reaching implications of incompatible land use, airports:

- can realize a negative impact to their respective level of safety;
- can suffer significant economic costs;
- can have their long-term development potential curtailed;
- can have their ability to serve the general public hindered, which can result in significant negative impacts to the National Aviation System.

Some of the most commonly seen examples of incompatible land use include the following:

- increasing population density in incompatible airport areas;
- establishing tall structures within critical areas around an airport that would have to potential to conflict with safe aircraft operations;



- incurring potential visual obstructions (i.e. smoke) in critical areas around an airport; and
- establishment of facilities that have the potential to attract wildlife that could be incompatible with safe aircraft operations.

In Rhode Island, commercial and residential development around the five state-owned public-use general aviation airports continues to encroach on land areas and airspace that are critical to their operation. As demonstrated in the 2006 Economic Impact Study, the overall aviation industry contributed over \$2 billion in economic activity to the state as a whole, including over 23,000 jobs. As the single largest economic driver in Rhode Island, the aviation industry must preserve its critical infrastructure to ensure long-term viability.

Acknowledging that the development of compatible land use in the airport environs is an urgent concern, RIAC has set a goal of developing a comprehensive set of resource tools for use at its airports to help ensure that development around the airports be both responsible and compatible. This goal is a direct result of the recommendations from the Rhode Island Airport System Plan (*Goal 5 – Rhode Island’s airports will exist compatibly within their communities while providing air services appropriate to their roles*).

Additionally, it is important to note that Rhode Island General Laws include *Airport Hazard Zoning* provisions which require local communities to adopt zoning intended to maintain safe approaches to the airports. As such, RIAC has a responsibility under this statute to delineate airspace plans that include Airport Hazard Areas. Those communities with such areas are required to adopt appropriate and compatible zoning that specifies land uses and heights of objects and structures.

D. Study Approach

In response to RIAC aviation system goals and statutory requirements (RI General Laws Title I, Aeronautics, Chapter 1-3, *Airport Zoning*), this study will establish an airport compatible land use program for three of Rhode Island’s general aviation airports - Quonset Airport (OQU), North Central Airport (SFZ) and Newport Airport (UUU) - that meets both the requirements of the state general laws, and the goals of the state’s aviation system. In broad terms, the general approach to this project is as follows:

1. Establish appropriate project goals
2. Assemble existing airport, statutory and regulatory data
3. Conduct interviews with local and state planning representatives
4. Assemble an inventory and evaluate compatible land use programs for other US airports
5. Establish the formal approach for the RIAC compatible land use program
6. Produce a land use compatibility guidebook and associated planning toolbox
7. Refine the statewide program for local officials to consider at OQU, SFZ, and UUU

It should be noted that due to the variability of local and state planning requirements and circumstances, this project will involve an iterative process that will have to adapt to those local requirements.



E. Study Schedule

It is anticipated that TAC meeting #2 will occur during the month of February 2011 (*now May 2011*), prior to which an information package will be distributed approximately one week in advance. The study will be completed by the end of October 2011.

F. Questions / Points of Discussion.

Some of the general comments of particular interest made during this meeting included the following:

- There are many potential land use issues and considerations associated with the specific airports; however, the crux of this study will be an initial effort to at least provide airport zoning recommendations to the host communities as required Rhode Island state law.
- Several examples of incompatible land use at WST and UUU were actively discussed.
- Concern was expressed regarding the fact that representatives of the airport host communities were not invited to be members of the TAC. It was noted that this was done since it is the intent of the study to establish a broad framework for the toolbox that will then be refined through subsequent direct communications with representatives of those municipalities. This has been done intentionally not to exclude those municipalities, but to introduce them into this statewide process at the point where their contributions will be of greatest value and will have the greatest impact.
- This planning effort could appear “one-sided” (i.e. from the airport perspective), but that this approach is necessary in order to establish an appropriate plan for the benefit airports. It is understood that this could be modified at the actual implementation stage, but that prior to that point, it is important to clearly justify and define the optimum conditions for airport operations. This is also consistent with the federal grant assurances under which the airports are obligated to operate through their acceptance of federal airport improvement funds.
- It was noted that all airports operated by RIAC are part of the National Aviation System, and as such, FAA fully supports and would vigorously defend their use, development and preservation.
- It was stated that the standard federal airspace review process (FAA Form 7460) does not preclude the construction of facilities incompatible with airports – it is only advisory in nature. Ultimately, it is up to the airport owner/host community to enforce compatible land uses around an airport.
- Beyond airspace, the FAA also can advise on potential noise impacts and land use. The FAA has multiple sources that provide guidance with respect to airspace surfaces, land use, noise impacts, wildlife attractants, etc. The challenge will be to integrate these various elements into a tool that is easily understood and useable by local planners.
- There are many layers and facets to the issue and application of airport land use compatibility. As such, it is the desire of RIAC, through this planning effort’s TAC, to establish commonality of understanding, intent, and nomenclature with respect to this project. This commonality will be very important in shaping the recommended land use plan for the three airports, prior to the start of discussions with local communities. As part of that, an aviation “glossary of terms” was requested.



- Various potential land use tools were discussed, including local land use and subdivision regulations.
- Various incompatible land uses were generally discussed, including cell towers, windmills, retail development, etc.
- Ideally, the results of this planning effort will be integrated into the comprehensive plans of the airports' host municipalities.

5. NEXT STEPS

1. WSA will produce a white paper which summarizes land use compatibility issues, describes what other states have done with respect to land use compatibility, and contains a glossary of appropriate aviation terminology. This paper will be distributed to the TAC for review.
2. Because of the project delay, TAC Meeting 2 will be scheduled for late May/early June 2011.

For additional copies of meeting documentation, please contact James Miklas (Wilbur Smith Associates) at jmiklas@wilbursmith.com.

This Page Intentional Left Blank

RHODE ISLAND AIRPORT CORPORATION

COMPATIBLE LAND USE STUDY

TECHNICAL ADVISORY COMMITTEE (TAC) MEETING #2

MEETING NOTES

March 7, 2012 (1:30 PM)

RIAC Offices

T.F. Green Airport

Warwick, RI

1. MEETING ATTENDANCE

TAC Member Attendees:

<i>Member Name</i>	<i>Affiliation</i>
Ann Clarke	Rhode Island Airport Corporation (RIAC)
Gail Lattrell	Federal Aviation Administration (FAA)
Jared Rhodes	Rhode Island Statewide Planning Program
Katherine Trapani	Quonset Development Corporation (QDC)

Absent TAC Member Attendees:

Michael Walker	Rhode Island Economic Development Corporation (RIEDC)
Vince Scarano	Rhode Island Airport Corporation (RIAC)

Other Meeting Attendees:

James Miklas	CDM Smith
--------------	-----------

A copy of the sign-in sheet is attached to these meeting notes.

2. MEETING PURPOSE

The purpose of this meeting was to accomplish the following:

- A. Introductions / Opening Remarks
- B. Reminder: Study Purpose
- C. Reminder: Purpose and Role of TAC
- D. Airport Land Use Compatibility Discussion / Review of draft documentation
- E. Next Steps



3. MEETING HANDOUTS

At the meeting, a binder containing the draft chapters and working paper was handed out.

4. MEETING AGENDA TOPICS / POINTS OF DISCUSSION

A. Introductions / Opening Remarks

B. Reminder: Study Purpose

Generally stated, the purpose of this planning effort is to promote airport compatibility with the human and natural environment for three of Rhode Island's General Aviation (GA) airports (North Central Airport, Quonset Airport, and Newport Airport). Establishing this compatibility is critical in achieving the primary goal of helping to ensure safety both in the air and on the ground, as well as helping to maximize the usability and value of these transportation assets. It is also RIAC's goal to provide a toolbox through this effort to assist in the implementation and application of airport compatibility tools that are useful, manageable and not burdensome for host airport communities.

Comments / Points of Discussion:

- Selection of Study Airports
 - Ms. Trapani asked why only three airports were included in this study. Ms. Clarke responded that based on funding, need and that RIAC only wanted to focus on the general aviation airports, the three airports selected were SFZ, OQU and UUU. She also noted that Westerly Airport had recently updated their Airport Layout Plan (ALP) that included a land use compatibility element that was not ultimately adopted by the local government. Block Island airport does not currently have some of the development pressures seen at the other airports.
 - Ms. Clarke stated that RIAC viewed SFZ and OQU as having the greatest economic development potential, as does RIEDC which has potential economic development plans for areas on and around SFZ. As such, this plan will be an important input in RIEDC development plans. Regarding OQU, Ms. Clarke said that this effort would "dove tail" with the upcoming OQU Master Plan Update. Ms. Trapani stated that her experience with the Town of North Kingstown is that they support aviation (particularly that of the National Guard) but do not support the prospect of air cargo type operations.
 - Ms. Clarke provided a general overview to the PVD Noise Land Reuse Update.
 - Mr. Miklas stated that while the study is focused on these three general aviation airports, the end result of the study could be to provide a basis for future land use compatibility plans at other state general aviation airports.
- General Goals of the Study
 - Mr. Rhodes stated that it is the town comprehensive planning process that is the start of establishing proper zoning. Through that process, it is critical that conflicts are identified up front and depicted on a land use plan to identify specifically what the strategies are for resolving those conflicts.
 - Ms. Clarke agreed and stated that it is RIAC's goal to provide local municipalities (with airports) with technical information to support them when they are going



through their respective comprehensive planning processes, as well as to give them the tools need to establish the legally required Airport Hazard Zoning overlay in place.

B. Reminder: Purpose and Role of TAC

The purpose of the TAC is to serve as advisors to RIAC in order to ensure that the study addresses the key issues and considerations related airport land use compatibility. Specifically, the role of the TAC will be to assist in the following manners.

- Attend up to six (6) project meetings – this is the 2nd meeting.
- Review and comment on draft study products
- Provide link to agencies and other constituencies that are represented by TAC membership

C. Airport Land Use Compatibility Discussion / Review of draft documentation

Mr. Miklas provided an overview of the study methodology to developing the land use compatibility handbook. Generally, this methodology is based on first identifying the overall land use compatibility approach that RIAC would like to take with its general aviation airports and then provide specific recommendations and supporting tools to the airport host communities to implement those recommendations. This would allow also allow those other airports not included in this study to utilize this general approach as part of their own compatibility planning.

Mr. Miklas noted that the draft handbook is being designed with the end user (i.e. town planners) in mind. As such, the handbook provides a significant amount of educational/background data for the end users that will have to pursue land use compatibility goals for their communities. It is anticipated that this handbook will also include practical tools for the end users including checklists, model ordinances, land use plans, supporting documentation, etc.

Ms. Clark stated that she envisioned the handbook containing some very specific recommendations, such as an example airport hazard zone overlay ordinance, as well as some very broad suggestions, such as best practices. She also described this study as providing a high-level rationale for ensuring appropriate airport land use compatibility, and noted that it should be viewed as providing a primer on why this should matter to airport host communities.

Comments / Points of Discussion:

Draft Guidebook

- Page iii: fix chapter numbering
- Mr. Rhodes noted his appreciation to RIAC that the document effectively balanced the view of airport land use compatibility from both the airport and the community perspectives. Ms. Clarke emphasized RIAC’s desire to help communities establish appropriate zoning now in order to help avoid/mitigate many of the problems that the airports and communities could experience in the future.
- Page 1-5: Clarify history of the State Aviation System Plan (general aviation airports only) with respect to recent update to the State Guide Plan update (general aviation airports and T.F. Green Airport). Should incorporate paragraph in the guide plan that describes the hierarchy of the planning documents.



- Page 1-8: Table reflects a draft version of the State Guide Plan. Must be updated to include the final language. PDF of final document is located in the “Publication” section of the RI Statewide Planning website. Mr. Rhodes agreed to send a copy of the final document to RIAC in MS Word.
- Page 2-3: Please try to update call out box to try to more accurately reflect Rhode Island. Example: “Although development has occurred around the airport, there is still land available that should be controlled for development and redevelopment purposes.” Mr. Rhodes noted that the last bullet is a “stretch” for RI – maybe should be “many airports are currently located in developed areas and the airports are challenged in accommodating growth for aviation related purposes.”
- Page 2-4: “availability of buildable properties continues to decline” and, per Ms. Trapani, “cost of building becomes more prohibitive.” Also, there is a typo in following sentence – should be “communities themselves have become increasingly . . .”
- Page 2-10: Ms. Trapani noted that first two bullets have a negative connotation, while the third is a positive. Might want to add introduction to last bullet.
- Ms. Clarke noted the value of Runway Protection Zone (RPZ) clearance requirements as a potential asset to host communities in fulfilling any lot percentage coverage requirements that may be associated with potential development. Ms. Trapani noted that current stormwater regulations actually are more critical than lot percentage requirements. Following a question by Mr. Rhodes, Ms. Clarke stated that Elmira Airport executed a long-term lease with the city to meet lot percentage requirements for other projects and that this was noted on the ALP.
- Ms. Trapani and Mr. Rhodes suggested shortening the base guidebook by moving Chapter 4 (other states’ programs) into the appendices. It was noted that maintaining all information in guidebook somewhere was important to show process and justification of approach. Ms Trapani thought it important to maintain the compatibility background in the primary guidebook for laypeople. Ms. Clarke suggested that once draft document is completed that we have someone else (i.e. a town planner) review the document in terms of structure/ease-of-use.
- Page 3-7: Mr. Rhodes noted that the first sentence should be restructured. He also noted the following change to first sentence under Comprehensive Plans – “. . . long-range document that addresses land use . . .” Additionally, delete all references in document to “counties” and re-work following “In Rhode Island, state law specifies that local governments must use . . .” including deleting “ideally.” Ms. Clarke also suggested adding a statement acknowledging that local communities do not always comply with this requirement, which is one of the reasons for establishing the guidebook.
- Page 3-11: Mr. Rhodes said that the first several sentences of the page should be clarified with respect to the fact that “local land use decision makers” role for project evaluation is for only those projects that lie off-airport. (Note that those decision makers often provide input to on-airport projects through the airport master planning process.) Ms. Lattrell stated that the role of those decision makers is to consider the needs/requirements of the airport when considering off-airport development (i.e. cell towers, etc.).

Mr. Rhodes offered the following with respect to the “Site Plan and Plat Review” section. In Rhode Island, prior to the site plan/plat review, it needs to be stressed that one really needs to start with the comprehensive planning process to identify the appropriate zoning before any discussion of development processes. Because once one gets to the (1) site plan process, or the (2) building permit process, or the (3) sub-division process, or the (4) development process, the zoning has already been established through the comprehensive planning process. One may be able to identify, but cannot correct a town’s zoning problems through any of these four processes, because by that point in the development process, land owners already have established rights for development. Ms Clarke emphasized that at that point, RIAC’s only opportunity to impact the development is by potentially working with the developer (if they are willing) to potentially mitigate any airport concerns on a site-specific basis (i.e. location of detention ponds, etc).

Mr. Rhodes noted with respect to second sentence of that paragraph that Rhode Island town planners do not generally have the responsibility to issue zoning determinations; those are typically handled by a zoning officer or a building inspector who has that role. He also noted that the (1) application for the building permits, (2) applications for zoning variances, (3) site plan review, (4) subdivision and land development plans will generally be handled by different entities within municipal government. He stated that in Rhode Island, land development plans and site development plans are two distinct review processes with the former addressing projects above a specified size (typically large) and the latter dealing with all others. The state enabling legislation for the subdivision review act (located in the zoning section) specifies all of the subdivision procedures as the land development procedures. The site plan review itself is more specific to the local municipality.

The “deed restrictions” section as written is not appropriate for Rhode Island since they cannot be imposed upon property owners. However, informally, they can be exacted through a plan review process as a condition for a specific development. As such, the TAC agreed to delete references to deed restrictions.

Ms. Trapani suggested adding plat map notices as additional tool to the listing that would be simply a stamp on the map that would note that there is an airport in the vicinity.

- Page 3-18: A question was raised with respect to use and enforcement of “noise easements.” Ms. Lattrell stated that “noise” is included by FAA in its standard language associated with avigation easements and that it includes aircraft overflights. The FAA does not typically pursue specific noise easements – it is simply ancillary to the avigation easement process. Mr. Rhodes suggested potentially providing an example or two of where these easements have been successfully utilized in Rhode Island. Ms. Clarke agreed to provide such examples.
- Page 3-19: Mr. Rhodes said that the second to last sentence under Conservation Easement seemed too strong in terms of no value loss – there will be some loss in value if a property loses its development potential.
- Page 3-21: Mr. Rhodes questioned if disclosure notices have been utilized within Rhode Island. Ms. Clarke stated that while allowable, it is not required under the law. Given that



such a notice would likely have a negative connotation for a property owner, it would likely not be successfully implemented on a voluntary basis. Mr. Rhodes suggested that a good town planner may be able to negotiate this notice into future development plans if they are made aware of its value. This could coincide with the suggestion for a plat map notification.

- Page 3-23: Mr. Rhodes noted that Rhode Island has a statewide building code and does not have individual municipal building codes. It is therefore the responsibility of the state building commission and not the local planning commissions.

There were discussions centered on “Noise Compatibility Program” section. Ms. Lattrell stated that such programs are not typically appropriate for general aviation airports, although they technically are available. They are typically utilized by larger airports like T.F. Green, and it was noted that the three general aviation airports included in the study would not be eligible. That being the case, it was determined that this section be reduced significantly and that a caveat be included that states that this is most appropriate for commercial service airports and that it is potentially applicable for only the largest and most active general aviation airports in the country.

- Page 3-24: Ms Lattrell volunteered to provide FAA narrative related to its new building code and energy requirements. Mr. Rhodes suggested also coordinating with RI State Building Commissioner Jack Leyden to compare FAA against state requirements. It is possible that Rhode Island already meets those FAA standards. Ms. Clarke noted that if a development or redevelopment impacted more than 50% of a property’s appraised value that the entire property must be brought up to code. This could be important for residential properties located in an airport environment.
- Page 3-26: The state building commission should be referenced in the table.
- The TAC decided that Chapter 4 should be relocated to the appendix in order to shorten primary document.
- Mr. Rhode offered that Appendix A (the airport system overview) could simply be a referral to the current state airport system plan.
- The TAC had no other comments with respect to the other appendices.
- Mr. Rhodes suggested that RIAC utilize GIS for resulting tools as much as possible. Statewide Planning will assist in integrating tools into RIGIS.

Working Paper 1

- Page WP 1-7: Ms. Trapani noted that only Airport Hazard Zones are required in the Airport Land Use Compatibility box in the table.
- Ms. Clarke noted that RIAC has a draft Hazard Zoning ordinance on file that was established for Westerly Airport. She noted that in response to requests from Westerly, RIAC was actively working on making that ordinance more specific to the airport and less general. Ms. Clarke stated that the town (Steve Hartford) was still actively engaged in trying to establish this ordinance.
- The TAC generally agreed with the “Potentially Appropriate for RI” column with the following changes:
 - Clarify plat review/development plan per previous discussion
 - Delete Deed Restrictions



- Include RIAC VMPs in Natural Features
- Include just Avigation Easement (delete “and Noise”)
- Delete FAA Noise Compatibility Program and associated elements (i.e. sound barriers and sound insulation) since not appropriate for general aviation airports.

E. Study Schedule

It is anticipated that TAC Meeting #3 is scheduled for 1:30 pm, May 15, 2012 at RIAC Offices (T.F. Green).

5. NEXT STEPS

1. CDM Smith will update the Draft Guidebook per the comments received.
2. CDM Smith will continue onto the next project task to define the airport land use compatibility program preferred for Rhode Island’s general aviation airports.

For additional copies of meeting documentation, please contact James Miklas (CDM Smith) at miklasjb@cdmsmith.com.

This Page Intentional Left Blank

RHODE ISLAND AIRPORT CORPORATION

AIRPORT COMPATIBLE LAND USE STUDY

TECHNICAL ADVISORY COMMITTEE (TAC) MEETING #3

MEETING NOTES

September 26, 2012 (10:00 AM)

RIAC Offices
T.F. Green Airport
Warwick, RI

1. MEETING ATTENDANCE

TAC Member Attendees:

<i>Member Name</i>	<i>Affiliation</i>
Dan Porter	Rhode Island Airport Corporation (RIAC)
Katherine Trapani	Quonset Development Corporation (QDC)
Vince Scarano	Rhode Island Airport Corporation (RIAC)
Walter Slocumb	Rhode Island Statewide Planning Program
Michael Walker	Rhode Island Economic Development Corporation (RIEDC)

Absent TAC Member Attendees:

Gail Lattrell	Federal Aviation Administration (FAA)
Jared Rhodes	Rhode Island Statewide Planning Program

Other Meeting Attendees:

James Miklas	CDM Smith
--------------	-----------

A copy of the sign-in sheet is attached to these meeting notes.

2. MEETING PURPOSE

The agenda for this meeting included the following elements:

- A. Objective of Today's Meeting
- B. Review of Guidebook
 - 1. Guidebook Definition
 - 2. Format of Guidebook
 - 3. Effectiveness of Chapters
 - 4. Review of Step-By-Step Approach
 - 5. Appendix as a Resource



- C. Next Steps:
 - 1. Coordination with Town Planners
 - 2. Implementation
- D. Schedule

3. MEETING AGENDA TOPICS / POINTS OF DISCUSSION

A. Objective of Today's Meeting

The primary purpose of this TAC meeting was to solicit comments from the members regarding the draft final guidebook. This draft final guidebook had been delivered to the membership during the week of September 10, 2012.

B. Review of Guidebook

Vince Scarano (RIAC) led introductions and reviewed the overall purpose/agenda of the meeting. James Miklas (CDM Smith) led a review of the project to date and acted as a facilitator of discussions. The following reflects the primary points of discussion and comments received during the meeting.

Comments / Points of Discussion:

- Structure of Study
 - V.Scarano and J.Miklas provided an overview of the structuring of the final draft guidebook. The purpose was to condense the length and detail of the primary guidebook chapters to enhance the ease of its use, particularly by non-aviation users. Highly technical information and resources were relocated to a greatly expanded appendix.
 - Katherine Trapani (QDC) was very complementary with respect to the document's structure and clarity, indicating that it is "the best how-to planning book that I have ever seen."
- Study Airports
 - The project scope provides for additional focus to be placed on three specific Rhode Island general aviation airports: North Central (SFZ), Quonset (OQU), and Newport (UUU). The final draft document reflects this.
 - The TAC decided that this guidebook should be more generally structured to reflect the overall RI approach to airport land use compatibility planning. Additional information related to the individual airports could be added as addendums, and/or appendices, but they should not be part of the base document. As such, specific references to SFZ, OQU, and UUU as part of the base document will be eliminated.
- Coordination with the Individual Airport Communities
 - V.Scarano stated that with the guidebook nearing completion, it would soon be time to start coordinating with those communities associated with the hazard areas for SFZ, OQU, and UUU. He indicated that he would prefer to meet with those community representatives collectively. He invited the TAC to participate in those discussions.



- Mike Walker (RIEDC) was very supportive of involving the local town planners in this process at this point, since they now have an actual document to review.
- It was noted that under RI General Laws, RIAC's only legal obligation is actually to provide host communities with a plan reflecting the Airport Hazard Area for their airport. Beyond that, it is required by the communities themselves to abide by the law to enforce appropriate land use compatibility associated with those areas. However, understanding that this is a complicated issue, RIAC is publishing this guidebook as a service to those communities to help them appropriately and efficiently meet their obligation under the law.
- M.Walker suggested that the abstract be enhanced to clearly state that "this document is intended to help you implement . . ."
- K.Trapani stated that she believed this guidebook to be "done" and that any individual comments from the local towns would be related to their own airport. This guidebook should stand on its own as RIAC's recommended process for the towns to meet their legal obligation to establish Airport Hazard Areas.

- Guidebook Abstract
 - It was suggested that the abstract be expanded to reflect the very specific purpose of this document, the responsibility of the users under the law, and how the document is structured and to be used. "What it is, why it's important to you, what you have to do, and this is how it works."

- Airport Hazard Areas
 - It was recognized that many Airport Hazard Areas in RI will extend beyond the town limits of the host communities. This is important since state law extends to all communities (even if the airport is not physically located that their municipality) with a hazard area must enforce appropriate airport land use compatibility. As such, towns like Newport and Portsmouth (abutting Middletown that hosts UUU) would have to be involved in this process.

- Chapter Summaries
 - A question was raised as to it the chapter summaries were actually required. After discussion, it was determined that the summaries should stay, reasoning that lay people could be reading this document at some point and that any help for them would be advisable.

- Rhode Island Airport System Plan
 - There was discussion related to the difference between the FAA-funded Aviation System Plan completed in 2004 and the 2011 State of Rhode Island Airport System Plan included in the state guide plan. It was recommended that reference to the 2004 document be deleted to avoid confusion and to focus solely on the 2011 plan.

- Compatibility Assessment Tables



- The nomenclature utilized in Tables 3-4 through 3-10 was discussed at length. It was noted that local planning documents typically utilize a relatively standard system that includes “Y” for yes, “N” for no, and “S” for special use/requires further investigation. It was suggested that these tables adopt that standard. However, it was ultimately decided to leave the tables as they currently are and simply reference them as the standard industry recommendation for those land uses. As local planners begin to integrate this data into their own charts, they can update as appropriate for their community.
- Rhode Island Building Code
 - It was noted that RI has a state building code and that it would be important to coordinate with the state building commissioner to determine if a locality can impose more stringent building requirements than established by the state. It was recommended that the project team contact Jack Leyden (RI State Building Commissioner) or Warren Ducharme (RI State Building Commission) to discuss.
- Nonsuit Covenants and Hold Harmless Agreements
 - It was suggested that RIAC general counsel be consulted as to if these agreements are in fact appropriate for use. Specifically, the question was asked as to if these agreements can be transferred with their respective property deeds.
- Appendix J – Airport Hazard Area Zoning Ordinance Outline
 - Walter Slocumb provided two hard copies of comments related to this appendix.
- General comments
 - Table of Contents: delete references to chapters associated with SFZ, OQU, and UUU.
 - Page 4: clarify/rewrite first sentence, second paragraph.
 - Page 8: clarify statement in facts table regarding “minimizing” nose impacts through both on-airport and off-airport applications.
 - Page 9: first paragraph- replace “rarely directly” with “may.” Delete second sentence.
 - Pages 19, 21, 31, 53: adjustment to appendices references
 - Page 13: try to use airport residential photo – maybe at WST
 - Page 20: delete “semiautonomous”
 - Page 33: clarify establishment of advisory committee – not specifically referenced in previous sections.
 - Page 30: reference Appendix E as a resource in first paragraph
 - Page 31: amend interested stakeholder references to include “residents, local business communities, chambers of commerce, among others.”
 - Page 43: move section from page 45 to page 43 to introduce terms.
 - Page 44: last bullet should be “will cause” not “will create”
 - Page 45: add clarification on source of data in tables and reference that it is current state of the industry/industry perspective. Review ACRP Report 27 for additional references and guidance to insert into introduction.
 - Page 46: provide table references.



- Page 59: adjust reference source to reflect adjustment to ACRP 27 by the TAC to reflect RI recommendations.
- Page 62: adjust figure to delete reference to “deed restrictions.”
- Page 66: last paragraph, add “an airport” in front of “master planning ...” Also add reference to other interested airport stakeholders.
- Page 67: delete “upon request” and unbold paragraph. This carries over to other locations in chapter as well (see also Page 71).
- Page 71: note that RIAC is responsible for maintaining those wildlife management plans that have been established to date. Amend last paragraph as well.
- Page 78: question as to if RI can “require the disclosure of information to real estate buyers . . .”
- Page 78: insert on second paragraph from bottom “for large primary airports like T.F. Green, noise mitigation...”
- Page 79: second paragraph, condense statements.
- Page 82: adjust graphic so that a new “comp plan update” box is inserted between “review existing...” box and the “update zoning...” box. Also note that source is “adapted from ...”
- Page F-3: amend to “Airport Point of Contact”
- Page G-15: delete “churches”, make it “established places of worship”
- Page K-1: note that FAA Form 7460s are now only accepted through the online application – no hard copy applications are accepted.
- All references to the word “town” (as in town comprehensive plan) or “municipal” should be replaced with the term “local”.

C. Next Steps/Schedule

1. RIAC will have a meeting with RI Statewide Planning on Oct. 10, 2012 to finalize their comments on this document.
2. Following that meeting, RIAC will update and publish the guidebook.
3. RIAC will then begin coordination with the local communities associated with the hazard areas for SFZ, OQU, and UUU.

The meeting adjourned at approximately 12:00 p.m.

Meeting notes respectfully submitted by:

James Miklas, CDM Smith

For additional copies of meeting documentation, please contact James Miklas (CDM Smith) at miklasjb@cdmsmith.com.

This Page Intentional Left Blank

RHODE ISLAND AIRPORT CORPORATION

AIRPORT COMPATIBLE LAND USE STUDY

AIRPORT LAND USE COMPATIBILITY WORKSHOP

MEETING NOTES

January 17, 2013 (10:30 AM)
RIAC Offices (T.F. Green Airport)
Warwick, RI

1. MEETING ATTENDANCE

Town Planner Attendees:

<i>Name</i>	<i>Affiliation</i>
Mike Phillips	Town of Smithfield, RI
Marilyn Shellman	Town of Westerly, RI
Jane Weidman	Town of New Shoreham, RI
Ron Wolanski	Town of Middletown, RI

TAC Member Attendees:

Dan Porter	Rhode Island Airport Corporation (RIAC)
Jared Rhodes	Rhode Island Statewide Planning Program
Vince Scarano	Rhode Island Airport Corporation (RIAC)
Michael Walker	Rhode Island Economic Development Corporation (RIEDC)

Other Meeting Attendees:

James Miklas	CDM Smith
--------------	-----------

A copy of the sign-in sheet is attached to these meeting notes.

2. MEETING PURPOSE

The agenda for this meeting included the following elements:

- A. Welcome
- B. Introductions
- C. Opening Remarks
- D. Chapter 1 and Chapter 2 Overview
- E. Chapter 3 Presentation & Discussion
- F. Closing Remarks

3. MEETING AGENDA TOPICS / POINTS OF DISCUSSION

A. Welcome and Introductions

Vince Scarano (RIAC) led workshop introductions and reviewed the overall purpose/agenda of the meeting. The primary purposes of this workshop was to present information and solicit comments regarding the Draft Airport Land Use Compatibility Guidebook from town planners that represent communities that host one of Rhode Island's five state-owned general aviation airports. Copies of the Guidebook were provided to the planners for the six towns (Smithfield, RI; Lincoln, RI; North Kingstown, RI; Middletown, RI; Westerly, RI; and New Shoreham, RI) in November 2012 in preparation for this workshop.

B. Opening Remarks

Mr. Scarano stated that the Draft Airport Land Use Compatibility Guidebook had been sponsored and prepared by RIAC. It is a goal outlined in the Airport System Plan (Element 640) of the Rhode Island Guide Plan. The ASP was formally adopted by the RI Planning Council in September 2011. The Goal state that; "Rhode Island's airports will exist compatibly within their communities while providing air services appropriate to their roles." The plan also acknowledged the importance of aviation to Rhode Island's transportation system and economy and the important role compatible land use plays in maintaining safe and effective airports. Mr. Scarano noted that this guidebook reflected RIAC's desire and intent to work with Rhode Island towns in helping to ensure that the goal is met.

V. Scarano provided an overview of his experiences as a former FAA director of the New England region with respect to compatible land use issues around airports, including lessons learned and the changing nature of addressing such issues in the region. He emphasized the importance of compatible land use with respect to maintaining safe operational conditions for the airports, particularly regarding the construction of potential airspace obstructions (e.g. towers, wind turbines, etc.). He also noted that Rhode Island is fortunate (in comparison to many other states) in that it has state legislation enacted to provide requirements and a process for ensuring compatible land use around airports.

C. Chapter 1 and Chapter 2 Overview

James Miklas (CDM Smith) led a review of the Guidebook's Chapter 1 and Chapter 2 and acted as a facilitator of discussions. He made the following general points:

- The guidebook has been based on current industry guidelines, including those from the Federal Aviation Administration (FAA), the Transportation Research Board (TRB), and multiple other state compatible land use programs.
- The Guidebook has been designed as a working tool to serve as an interface between RIAC and those RI towns impacted by the state's five general aviation airports.
- Chapter 1 provides information on what airport land use compatibility and why it is so important to the aviation industry.



- Chapter 2 provides information on the RI airport system and why airport land use compatibility is important to Rhode Island,
 - Rhode Island General Laws, Title 1, *Aeronautics*, provides legislation pursuant to Chapters 1 through 5 that includes Airport Zoning. That legislation has been highlighted in Chapter 2 of the Guidebook and the complete law has been provided in the Appendix. This legislation provides detailed requirements for the airport sponsor (RIAC) and the host towns to enact in order to implement specific airport compatibility measures.
 - The RI Airport Zoning legislation is comprised of two different, but related components: (1) an airspace plan (defined by FAA as “Part 77”), and (2) the Airport Hazard Area (which is a land use planning tool defined by RIAC). A principle goal of this guidebook is to combine those two separate, but related components into an effective planning tool for the state and the towns.

D. Chapter 3 Overview

J. Miklas led a review of the Guidebook’s Chapter 3, and made the following general points:

- Chapter 3 is divided into three sections. The first section comprises the step-by-step planning program, while the other sections are planning tools (e.g. checklists and forms) that have been provided to assist a town planner in following that step-by-step process. It is important to note that the forms are just tools to help and are not required to be completed as part of the process.
- Step One is comprised of data collection. The chapter provides a comprehensive listing of the data that may be required as part of the process. In some cases, it may reflect more data than necessary or not enough data, depending on the nature of the local process. Much of the data indicated is maintained by RIAC. As such, at the start of a land use compatibility process, it is important for the town planners to coordinate with RIAC.
- Step Two is comprised of establishing the Airport Hazard Areas for Rhode Island’s general aviation airports. This is the responsibility of RIAC under the state laws. It is not a federal requirement, although its application within the state is based on FAA airspace and design standards.
- Step Three includes the comparative analysis of the Airport Hazard Areas with existing land uses and zoning to identify potential conflicts. It was stressed during the discussion that the tables included in the chapter are taken directly from industry standard documentation produced by the Transportation Research Board (TRB) ACRP Report No. 27 and other state land use guidance plans. The “determinations” recommended in the ACRP Report are appropriate based on the planning done to develop the general standards. Mr. Scarano pointed out that no effort was made to change them for our RI Guidebook and therefore in utilizing the ACRP guidelines it is appropriate to evaluate the conditions on a case-by-case basis for land use planning around our airports. No one guideline fits all cases. That is another reason it is important to coordinate and work with RIAC in making your land use decisions related to specific cases around the airport.
- Step Four describes the process for developing the actual airport land use compatibility plan.
- Step Five includes the implementation of the plan.



The following reflects the primary points of discussion and comments received during the course of the meeting.

Comments / Points of Discussion:

- Airport Noise
 - Mr. Scarano stated that based on the current level of activity and the size of aircraft, the RI general aviation airports do not have noise impacts as defined by FAA DNL noise standards. Federal participation in noise mitigation programs is generally limited to commercial service airports, like T.F. Green Airport. He also acknowledged that while it didn't reach levels defined by FAA standards, airport neighbors could identify aircraft activity that is disturbing to them.

- RI General Laws, Chapter 1-3, Airport Zoning
 - In response to a question, Jared Rhodes (Rhode Island Statewide Planning Program) stated that local municipalities must adopt the municipal airport hazard overlay zone per state law. In reviewing current town comprehensive plans, he noted that such zones and/or ordinances had yet to be adopted in RI. J.Rhodes then stated that as towns move forward on their future comprehensive plans that RIAC has assured Statewide Planning that it would assist these towns where able in crafting these ordinances.
 - J.Rhodes reminded those in the meeting that the state law had been enacted for some time. He also stated that any new town comprehensive plan update or rewrite (for those towns impacted by a state airport) would have to acknowledge this requirement and would have to at least establish an implementation plan and schedule to comply with this law.
 - Mike Walker (Rhode Island Economic Development Corporation) noted that part of the governor's economic development initiatives is the reduction of regulatory barriers and delays to development. He cautioned that any local zoning plans and/or ordinances should consider their potential negative impact on development and that any processes be designed to expedite review and approval.

- Airport Airspace Plans (or Part 77)
 - Multiple questions were asked about the meaning, purpose and application of FAR Part 77. V.Scarano noted that it is a federal regulatory requirement for those proposing construction (with a specific criteria defined in Part 77) to file a "Notice of Intent" with the FAA to allow the administration the ability to review the project from an aviation perspective. He said that it is important that the towns be a partner in ensuring that relevant project developers file an FAA Form 7460 where appropriate. This could be done in conjunction with the issuance of Building Permits.
 - J.Rhodes noted that state law requires that towns adopt Part 77.
 - It was recognized in the meeting that providing towns with a GIS layer that defines the limits of Part 77 (and Airport Hazard Areas) would be very helpful to the town planners in working to integrate these requirements into their review processes.
 - V.Scarano provided an overview of the Part 77 review process as viewed from FAA and RIAC perspectives. He also acknowledged that a 7460 application review process

does have potential limitations. The federal reviewers have very specific interests regarding airspace, procedures and facilities when examining such an application and those areas of airport concern, like land use can be outside the purview of the FAA review process. That is why the application of this guidebook is so important – an effective partnership between the towns and RIAC, working with FAA, will help close potential omissions in the review process.

- RIAC Interface with Local Towns

- J.Rhodes noted that through the planning process to date (he has been an ongoing member of an advisory committee for the development of this guidebook) that this guidebook has tried to balance the airport perspective regarding land use with that of the town planners. This guidebook is viewed as a tool to be used in a partnership between RIAC and the towns.
- It was also recognized that through the previously undertaken airport system plan process, communication protocols and expectations were established with respect to RIAC's commitment to coordinating with local towns on upcoming, on-airport projects.
- Several anecdotal stories were relayed about difficulties encountered by local planning officials when they were unaware of certain projects (e.g. tree clearing, building renovations, etc.) occurring on an airport. Generally, there were not any concerns about the specific projects on the part of the planners, only that they were unaware of them and were therefore unable to respond effectively when questioned by local citizens. They requested that there be at least some notification given to the towns for projects being conducted at the airport.
- With respect to initiating an airport land use compatibility initiative (following Chapter 3), V.Scarano suggested that town planners contact RIAC prior to starting that process so that RIAC can be prepared to assist where requested by the town.

- Assistance to Local Towns in establishing Compatible Land Use Planning

- In response to a question, V.Scarano said that this guidebook represents the extent of support that RIAC can formally extend to the towns in establishing compatible land use. However, he also recognized the need for this to be a working partnership and stated that RIAC certainly would be available to serve as a resource for technical issues and guidance to support the local towns in this process.
- J.Rhodes suggested that this type of planning effort may be eligible for funding under the Planning Challenge Grants program. (These grants are administered by the Statewide Planning Program and can range from \$10K to \$100K.) These grants are funded by Federal Highway Administration Metropolitan Planning and require a 20% local match (note that "in kind" services can be considered in that local match). Submittal for application for this type of grant would be late summer 2013. There are many submittals for these grants and allocation of funding is strictly competitive (i.e. no allocations or set-asides). It was also suggested that a good approach for this effort may be to identify one community to serve as the model for establishing an airport compatibility template that could then be used by other towns having an airport.

Wildlife Compatibility

- A question was raised regarding to compatibility of wildlife with an airport (i.e. given the open spaces on and around an airport, would it not be a good mix to use an airport as wildlife habitat?).
- J.Miklas noted the safety and operational challenges associated with wildlife on airports, including the extensive FAA efforts to separate wildlife from airfields. These include physical infrastructure like wildlife fences as well as planning efforts (Wildlife Management Plans).
- Airport Layout Plans (ALPs)
 - Town planners generally noted that they did not have copies of the current ALP set for their respective airport, or they were not certain that the plans they had were in fact current.
 - V.Scarano provided a detailed review of the components/sheets that comprise an ALP set. This included a review of the Part 77 airspace plan.
 - It was requested during the course of the meeting that RIAC provide the towns with a hard copy of the current ALP for their respective airports, as well as a scan or PDF of that plan.

E. Closing remarks

- V.Scarano thanked everyone for their participation in this important process. He also noted the following action items:
 - a. RIAC would provide the local towns with a paper copy of the current ALP for their respective airports. RIAC would also provide an electronic copy (a scanned or PDF) of the ALP as well.
 - b. RIAC would forward the Airport Hazard Area plans to the towns for their information. Once the hazard areas are finalized, RIAC will provide the towns with a final plan and GIS layers that reflect those areas.
 - c. RIAC asked that the towns provide any additional comments on the guidebook directly to V. Scarano

The meeting adjourned at approximately 12:30 p.m.

Meeting notes respectfully submitted by:

James Miklas, CDM Smith

For additional copies of meeting documentation, please contact James Miklas at miklas34@netzero.com.

Bibliography

This Page Intentional Left Blank

- Airports Council International (ACI), *The Economic Impact of U.S. Airports*. 2002.
- Air Transport Association of America (ATA). *2008 Economic Report*. Washington D.C., 2008.
- American Planning Association. *Planning and Urban Design Standards*. 2006.
- California Department of Transportation, Division of Aeronautics. *California Airport Land Use Planning Handbook*. 2002.
- Florida Department of Transportation, Aviation Office. *Airport Compatible Land Use*. 2010.
- Idaho Transportation Department, Division of Aeronautics. *Idaho Airport Compatible Land Use Guidelines*. 2010.
- Iowa Department of Transportation, Office of Aviation. *Airport Land Use Guidebook*. 2008.
- Minnesota Department of Transportation, Office of Aeronautics. *Airport Land Use Compatibility Manual*. 2006.
- NLR Air Transport Safety Institute. *Services / Air Safety Data Analysis*, web page: http://www.nlr-atsi.nl/services_46_1.php, accessed July 22, 2008.
- Oregon Department of Aviation. *Airport Land Use Compatibility Guidebook for Oregon*. January 2003.
- Pennsylvania Department of Transportation, Bureau of Aviation. *Pennsylvania Airport Land Use Compatibility Guidelines*. 1996.
- Texas Department of Transportation, Aviation Division. *Texas Airport Compatibility Guidelines*. 2003.
- Transportation Research Board – Airport Cooperative Research Program. Report 27 *Enhancing Airport Land Use Compatibility*. 2010.
- United States Department of Transportation, Federal Aviation Administration. Advisory Circular 70/7460-2K, "Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace," March 1, 2000.

United States Department of Transportation, Federal Aviation Administration. Advisory Circular 150/5190-4A, "A Model Zoning Ordinance to Limit Height of Objects Around Airports," December 14, 1987.

United States Department of Transportation, Federal Aviation Administration. Advisory Circular 150/5300-13A, "Airport Design," September 29, 2012.

United States Department of Transportation, Federal Aviation Administration. "The Economic Impact of Civil Aviation on the U.S. Economy," 2011.

United States Department of Transportation, Federal Aviation Administration. FAR Part 77 "Surfaces, Objects Affecting Navigable Airspace," CFR Title 14, January 1, 2007.

United States Department of Transportation, Federal Aviation Administration. Form 7460-1, "Proposed Construction of Alteration of Objects that may affect the Navigable Airspace," February 1999 & FAA Form 7460-2, "Supplemental Notice of Actual Construction or Alteration," July 1998.

United States Department of Transportation Federal Aviation Administration. National Plan of Integrated Airport Systems (NPIAS) 2013-2017. 2012.

United States Department of Transportation, Federal Aviation Administration. Order 8260.3 B Changes 19 through 20, "United States Standard for Terminal Instrument Procedures, TERPS," December 7, 2007.

United States Department of Transportation, Federal Aviation Administration. Order 5050.4B, "Airport Environmental Handbook," April 28, 2006.

United States Department of Transportation, Federal Aviation Administration. Order 5190.6A, "Airport Compliance Requirements," October 2, 1989.

United States Department of Transportation, Federal Aviation Administration. Order 7400.2F, "Procedures for Handling Airspace Matters," February 16, 2005.

United States National Transportation Safety Board. *Annual Statistics Show Continued Improvement in Aviation Safety*. NTSB News. Washington, D.C. March 13, 2007.

Washington Department of Transportation, Aviation Division. *Airports and Compatible Land Use Guidebook*. 2011.

Wisconsin Department of Transportation. *Airport Land Use Guidance*. 2000.