

AIRPORT LAND USE COMPATIBILITY GUIDEBOOK



INTRODUCTION

Airports are a critical part of the local transportation network, providing access for travel, business, goods, emergency services, and more.

In order to maintain safe, efficient airport operation, airports must be protected against incompatible land uses and height obstructions. The primary mechanism to do so is through zoning regulations at the local level. Local government officials play a critical role in ensuring that communities follow established guidelines and that airport zoning regulations remain State-compliant, up-to-date, and responsive to aviation needs and infrastructure growth.

In accordance with Tennessee Code Annotated (TCA) – Title 42, Chapter 6, Airport Zoning, local governments are mandated to establish, implement, and oversee airport zoning regulations within designated airport hazard areas. The process to establish zoning includes a thorough review of relevant laws and guidance materials, along with the development of draft recommendations for siting new airports and vertiports.

This Guidebook is intended to provide guidance to local governments regarding adopting and implementing State-compliant airport zoning regulations. It will cover foundational concepts of airport land use compatibility, key elements for establishing compatible zoning regulations, an evaluation of current airport compliance with State and federal standards, and practical strategies for achieving land use compatibility.

This Guidebook presents a summary of airport zoning practices in Tennessee, including statutory requirements under Chapter 6; federal standards outlined in 14 CFR Part 77 – Safe, Efficient Use, and Preservation of Navigable Airspace; and planning principles from Federal Aviation Administration (FAA) Advisory Circular 150/5190-4B (Airport Land Use Compatibility Planning).

The remainder of the chapters of this Guidebook includes:

- **Airport Land Use Compatibility Basics.** Explains the importance of protecting land surrounding airports from incompatible uses and land use basics to promote safe and efficient operations.
- **State and Federal Law and Guidance Surrounding Airport Compatible Land Use.** Summarizes the roles of State, federal, and local governments in promoting airport land use compatibility and ensuring consistent application of regulations.
- **Adopting Compliant Airport Zoning Regulations.** Details the required elements of zoning regulations and different ways to enhance compatibility.
- **Current Compliance with State and Federal Law.** Evaluates whether Tennessee airports meet existing State and federal statutes and regulations, identifying gaps and areas for improvement.
- **Encouraging Community Support.** Discusses the importance of coordination between the aviation industry and surrounding communities, highlights different outreach and education methods that will help build awareness and foster collaboration.

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GLOSSARY

GLOSSARY OF TERMS

Airport Improvement Program (AIP)

A federal grant program administered by the FAA that provides funding for planning and development projects at public-use airports, with emphasis on safety, capacity, security, and environmental stewardship.

Airport Overlay District

A local zoning tool applied in addition to base zoning that regulates land use and building height in areas affected by airport operations. Typically used to protect airspace, reduce noise conflicts, and prevent incompatible development.

Airport Master Record

The official FAA database entry for each public-use airport, containing operational and physical data (runway length, lighting, services, approaches). Used by pilots, airlines, and regulators for planning and navigation.

Airport Zoning Regulations (Hazard Zoning)

Land-use and height restriction regulations required under Tennessee law (TCA), Title 42, Chapter 6, to protect airspace and airport operations. These prevent incompatible uses and unsafe structures near airports.

Approach Surface

One of the FAA's 14 CFR Part 77 imaginary surfaces that extends outward and upward from each runway end. Its slope and length depend on the runway's type of approach (visual, non-precision, or precision).

Avigation Easement

A legal right obtained by an airport sponsor allowing aircraft overflight of private property, limiting height of structures/vegetation, and acknowledging potential noise impacts. Used to prevent future land use conflicts.

Categorical Exclusion (CatEx)

A designation under NEPA for projects expected to have minimal environmental impacts and therefore excluded from more extensive review (EA or EIS).

Community Engagement

The structured process of involving residents, businesses, and stakeholders in airport planning decisions through meetings, workshops, and consultations. Emphasized by FAA and TDOT as a best practice for transparency and trust.

Comprehensive Plan

A long-range local government plan guiding land use, housing, transportation, utilities, and economic development. Tennessee municipalities typically integrate airport protections and growth strategies into these plans.

Conical Surface

A Part 77 imaginary surface that extends outward and upward from the horizontal surface at a 20:1 slope for 4,000 feet. Provides protection for airspace around airports.

Encroachment

The gradual spread of incompatible development (housing, schools, tall structures) into airport environs, which can limit airport safety, operations, and expansion potential.

Environmental Assessment (EA)

A NEPA review that determines whether a project has significant environmental impacts requiring an Environmental Impact Statement (EIS).



Environmental Impact Statement (EIS)

A comprehensive NEPA review required for projects likely to cause significant environmental impacts across multiple resource categories.

General Aviation (GA)

All civil aviation other than scheduled commercial airline or military operations. Includes private flying, flight training, business aviation, medical flights, and aerial services.

Horizontal Surface

A Part 77 imaginary surface located 150 feet above an airport's established elevation, defined by arcs (5,000 or 10,000 feet radius) connected by tangents around runways.

Joint Airport Zoning Board (JAZB)

A cooperative body authorized by Tennessee law (TCA § 42-6-105) that allows multiple jurisdictions to adopt and enforce consistent airport hazard zoning regulations across city/county boundaries.

Licensing (Airport License)

In Tennessee, the requirement that all public-use airports not certified under FAA Part 139 obtain a state license from TDOT Aeronautics Division. Licenses are issued after inspection for compliance with safety and operational standards.

Mitigation

Specific actions taken to reduce negative impacts of airports, such as sound insulation, buffer zones, stormwater basins, or wildlife hazard management.

National Environmental Policy Act (NEPA)

Federal law requiring environmental review of projects involving federal funding, permits, or approvals, including airport development.

Noise Compatibility Program (Part 150)

An FAA program that provides guidelines and funding for airports and local governments to evaluate and mitigate noise exposure, often through sound insulation, land use controls, or operational changes.

Obstruction Evaluation/ Airport Airspace Analysis (OE/AAA)

The FAA's review process for proposed construction or alterations near airports to determine whether they are hazards to air navigation under Part 77.

Primary Surface

A Part 77 imaginary surface aligned with each runway and extending 200 feet beyond paved runway ends. Its width varies by runway type and is centered on the runway centerline.



Public-Use Airport

An airport open to the general public without prior approval. May be publicly or privately owned. In Tennessee, public-use airports require either FAA Part 139 certification (for certain commercial service airports) or a state license.

Runway Protection Zone (RPZ)

A trapezoidal safety area off the end of a runway where the FAA strongly discourages incompatible land uses such as residences, schools, or public assembly facilities. Land acquisition or avigation easements are recommended to maintain control.

Stormwater Permit

A regulatory permit, typically issued by the Tennessee Department of Environment and Conservation (TDEC), governing stormwater runoff from airport construction and operations. Ensures compliance with water quality standards.

Taxiway

A paved surface that provides ground movement paths for aircraft between runways, aprons, terminals, and hangars.

Tennessee Department of Transportation (TDOT) Aeronautics Division

The state agency responsible for licensing and inspecting Tennessee’s public-use airports, administering airport improvement grants, and integrating aviation planning into the state’s transportation system.

Tennessee Department of Environment and Conservation (TDEC)

The state agency that regulates environmental protection in Tennessee, including stormwater permits, wetlands, and air/water quality related to airport development.

Transitional Surface

A Part 77 imaginary surface that extends outward and upward from the sides of primary and approach surfaces at a slope of 7:1.

Wildlife Hazard

The risk of aircraft collisions with birds or other wildlife near airports. Often managed by habitat controls, land use restrictions (e.g., banning landfills near airports), and wildlife hazard management plans.

GLOSSARY OF ACRONYMS

AAM

Advanced Air Mobility: A system of air transportation using new aircraft technologies (like eVTOLs) to move people and goods in urban and regional areas.

CFR

Code of Federal Regulations: A codification of the general and permanent rules published by the U.S. federal government.

FAA

Federal Aviation Administration: The U.S. agency responsible for regulating civil aviation.

MPO

Municipal Planning Office Metropolitan Planning Organization: Department responsible for guiding and managing the physical development of a city, town, or municipality, including planning activities and the allocation of funds to metropolitan areas with populations greater than 50,000.

NEPA

National Environmental Policy Act: A law requiring environmental assessments for major federal projects.

OE/AAA

Obstruction Evaluation/Airport Airspace Analysis: An FAA program evaluating potential obstructions to safe airspace use.

RO

Regional Office: A local branch of a federal or state agency overseeing operations in a specific area.

TDOT

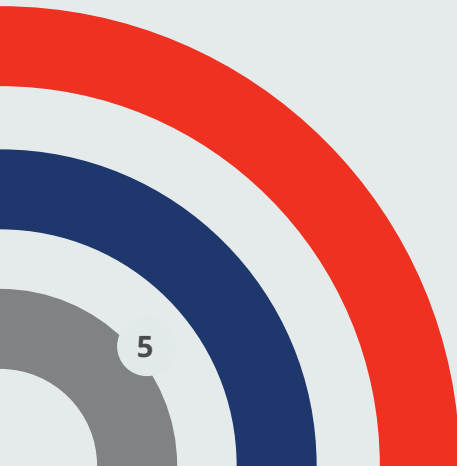
Tennessee Department of Transportation: The state agency responsible for transportation infrastructure and planning.

TPO

Tennessee Transportation Planning Organization: Regional body responsible for continuing, cooperative, and comprehensive transportation planning process for its area.

USDOT

U.S. Department of Transportation: The federal agency overseeing national transportation systems and policy.



AIRPORT LAND USE COMPATIBILITY BASICS

Introduction to the Airport Environment

Land use compatibility is not confined to an airport's property boundary. An airport's protected areas often extend beyond its property boundaries, including airspace that is protected well beyond the airport's physical footprint. As a result, compatible land use is equally important both on and off the airport and requires a coordinated effort by airports and their surrounding communities to ensure effective protection. Protecting the land surrounding an airport from incompatible uses and height obstructions helps ensure safe and efficient airport operations. These protections help ensure that airports can continue serving their communities today while allowing room for future growth as community needs change.

It is important to understand that the size and shape of protected areas surrounding an airport can vary significantly from one airport to another. These differences depend on factors such as the airport's runway layout, the types of aircraft that use the airport, and the navigational aids that support safe takeoffs and landings.

To help visualize how these protected areas generally function, the diagram to the right provides a visualization of two protected areas categories: areas located on or immediately adjacent to the airport and runway, and areas that extend farther outward and are intended to protect broader airspace.

- A** Conical Surface
- B** Horizontal Surface
- C** Approach Surface
- D** Primary Surface
- E** Transitional Surface
- F** Runway Object Free Zone (ROFA)
- G** Runway Safety Area (RSA)
- H** Runway Obstacle Free Zone (ROFZ)
- I** Runway Protection Zone (RPZ)
- X** Incompatible Land Use



1 Airport safety areas must be controlled, either through fee simple ownership or easement, by the airport. The airport is responsible for keeping these areas free of obstructions and incompatible use. Airport safety areas include the Runway Safety Area (RSA), Runway Object Free Area (ROFA), Runway Obstacle Free Zone (ROFZ), and Runway Protection Zone (RPZ).

2 Airports are also surrounded by protected airspace established by the Federal Aviation Administration (FAA) to support safe aircraft operations during takeoff and landing. It is the role of airport zoning regulations, under the purview of the airport's local government, to help prevent obstructions and hazards within protected airspace. The size and shape of these surfaces vary based on runway type and the kinds of approaches used by aircraft.



Figure 1. Federal, State, and Local Roles

Regulatory Basics

Ensuring compatible land use around airports is a shared responsibility among federal, State, and local governments. **Figure 1** illustrates the specific roles and responsibility of each party in this process. Effective coordination across these levels helps establish a clear framework for airports to follow. This collaboration also helps communities plan for sustainable growth while maintaining safe airport operations. Each level of government has different regulatory and enforcement powers, which include responsibilities such as:

Federal Role addresses airport compatibility primarily through the FAA which provides regulatory oversight and planning guidance for civil airports. The FAA issues guidance through Advisory Circulars (ACs), conducts airspace reviews for proposed development near airports, and provides technical input to airport sponsors and state aviation agencies when requested. The FAA also funds projects that promote compatible land use, such as noise mitigation and land acquisition, and supports research related to airport planning and safety.

State Role supports compatibility by providing regulatory direction, oversight, and funding support for planning and airport development.

Local Government implements and enforce state-mandated airport zoning regulations while guiding community and airport growth in ways that support safety, protect airport operations, and reflect local planning goals.

Land Use Basics

Understanding how far an airport's influence extends and which surrounding areas require protection is essential when evaluating land use decisions. It is equally important to understand which types of development are compatible with airport operations and the characteristics that determine that compatibility. The following sections address both considerations in detail.

Classifications of Land Use

Some land use classifications, such as light industrial, are generally more compatible with airport operations, while others, such as high-density residential, are less compatible. Most proposed uses, however, fall between these extremes and must be evaluated based on their specific characteristics. As a result, land use compatibility is best considered at the individual use level rather than by broad classification alone.



Understanding Common Land Use Types



Commercial

Uses which generally involve the sale of products or services

- Malls
- Shopping centers
- Restaurants



Mixed Use

Uses which include a mix of residential and commercial. This generally takes the form of multi-family residences located on top of ground floor commercial uses, such as stores, cafes, or offices. Mixed-use is intended to promote walkable communities and sustainability.

- Commercial/residential complexes
- Parks and plazas
- Transit-oriented development



Industrial

Uses which include the processing, assembly, manufacturing, and storage of material or finished products.

- Commercial/residential complexes
- Parks and plazas
- Transit-oriented development
- Warehouses
- Chemical and oil plants
- Mining facilities
- Power plants



Residential

Any dwelling used to house people.

- Commercial/residential complexes
- Parks and plazas
- Transit-oriented development
- Warehouses
- Chemical and oil plants
- Mining facilities
- Power plants



Agricultural

Uses related to crops or livestock farming

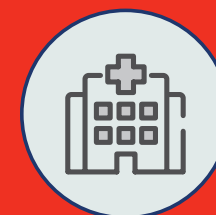
- Cropping (produce)
- Grazing (pastureland)
- Orchards



Recreational

Public and commercial land uses that generally take place outdoors, such as parks, national monuments, wildlife refuges, wilderness areas, sport courts, and outdoor theaters

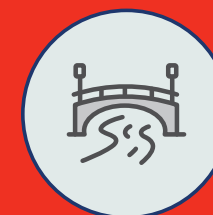
- Community parks
- National forests
- Wildlife sporting areas (fishing ponds, hunting areas)
- Outdoor pools
- Sports complexes



Institutional

Uses related to education, health care, and religion.

- Education facilities (preschool through college)
- Health care facilities (hospitals, clinics, nursing homes)
- Religious assemblies (churches, mosques, tabernacles)



Infrastructure

Use of land for public and private utilities, such as roads, water, sewage, energy production and communications. These utilities are found above and below ground

- Cell towers
- Powerlines
- Wind turbines
- Streets and highways
- Power plants
- Water and sewage pipes
- Utility transmissions

Source: FAA AC 150/5190-4B, Airport Land Use Compatibility Planning, 2022; Kimley-Horn, 2024.



Tall Structures

Tall structures are one of the most common sources of land use incompatibility near airports. Structures such as buildings, power lines, trees, and cranes can pose significant hazards to aircraft and reduce airport utility. These obstructions may affect both visual and instrument flight procedures, sometimes requiring adjustments to approach paths that complicate takeoffs and landings. Even objects on the tops of buildings, like antennas, can impact airspace safety. Part 77 surfaces are designed to protect this airspace from such obstructions, ensuring safe aircraft operations in and around airports.

Figure 3. *Example of a Tall Structure*



Visual Obstructions, Electronic, and Atmospheric Interference

Visual obstructions are considered an incompatible development characteristic because they can interfere with a pilot or air traffic controller ability to see aircraft, runways, or other critical features. These obstructions are particularly impactful for pilots operating under Visual Flight Rules (VFR), who rely on clear visibility to navigate safely. Common types of visual obstructions include dust, glare, light emissions, smoke, steam, fog, and both electronic and atmospheric interference.

Figure 4. *Example of a Visual Obstruction*



Land Use Compatibility Influence

Five primary characteristics influence land use compatibility near an airport, as shown in [Figure 2](#). This section describes these characteristics and how they can create conflicts with airport operations if not properly considered. Compatibility issues typically arise from development that introduces physical hazards, operational constraints, or community impacts. For example, tall structures can interfere with aircraft flight paths, visual obstructions can affect pilot visibility and navigation systems, and higher population densities can increase the number of people exposed to potential safety risks. Noise-related characteristics may also affect nearby communities by contributing to disturbances and potential health impacts.

Figure 2. Five Main Characteristics of Incompatible Land Uses





Population Density

High population density is considered incompatible near airports because it places many people close to aircraft operations, increasing the consequences of a potential aircraft incident. Compatibility is influenced not only by how many people are present, but also by when they are present and how easily they can leave an area in an emergency. Some facilities, such as hospitals, nursing homes, schools, and daycare centers, require additional time or assistance to evacuate. Places of mass assembly can present similar challenges due to the difficulty of moving large groups of people quickly. Limiting development that concentrates large numbers of people near airports helps reduce safety risks to both people and property.

Figure 5. Examples of a Population Dense Use

Wildlife Attractants

Wildlife attractants are considered an incompatible development characteristic because they increase the risk of wildlife strikes, which can damage aircraft and threaten safety. These incidents most often involve birds but can also include bats and mammals such as deer or coyotes. Wildlife strikes have become more common over time due to increasing wildlife populations, higher levels of aircraft activity, and quieter aircraft engines that are less noticeable to animals.

Attractants include land uses, structures, or natural features that provide food, water, or shelter for wildlife, particularly when they are located on or near airport property. The greatest concern occurs when attractants are located near runways or common flight paths, as they can draw wildlife into areas where aircraft are taking off or landing.

To reduce these risks, the Federal Aviation Administration (FAA) recommends minimum separation distances between airports and known attractants such as landfills, wetlands, stormwater facilities, and wastewater treatment plants. Managing wildlife risks may also involve measures such as fencing, controlling standing water, and selecting landscaping that does not attract animals. Limiting wildlife-attracting uses near airports is an important part of maintaining safe and reliable airport operations.

Figure 6. Example of a Wildlife Attractant



Figure 7. Example of a Noise-Sensitive Use

Noise

Noise sensitivity is considered an incompatible development characteristic near airports due to the disruptive effects of aircraft operations on nearby communities. These impacts can include speech interference, sleep disturbance, and reduced productivity in work or learning environments. Noise levels vary based on factors such as aircraft type, flight frequency, time of day, runway orientation, and the nature of air traffic. Some land uses, like homes and schools, are more sensitive to noise, while others, such as industrial or commercial areas, are less affected.

CHAPTER 1 WRAP-UP

Recognizing that land use compatibility extends beyond the airport property itself is essential for safe and effective airport planning. This section focused on:

- Protected areas in the airport's vicinity.
- Part 77 surfaces and how they differ by airport, including:
 - Primary surface
 - Approach surface
 - Conical surface
 - Horizontal surface
 - Transitional surface.
- Regulatory basics for federal, state, and local governments.
- Classification of and examples of different land uses.
- Five main characteristics land uses that are incompatible with airports, including:
 - Tall structures
 - Visual obstructions, electronic, and atmospheric interference
 - Population density
 - Wildlife attractants
 - Noise

ADOPTING COMPLIANT AIRPORT ZONING REGULATIONS

Overview of TCA Title 42, Chapter 6

Adopting airport zoning regulations is required under Tennessee Code Annotated (TCA) Title 42, Chapter 6, which establishes the legal framework for protecting airports from incompatible development and airport hazards. Under this statute, local governments with jurisdiction over land within an airport hazard area are required to adopt and enforce airport zoning regulations.

Airport zoning regulations function as enforceable local laws that help identify compatible and incompatible land uses near airports. Through these regulations, local governments can evaluate and manage hazards related to building height, visual obstructions, concentrations of people, wildlife attractants, and noise exposure. By establishing clear standards for development within airport hazard areas, zoning regulations support safe airport operations while guiding responsible growth in surrounding communities.

Airport zoning regulations are required for airport hazard areas, as established under TCA Title 42, Chapter 6. The regulations suggest airport zoning regulations include:

- Height restrictions to preserve navigable airspace.
- Land use controls to prevent incompatible activities such as dense residential development, schools, or hospitals in safety zones.
- Density limits reduce the concentration of people within areas most exposed to risk.
- Wildlife hazards controls which prohibit or restrict landfills, storm-water impoundments, or agricultural practices that attract birds.



Required Elements

Effective airport zoning regulations rely on a set of foundational elements designed to protect airport operations and guide compatible land use.

While local governments may adopt additional elements as part of their airport zoning regulations, they are required to include the following elements:

Applying zoning regulations directly to the designated airport hazard area

- An airport hazard area is the land and airspace surrounding an airport where certain uses, structures, or natural features could interfere with safe aircraft operations.
- Dividing the area into zones allows for tailored management of specific risks and conditions within the zone.

Define permitted land use in each zone

- Clear definitions prevent incompatible development such as residential housing or industrial activities that could conflict with airport operations.

Enforce height restrictions to protect navigable airspace

- Height limits safeguard against hazards like radio towers, tall buildings, or vegetation growth that could interfere with takeoffs and landings.

These elements work together to maintain a safe and efficient airport environment while supporting thoughtful land use planning.

Incorporating Federal Guidance

The remainder of this Chapter will provide further information about the required elements of airport zoning regulations in Tennessee. The statute does not specify details for each required element. Therefore, the guidance in this Chapter provides suggestions for how to incorporate each required element:

- The statute requires airport zoning regulations to divide the airport hazard area into zones. It does not specify what those zones should be, or should be based on. Therefore, the guidance in this Chapter provides a suggestion for how to divide these zones, which should not be confused as a requirement for how local governments must divide the zones.
- The statute requires airport zoning regulations to define permitted land uses within each zone. It does not specify what those land uses should be. Therefore, the guidance in this Chapter provides suggestions for permitted land uses, which should not be confused as a requirement for what land uses local governments must permit within the zones.

The distinction between what is required and what is suggested to implement this requirement is emphasized within each sub-section.

Airport Hazard Areas

Airport hazards are conditions on land or water that can interfere with safe aircraft operations. These hazards may include blocked visibility, interference with navigation or communication systems, weather-related conditions, wildlife attractants, tall structures or vegetation, and development patterns that increase sensitivity to aircraft noise or vibration. Such conditions can affect an aircraft’s ability to take off, land, or maneuver safely.

Under Tennessee State law (TCA Title 42, Chapter 6, § 42-6-103), any city or county with an airport hazard area within its jurisdiction is required to adopt and enforce airport zoning regulations. An airport hazard area is defined as any area of land or water where an airport hazard could be created if not prevented as provided in the statute. These regulations may divide hazard areas into zones, specify permitted and prohibited land uses, and establish height limits for buildings and trees to preserve navigable airspace.

By applying airport zoning regulations, communities can address potential hazards early and prevent incompatible development before it occurs. Height and land use controls, often implemented through airport overlay zones, help protect flight paths, maintain navigational safety, reduce risks to aircraft and nearby residents, and support responsible airport growth.

Airport Hazard Area - Zones

To manage land use compatibility and protect airport operations, the airport hazard area may be divided into zones. While TCA Title 42, Chapter 6 does not prescribe specific zoning categories or boundaries, it allows flexibility in how local governments structure these zones. In practice, airports must establish several designated safety areas to ensure safe and efficient aircraft operations. These areas must be controlled either through fee simple ownership or easement, by the airport. The airports are responsible for maintaining these zones and ensuring they remain free of obstructions and incompatible land uses. The airport layout plan (ALP) along with other planning documents, provides guidance for designing and clearing these safety areas, while airport zoning regulations help protect areas that lie outside the airport’s direct control.

The following five recommended zones are provided below as an option to implement this requirement.

- 1
- Runway Protection Zone (RPZ)-** The area off the end of the runway end designed to provide a clear area that is free of above ground obstructions and structures to enhance the protection of people and property on the ground. Zone A is intended to provide a clear area that is free of above-ground obstructions and structures.
- 2
- Runway Approach-** A critical overlay surface that reflects the approach and departure areas for each runway at an airport. The approach surface is longitudinally centered on the extended runway centerline, extending outward and upward from the end of the runway. The approach slope for visual runways is 20:1 for a distance of 5,000 feet.
- 3
- 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.
- 4
- Horizontal Surface-** The horizontal surface is a horizontal plane located 150 feet above the established airport elevation and begins at the edge of the transitional surfaces and primary surface for a distance of 5,000 feet for visual approach runways.
- 5
- 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 distance of 4,000 feet. It is the outermost zone of the overlay areas and has the least number of land use restriction considerations

Defining Permitted Land Uses Within Each Zone

As noted earlier, the statute requires airport zoning regulations to define permitted land uses within each zone. It does not specify what those land uses should be. The following guidance regarding compatible and incompatible land uses are provided as an option to be permitted or not permitted within each zone, as required by statute.

Some land use types are generally considered more compatible with airport proximity than others. Recommended general categories of land use types are provided in Table 1 with an indication of their level of compatibility with each of the previously provided suggested zones. Land uses defined in Table 1 as compatible within the subject zone are generally considered compatible if the proposed development follows all provisions of the local government’s airport zoning regulations. These land uses are suggested as being allowed within their identified zones within the local government’s airport zones. The land uses identified as incompatible within the subject zone are suggested as not being allowed. Several uses may be considered compatible or incompatible after further review by the Airport Zoning Administrator. Those uses are identified in Table 1 as review required and are more context-dependent.



These zones can work together to form a comprehensive overlay system that supports safe airport operations and guides compatible development in surrounding areas.

Table 1: Land Use Compatibilities

Land Use	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
	RPZ	Approach	Transitional	Horizontal	Conical
Residential	✗	🔍*	🔍*	✓	✓
Single- Family	✗	✗	🔍*	✓	✓
Multi- Family	✗	✗	🔍*	✓	✓
Group Living	✗	✗	🔍*	✓	✓
Mobile Homes	✗	✗	🔍*	✓	✓
Hotels	✗	✗	🔍*	✓	✓
Institutional					
Schools and Educational Facilities	✗	✗	🔍*	✓	✓
Day Care Facilities	✗	✗	✗	🔍	✓
Hospitals	✗	✗	✗	🔍	✓
Other Medical Facilities	✗	✗	🔍	✓	✓
Religious or Cultural Assembly (Large)	✗	✗	🔍*	✓	✓
Schools and Educational Facilities	✗	✗	🔍*	✓	✓
Commercial					
Professional Offices	✗	🔍	🔍	✓	✓
Shopping Malls	✗	✗	🔍	✓	✓
Other Retail	✗	🔍	🔍	✓	✓
Restaurants	✗	🔍	🔍	✓	✓
Fairgrounds, amusement parks, theaters, casinos	✗	✗	✗	🔍	✓
Arenas, Stadiums, Racetracks	✗	✗	✗	🔍	✓
Industrial					
Light Industrial	✗	🔍	✓	✓	✓
Heavy Industrial	✗	✗	🔍	✓	✓
Waste (hazardous waste, landfills, solid waste transfer stations, commercial composting, underwater wastewater discharge, wastewater treatment)	✗	✗	✗	🔍	🔍
Agriculture					
General Agriculture	🔍	🔍	🔍	✓	✓
Commercial Livestock Operations	✗	✗	✗	🔍*	✓
Aquaculture	✗	✗	✗	🔍*	🔍*
Resource Extraction					
Mining	✗	🔍	🔍	✓	✓

✗ Incompatible 🔍 Review Required ✓ Compatible * Noise- sensitive Uses

Establishing Height Limitations Within Zoning Areas

Airport zoning regulations are required to establish height limits for each zoning district so property owners and developers can clearly understand when a proposed project may conflict with airspace protection requirements. Developers proposing new construction or alterations near airports are encouraged to use the Federal Aviation Administration’s Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) system, which reviews projects to determine whether they could create hazards to air navigation or interfere with safe aircraft operations. In addition, TCA Title 42, Chapter 6 (§ 42-6-103) authorizes local governments to restrict the height of structures and vegetation to prevent the creation of airport hazards.

A key federal standard supporting these efforts is 14 Code of Federal Regulations (CFR) Part 77, which establishes criteria for identifying obstructions to navigable airspace. Part 77 defines when structures or natural growth may interfere with aircraft operations and requires notification to the FAA for certain construction projects near airports. For example, notification is required for construction exceeding 200 feet above ground level, as well as for projects located within defined distances of airports or heliports that exceed specified height thresholds based on runway length and approach type. Highways, railroads, and other transportation corridors that exceed adjusted height standards are also subject to review. Failure to comply with Part 77 notification requirements may result in civil penalties under federal law.

Height restrictions are a critical component of airspace management. They help preserve safe flight paths, reduce risks to aircraft, and maintain clear zones around runways and approach surfaces. Local governments may also limit or require the removal of tree growth on private property when necessary to protect navigable airspace. Together, these measures support aviation safety while helping communities manage development pressure near airports. To assist with these reviews, the FAA provides an online Criteria Tool to help determine whether proposed projects may require additional FAA coordination.

Where to Adopt Airport Zoning Regulations

Airport zoning regulations should be formally adopted within local comprehensive plans and municipal zoning codes to ensure they carry the same authority as other land use controls. This adoption process occurs through regular planning channels, where city and county governments update their plans and ordinances to reflect State statutes and FAA guidance. By including airport zoning into existing planning framework, communities integrate height restrictions, safety zones, and land use compatibility standards with other development policies. This approach allows airport zoning regulations to function as part of the overall planning system, making them effective in guiding growth around airports.

Implementing effective airport zoning regulations requires coordination across multiple planning layers to promote land use compatibility and aviation safety. Local land use plans provide the foundation for identifying appropriate development patterns around airports, while comprehensive plan updates offer opportunities to integrate airport-related goals and future expansion into broader community planning efforts. Airport zoning regulations, as adopted under State statute, serve as the primary tool for regulating land use and height restrictions within airport hazards areas. In addition to this, other land use regulations such as subdivision regulations, development agreements, building codes, and transfer of development rights can be applied to manage development more precisely. Together these planning strategies guide where and how zoning regulations should be adopted to protect airport operations and support compatible growth and development.

Zoning Ordinances

Ordinances related to zoning are established and enforced by local governments, with small and large model ordinances differing based on airport characteristics such as airspace protection zones, runway dimensions, and the level of land-use compatibility standards needed to align with an airport’s activity level and aircraft size. To support communities in this process, TDOT has developed state-compliance model ordinances that local communities may consider adopting in their zoning ordinances. These model ordinances are included in [Appendix B: Model Ordinances](#) of this guidebook for reference. Local government can adapt them to fit their specific planning needs and community context.

Local Land Use Plan

Local land use planning plays a vital role in shaping development around airports to promote safety, compatibility, and long-term operational integrity. Land use planning involves evaluating and regulating how land near airports is used, with particular attention to factors such as noise impacts, structure height, wildlife hazards, and potential interference with navigable airspace.

Planning for local land use involves balancing the needs and priorities of residents while ensuring that communities with airports adopt and implement airport zoning regulations as required by law. Local land use regulations support aviation safety by establishing height limits for structures and vegetation, preventing development that could interfere with navigable airspace, and guiding compatible land uses around airport facilities. These regulations also help prevent incompatible infrastructure within airport influence areas, promoting both community wellbeing and the safe operation of aviation activities. In this way, local land use planning helps protect residents’ quality of life while safeguarding the long-term viability of airports.

Responsibility for local land use planning rests with local governments and elected officials. These entities oversee zoning and land use controls and review development proposals to ensure they align with aviation safety and operational needs. Their role also includes coordinating with airport staff during early stages of airport master planning to identify potential impacts and ensure future airport projects are considered in local land use planning decisions.

Key components of local land use planning in the airport context include:

Zoning and Land Use Regulation: Establishing rules that guide what types of development are permitted near airports and under what conditions.

Noise and Safety Impact Review: Evaluating how proposed land use may be affected by or contribute to aviation related noise and safety concerns.

Height and Obstruction Controls: Helping prevent interference by buildings, trees, and other structures in protected airspace or flight paths.

Wildlife Hazard Management: Preventing land uses that attract wildlife and pose risks to aircraft operations.

Interagency Coordination: Facilitating communication between airport authorities and local jurisdiction to align planning efforts and resolve conflicts.

Comprehensive Plan Update

Updating the local comprehensive plan is a critical step in maintaining land use compatibility around airport facilities. Aviation is a key component in the broader transportation system; airport development goals should be incorporated into community planning efforts rather than treated as separate or standalone initiatives.

Local governments and elected officials are responsible for preparing and updating comprehensive plans. By integrating airport elements into these plans, communities create a framework for coordinated growth, informed decision-making, and land use regulation that reflects the evolving relationship between airports and the regions they serve.

Airport Zoning and Overlay Zoning

Airport zoning and overlay zoning are tools used to adopt and implement airport zoning regulations. Standalone airport zoning allows local governments to create ordinances specifically for airports, defining and permitting land uses that are generally compatible with airport operations, such as industrial uses. This approach is most practical in new or growing communities where underlying zoning can be established before development occurs.

Overlay zoning imposes specific standards within a defined area without changing the underlying zoning of the property. While the base permitted uses remain the same, additional regulations apply within the overlay zone. For example, an airport compatibility overlay zone may prohibit or conditionally allow noise-sensitive uses, depending on mitigation measures. It is important that overlay zoning boundaries align with areas affected by airport impacts. Noise regulations should correspond to airport noise contours, while height restrictions should follow critical airspace boundaries. Overlay zoning is best used in established communities where the public may oppose changes to the underlying zoning already in place.



Other Land Use Regulations

Other land use regulations can be applied where greater compatibility is needed beyond what zoning alone can offer. Tools such as subdivision regulations, development agreements, and building codes allow for more detailed control over how land is developed and used. When combined with broader measures like airport zoning, these regulations help promote a higher level of protection for airport operations and surrounding communities.

Subdivision Regulations

Subdivision regulations set planning requirements for undeveloped land including utility layout, right-of-way, aviation easements, lot layout, and other elements in land planning. Subdivision regulations can promote compatibility in sensitive areas by securing aviation easements before development and requiring property disclosures. This solution does not define or establish where new subdivisions can be placed (that would require zoning) but can help limit incompatibilities with residential developments there are no options to move or prohibit them.

Development Agreements

A development agreement is a binding contract, entered voluntarily between a local government and a property owner or developer, that regulates how one or more land parcels will be developed. Authorized by statute, ordinance, or code, these agreements serve the public interest by ensuring projects support health, safety, welfare, and economic goals. They can be an effective airport land use compatibility tool, allowing governments (and airport sponsors) to negotiate requirements such as permitted land uses, building heights and density, open space, or lighting standards. Development agreements are often more comprehensive, incorporating Codes, Covenants, and Restrictions (CC&Rs), aviation easements, and other provisions. By setting clear expectations, they promote growth that is compatible with the airport environment while protecting both aviation operations and community quality of life.

Building Codes

Building codes can support compatibility by defining allowable building materials and methods. Specifically, building codes can be helpful in establishing requirements for sound insulation of noise-sensitive issues (such as increased insulation for residential and institutional uses, higher quality windows and doors with higher sound ratings, etc.) and defining allowable exterior building materials (such as limiting large amounts of reflective exterior materials to minimize glare). The application of building codes is limited to new development, unless current incompatible development requires rehabilitation or expansion, which would trigger the need to meet new building code requirements.

Transfer of Development Rights

Transfer of Development Rights (TDR) programs are intended to guide development of properties by allowing a municipality to permit a developer to “transfer” levels of development density or intensity to another geographic location. As an example, if a comprehensive plan identifies an area as high density residential, and this area is now subject to significant noise, the area of concern can now be changed to low density and the developer will be then permitted to construct the higher-density development in another location that would otherwise have not been permitted.

Guidance for Communities Without Any Zoning in Place

Communities without zoning regulations are often referred to as having unrestricted properties, meaning there are no local laws governing how land can be used. In these areas, property owners generally have the freedom to develop land as they see fit, which can pose challenges near airport where land use compatibility is critical for safety and efficiency. To help guide development in such communities, the Tennessee Code Annotated (TCA) – Title 42, Chapter 6- Airport Zoning provides a framework for protecting airport operations and surrounding areas. [Appendix A: Literature Review](#) of this statute offers further detail on airport zoning regulations that can be applied even in the absence of broader municipal zoning.

Property Acquisition

While land use regulations like zoning, overlay zoning, building codes, and subdivision regulations serve their purpose, some cases of incompatibility can best be solved if an airport acquires the property to control land use. One of the benefits of acquiring land or property rights is that it generally provides airports perpetual control over the land, while land use regulations can be less resilient in the long run, becoming outdated in relation to new compatibility standards or changing land use plans.

Fee Simple Purchase

The most straightforward way to acquire control over property is to purchase it using fee simple purchase. Put simply, this is the complete acquisition of an entire property, the structures on it (if any), and the air rights above and the mineral rights below. Due to the costs and other challenges associated with property purchase, the FAA recommends airport sponsors focus on owning the property within the Runway Protection Zones (RPZs) and Object Free Areas (OFAs) 4 which are introduced in Chapter 1, as they are the most sensitive to disruption from incompatible uses.

Purchase of Development Rights

When fee simple purchase is not a possible, airport sponsors may consider another acquisition strategy known as Purchase of Development Rights (PDR) where an airport purchases the right to develop the subject property (in perpetuity). This allows the property owner to retain the ownership of the land but they cannot develop it. This may be more effective in rural areas where the development rights can be purchased for less than traditional fee simple purchase. However, in more developed communities, the value of the development rights may be equally as expensive as acquiring the property outright

Avigation Easements and Conservation Easements

Another effective tool relating to property acquisition is the use of easements. Easements are rights acquired to land that are established through deed, contract, or contractual agreement, allowing an airport to actively control incompatible use, prevent future issues, prevent litigation, and raise public awareness of airport operations. Two common strategies used are avigation and conservation easements. In some cases, easements may also include a hold-harmless clause which protects the airport from future legal claims associated with the airport. Hold-harmless agreements and nonsuit agreements are discussed separately in the Disclosure and Notifications section as these strategies can also be pursued separate from an easement.

Avigation easements give airports more flexibility and positive control of land use compared to zoning but are less complex and usually less expensive than outright ownership. Airports will purchase avigation easements which notify property owners of the proximity to airport activities and the rights that have been purchased to allow related activities (aircraft overflight, noise, vibrations, dust, etc.) over the property. Avigation easements also allow airports the right to remove obstructions like trees, vegetation, or structures on properties to ensure protection of airspace.

Conservation easements can require land to remain in an undeveloped condition or prevent certain types of development or uses. As an example, if an airport acquires easements for agricultural land, the current owner will retain the title of the land and be permitted to use the land only for this purpose. This type of easement is best suited for agriculture, wetlands, forest, or other protected environments and in some cases can be less expensive to acquire than purchasing development rights. Easements can become less effective when the land is under development pressure and fair market value is difficult to establish.



Enhancing Compatibility

This section focuses on building the required elements of airport zoning regulations by outlining strategies to identify and strengthen airport protection and community compatibility. It provides general guidance on how to approach airport zoning by identifying, implementing, and enhancing its required elements. As a reminder, these elements include identifying airport hazard areas, defining permitted land uses, and enforcing height restrictions to protect airspace.

The steps below represent the general process for implementing additional strategies to enhance compatibility. For some airports and communities, the implementation of land use protections requires intermediate steps to be repeated to fully understand which strategies are most effective and how to implement them.

Step 1. Identify existing compatibility measures

Airports and local governments should begin by identifying the compatibility measures already in place. This process often overlaps with other State and federal requirements, as airports must document efforts that meet grant assurances and regulatory requirements. Common compatibility measures for managing land use include airport zoning ordinances and building codes, while less common mechanisms such as rights of first refusal or avigation easements may also apply. Regardless of approach, it is essential for communities to understand what, if any, measures exist under their control, even if that were adopted many years ago.

After identifying existing measures, the community can move to the next steps by using future community plans and anticipated growth as context to examine airport zoning measures for gaps, evaluate enforcement practices, and work with relevant stakeholders to establish and implement an improvement plan.

For example, if an airport overlay zone has been in place for years in a community but due to staff turnover the local government planners are unaware of additional restrictions, the solution might be as simple as bringing awareness to the staff approving site plans and permits.

In many cases, strengthening existing measures is more efficient than adopting new restrictions.

Step 2. Understand future plans for airport and community growth

Enhancing compatibility requires addressing current issues while also anticipating how both airports and surrounding communities may grow. Once incompatible development occurs, it is often difficult and costly to correct, making early coordination essential. Airport master plans and ALPs identify existing infrastructure and anticipated changes, such as runway extensions, safety areas, and airspace surfaces. At the same time, county comprehensive plans and municipal general plans define how communities intend to expand, including land use priorities and transportation networks.

The key is to use these planning tools together to understand how airport growth may affect surrounding properties and how community growth may, in turn, influence airport operations.

For example, airport expansion may require adjustments to nearby road networks, while increased activity could mean more frequent aircraft noise. Likewise, community plans may designate industrial land near airports or improve multimodal access

By integrating airport and community growth plans, local governments, airports, and developers can align priorities, prevent future incompatibilities, and ensure that both aviation and community needs are met.

Step 3. Acknowledge the compatibility issues which are most prevalent/concerning

Chapter 1 introduced the five main characteristics of incompatible land uses: noise, tall structures, visual obstructions, wildlife attractants, and population density. While some airports and communities may face only one of these challenges, others may encounter several at once. Airports often have limited resources; it is important to prioritize the most pressing issues to maximize the impact of land use strategies.

Input from frontline stakeholders and the public is essential in determining which concerns are most prevalent. The public typically focuses on noise unless safety issues are evident, while airports often emphasize building height restrictions to protect approaches and airspace. Developers may resist density limits, and local governments may encourage growth to expand the tax base, even when it conflicts with airport needs.

Engagement can occur formally through public hearings or advisory committees or informally, such as airport open houses. These discussions help airports and communities identify priority compatibility issues and agree on strategies to address them.



Step 4. Determine strategy or strategies most applicable to those compatibility issues

Once an airport and community have determined which compatibility issues are the most prevalent and necessitate action. This effort can be supported by:

- Becoming familiar with commonly applied land use compatibility strategies
- Understanding the strengths and limitations of various strategies in relation to the airport or community's current and future conditions
- Continuing to involve frontline stakeholders and the appropriate groups of the general public
- Referring examples of how other airports and communities have enhanced land use compatibility. One source is [ACRP Report 27: Enhancing Airport Land Use Compatibility, Volume 2: Land Use Survey and Case Study Summaries](#).

Questions to help airports/communities assess strategies for implementation

It may be helpful for airports and communities to answer some of the following example questions (in no particular order) when assessing which strategy or strategies to implement:

- Does the airport own all the property within their Runway Protection Zones (RPZs)?
- Is the airport sponsor also the land use authority for the municipality/county?
- Is the community supportive of the airport?
- Is the airport already encroached with surrounding development?
- Does the airport currently receive noise complaints?
- Does the airport impact more than one municipality (town, city) or county? Are those local governments/communities supportive of the airport and open to multi-jurisdictional solutions?
- Is the community facing high development pressure?
- Is fair market value of surrounding property difficult to establish?

These questions help identify factors unique to each airport and community when evaluating land use strategies. Airports and local governments will lead this process, but stakeholder outreach is essential for gaining support and ensuring effective implementation. Some measures may only involve nearby property owners (e.g., airport zoning, building code revisions).

Figure 8 illustrates some example strategies based on local conditions. The chart is not exhaustive but illustrates common scenarios and applicable options. Not all strategies need to be implemented, and in some cases a single measure such as airport zoning can address multiple issues.

Figure 8. Example Strategies Based on Local Conditions



Step 5. Implement strategy or strategies

Once an airport and community have determined the land use measures most applicable to their local conditions, the implementation of those strategies can begin. Some strategies require only a one-time action (e.g., fee simple purchase or avigation easements), while others demand ongoing coordination with local governments and public engagement (e.g., drafting or amending an airport zoning ordinance with a public hearing for adoption). Ideally, local governments will already have been involved in earlier steps, so strategies require their support such as updating building codes, subdivision restrictions, or deed restrictions are unexpected.

After adoption, enforcement and monitoring are vital. For example, if a community revises building codes to require higher sound-insulated windows for new residential and institutional uses, planning staff and inspectors must ensure compliance. Similarly, if an airport has purchased avigation easements nearby, it must monitor structure heights to prevent airspace intrusions (e.g., trimming trees that grow into the purchased easement).

With the exception of fee simple purchase, property acquisition, purchase of development rights, and some disclosure/notifications, most strategies require ongoing monitoring to ensure proper enforcement. Whether protections already exist or new ones are being implemented, consistent oversight is key.

Figure 9. Summary of Additional Strategies to Enhance Compatibility



CHAPTER 2 WRAP-UP

Adopting airport zoning regulations that comply with TCA requirements is essential, as they provide a clear framework for defining compatible and incompatible land uses and are enforceable as local laws. These regulations establish the basis for protecting navigable airspace and guiding community development around airports. This section focuses on:

- Required elements
 - Applying zoning regulations directly to the designated airport hazard area.
 - Define permitted land use in each zone.
 - Enforce height restrictions to protect navigable airspace.
- Guidance for drafting Ordinances
 - This guidebook provides guidance for developing compliant airport-hazard zoning regulations.
 - [Appendix B: Model Ordinances](#) which offers example ordinances for small and large airports.
- Local comprehensive plans and land use plans, helps by providing context zoning requirements and planning efforts.
- Where to adopt local ordinances
 - Local comprehensive plans
 - Municipal zoning codes
 - Land use plans
- Enhancing compatibility involves identifying current compatibility conditions, understanding future growth plans for both the airport and the community, recognizing incompatible land uses and their impacts, and developing strategies to manage or mitigate those incompatibilities.

CURRENT COMPLIANCE WITH STATE AND FEDERAL LAW

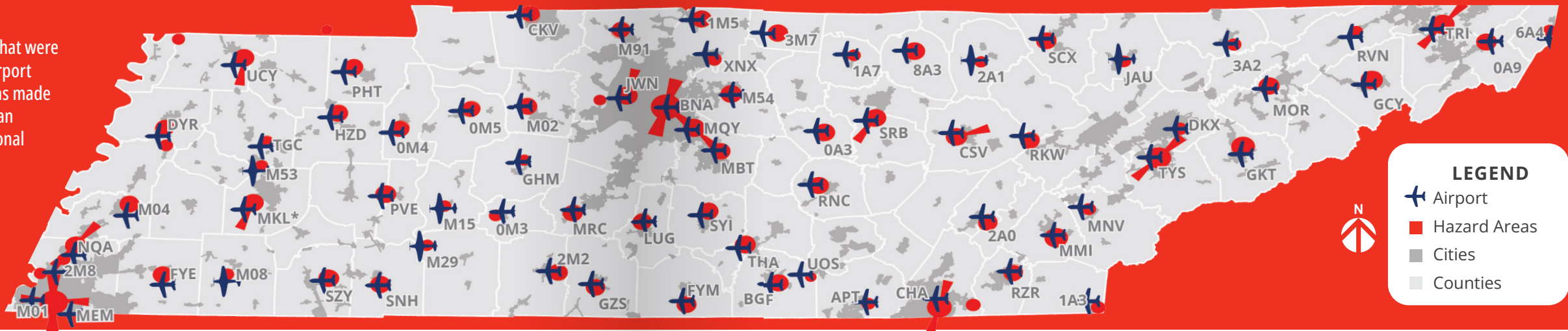
Building on the fundamentals of airport land use compatibility, it is important to understand how existing State statutes and local regulations are currently being adopted and enforced. Reviewing the extent of airport zoning implementation across Tennessee provides valuable context for identifying gaps, assessing sufficiency, and determining where enhancements may be needed. This foundation sets the stage for discussing the core principles of compatibility and how airports and communities can work together to address land use challenges effectively.

As part of the effort to determine enhancements to State statute, it is important to determine the adoption and enforcement of the existing State statute. Considerations for enhancement are guided by the existing adoption rate of airport zoning regulations in Tennessee. This will guide the implementation of a potential new State statute, as existing regulations may need to be updated, and municipalities that are required to have airport zoning regulations but do not may need additional assistance.



There are 166 municipalities in the State that were determined to be required to maintain airport zoning regulations. This determination was made by analyzing the municipalities that have an airport hazard area within their jurisdictional boundaries shown in **Figure 10**.

Figure 10. Airport Hazard Areas in Tennessee



Only 44 of the 166 identified municipalities have adopted airport zoning regulations that were accessible online, as of April 2025. These 44 sets of airport zoning regulations cover 39 unique airports. It is possible for an airport to be included in more than one set of airport zoning regulations; for instance, the airport may be located in a city, which has airport zoning regulations, but the county may also be required to adopt airport zoning regulations because the airport hazard area from that airport extends into their jurisdiction. Airport zoning regulations for the remaining 122 municipalities were unable to be located online.

The following section documents the findings of a sufficiency review for the 44 municipalities that have adopted airport zoning regulations as required. This sufficiency review identifies whether airport zoning regulations include items identified specifically by State statute, including:



Addressing airport hazard areas



Dividing the area(s) into appropriate zones



Specifying land uses within those zones



Height restrictions

The municipalities that have airport zoning regulations that were able to be located were reviewed as part of this sufficiency review and include the following:

- | | | | |
|--------------------------|----------------------|------------------------|-----------------------|
| • Bedford County | • City of Smyrna | • City of Clarksville | • Dyer County |
| • Blount County | • City of Winchester | • City of Cleveland | • Fayette County |
| • Bradley County | • Hamblen County | • City of Crossville | • Gibson County |
| • City of Chattanooga | • Hamilton County | • City of Elizabethton | • Hardeman County |
| • City of Collegedale | • Hickman County | • City of Lawrenceburg | • Lincoln County |
| • City of Gallatin | • Monroe County | • City of Memphis | • Madison County |
| • City of Humboldt | • Shelby County | • City of Millington | • Montgomery County |
| • City of Jackson | • Sumner County | • City of Murfreesboro | • Robertson County |
| • City of Lebanon | • Tipton County | • City of Nashville | • Sullivan County |
| • City of Mount Pleasant | • Warren County | • City of Springfield | • Town of Centerville |
| • City of Portland | • City of Bolivar | • City of Tullahoma | |

State Statutory Compliance

State and federal compliance requirements provide a critical foundation for safe aviation practices and help ensure that surrounding communities remain protected and efficient. 14 CFR Part 77 outlines federal standards for identifying and managing obstructions to navigable airspace, requiring notice to the FAA for certain structures and providing criteria for evaluating potential hazards.

At the State level, Tennessee Code Annotated (TCA) Title 42, Chapter 6 (referenced in [Appendix A: Literature Review](#)) emphasizes that airport zoning regulations must apply to designated airport hazard areas through local ordinances. These areas are subject to safety and obstruction limitations and form the basis for effective zoning.

Across Tennessee, 37 to 44 municipalities have identified airport hazard areas in their regulations.

Of those, 36 have further divided these areas into zones based on proximity to runways and flight paths. However, only 34 have specified permitted and prohibited land uses within each zone. Height restrictions essential for preserving navigable airspace are included in all but three municipal codes.

FAA Advisory Circulars (referenced in [Appendix A: Literature Review](#)) support these efforts by offering guidance on compatible land use and obstructions mitigation, helping local governments align with federal expectations.

CHAPTER 3 WRAP-UP

A clear understanding of how State statutes and local regulations are adopted and enforced provides the foundation for discussing core principles of compatibility and how airports and communities can collaborate to address land use challenges. This section focuses on:

- An assessment of municipalities required to adopt airport zoning regulations.
- The factors necessary for compliant airport zoning regulations.
- A determination of which airport zoning regulations are deemed sufficient under this review.

ENCOURAGING COMMUNITY SUPPORT

Effective communication and public engagement are essential as communities work to adopt airport compatible zoning regulations in response to the evolving aviation industry. Implementing new zoning standard requires thoughtful outreach to stakeholders including nearby residents, developers, and the airport representatives to ensure shared understanding of how these regulations support safety. Although aviation activity has historically been confined within airport boundaries, new technologies and expanded use cases are introducing aviation activity into areas not previously served. Clear communication helps residents and developers understand why updated zoning is necessary to manage noise protect airspace and prevent incompatible land use. Creating a space that stimulates and promotes dialogue allows for concerns to be addressed and understood. Making sure to build awareness and trust is essential to promoting aviation development that aligns with public interests and long-term community goals.



Airport Coordination with Local Interests

Coordinating airport planning with community interests is essential for fostering mutual understanding and long-term compatibility. By engaging with local residents and stakeholders, airports can better understand what the community values and proactively address concerns such as noise, traffic, and environmental impacts. This collaboration helps prevent airport operations from becoming a significant disturbance and instead promotes their positive contributions to the region. When community input is considered in airport planning and development, it builds trust, strengthens relationships, and encourages public support for future projects. Ongoing dialogue also allows airports to align their growth with local priorities, creating a shared vision that balances operational needs with quality of life for nearby residents.

Educating Frontline Stakeholders and the General Public

Educating stakeholders and the general public is essential to the successful development and integration of airport projects, as emphasized earlier in this guidebook. As airports evolve and expand, local governments must make efforts to build public understanding and trust. By prioritizing inclusive outreach and long-term involvement, local decision-makers can cultivate strong public support and guide airport development in ways that reflect community values and priorities.

Common Outreach and Education Methods

Outreach and education are essential for building understanding and trust between airports and the communities they serve. By creating a space for open dialogue and meaningful participation, the efforts listed below would help connect project goals with public priorities and ensure that aviation development is responsive to community needs.

- **Large-Scale Public Meetings** can be used when new airports or land use changes occur; they raise awareness, share the project vision, and create space for questions.
- **Small- Targeted Group Discussions** help with individuals or groups directly impacted; they build trust, address specific concerns, and provide tailored education.
- **Informational Sessions** are organized to explain aviation facilities, activities, and initiatives; they encourage dialogue and community feedback.
- **Interactive Engagement Materials** can be used during meetings to foster meaningful participation and strengthen connections between airports and the public.

Airport Community Engagement

Community engagement for airport zoning initiatives is a valuable way to build stronger relationships with residents and stakeholders. Creating opportunities for engagement that emphasizes safety allows individuals to learn about proposed changes and offer their support. Zoning decisions can directly impact residential areas through changes in noise levels, traffic flow, or land accessibility, making it essential to keep residents informed and involved. When people feel educated about potential changes and understand the impact they may cause them from the beginning, they are typically more accepting, prepared, and invested in the outcome. Ultimately, thoughtful engagement transforms zoning from a bureaucratic process into a collaborative effort that reflects community values and priorities.

Demonstrating the Airport’s Value

Airports play a critical role in connecting communities, supporting economic development, and ensuring public safety. Demonstrating core values such as respect, integrity, service, and excellence is essential to maintaining public trust and fostering long-term compatibility surrounding neighborhoods. Respect is shown through meaningful engagement with residents and stakeholders, listening to concerns, and valuing diverse perspectives. Integrity is reflected in transparent decision making, ethical planning practices, and a commitment to doing what’s right for both the airport and the community. Service is at the heart of airport operations, ensuring that the needs of travelers, businesses, and local residents are met with care and responsiveness. Excellence drives continuous improvement, innovation, and high standards in safety, sustainability, and customer experience. By adhering to these values, airports reinforce their role as responsible neighbors and collaborative partners in regional development.

CHAPTER 4 WRAP-UP

Incorporating the community into ongoing initiatives is a critical component of effective airport planning and operations. Engagement efforts strengthen public understanding, build support for airport activities, and foster collaboration between airports and surrounding communities. This section focuses on:

- Common outreach methods
 - Large-scale public meetings
 - Small-targeted group discussions
 - Informational sessions
 - Interactive engagement materials
- The role of airport community engagement.
- The importance of demonstrating the airport’s value.



CONCLUSION

Compatible airport land use is an important part of the aviation industry. Throughout this guidebook, it has been shown that compatibility matters both on and off the facility and requires coordination between the facility and neighboring communities to ensure operations do not disturb residents and can function properly. Addressing compatibility concerns helps reduce noise pollution and physical disturbances, and it allows aircraft to operate safely, without tall structures, wildlife, or visual obstructions in the way.

Communities that contain airport hazard areas that are considered incompatible are required to follow certain guidelines as previously described. Under T.C.A Title 42, an airport hazard area is any land or water area where an airport hazard could exist if not prevented. Communities must divide hazards into zones, identify permitted and prohibited land uses, and set height limits for buildings and trees to protect navigable airspace. Regulations must also include density limits to manage concentrations of people in certain areas. Wildlife hazard controls should also be included to limit or restrict landfills, stormwater impoundments, or certain agricultural practices.

Enhancing compatibility is another key topic discussed in this guidebook. To enhance compatibility, it is necessary to understand what incompatible land uses exist within the facility. Once these are identified, communities should consider strategies for addressing incompatible uses and improving the safety of the airport environment while reducing community disruption. It is also important to consider the future growth of both the airport and the community to maintain a suitable environment over time. Current conditions in Tennessee indicate that compliance with airport zoning requirements remains limited. Out of the 166 municipalities in the State that are required to maintain airport zoning ordinances, only 44 were identified as having regulations accessible online as of April 2025. This sufficiency review examined items specifically required by State statute, including whether municipalities addressed airport hazard areas, divided those areas into appropriate zones, specified permitted land uses within those zones, and established height restrictions. The remaining 122 municipalities did not have ordinances that could be located online.

Local government plays a major role in making sure compatibility between airports and communities is understood and actively enforced. Local governments should work with airport representatives and community members through public or private meetings to better understand expectations, needs, and any concerns related to the facility. They also play an important part in advocating airports and helping ensure that incompatible land uses are not developed near these facilities.



APPENDIX A: LITERATURE REVIEW

Tennessee Code Annotated (TCA) – Title 42, Chapter 6 – Airport Zoning

Tennessee Code Annotated (TCA) – Title 42, Chapter 6, Airport Zoning (Chapter 6) provides the statutory authority to require airport zoning regulations. The purpose of this statute is to guide municipalities and counties across the State to regulate land use and height around airports to protect against hazards that could impact airport operations. Chapter 6 serves as a guide for local governments to develop, implement, and enforce airport zoning ordinances. There are 15 major sections (not including the Chapter definitions) within Chapter 6, including:

- 1. Control of airport hazards is a public purpose
- 2. Airport zoning regulations for airport hazard area – Adoption - Enforcement
- 3. Relation to other zoning ordinances – Resolution of conflicts
- 4. Certification of zoning plan
- 5. Hearing on zoning ordinance – Notice – Approval or disapproval
- 6. Amendments to ordinance - Procedure
- 7. Board of appeals – Creation – Members – Term – Duties and jurisdiction
- 8. Parties to appeals – Powers of appeal board
- 9. Enforcement of ordinance – Remedies
- 10. Airport zoning regulations to be reasonable
- 11. Restriction on zoning regulations
- 12. Acquisition of air rights
- 13. Regulations and standards controlling over other laws
- 14. Zoning under special acts
- 15. Incompatible use prohibited – Airport noise compatibility plan not required

These sections are summarized in the following sections.

Chapter 6, Section 42-6-102, TCA – Control of Airport Hazards is a Public Purpose

Statute Language

“It is found that an airport hazard endangers the lives and property of users of the airport and of occupants of land 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 therein” (Chapter 6, Section 42-6-102(a), TCA).

Summary

Chapter 6 states that airport hazards impose a danger on the lives and property of airport users and the surrounding community. These hazards can also reduce the usable amount of pavement at an airport and thus restrict the positive utility and public investment that an airport offers. It is in the interest of public health, public safety, and general welfare of airport users that the creation of airport hazards is prevented.

Chapter 6, Section 42-6-103, TCA – Airport Zoning Regulations for Airport Hazard Area – Adoption – Enforcement

Statute Language

“In order to prevent the creation or establishment of airport hazards, every municipality or county having an airport hazard area within its territorial limits shall adopt, administer and enforce, under the police power and in the manner and upon the conditions prescribed in this chapter, airport zoning regulations for such airport hazard area, which regulations may divide such area into zones, and, within such zones, specify the land uses permitted and prohibited and regulated and restrict the height to which structures and trees may be erected or allowed to grow; provided, that these regulations are solely for the purposes of preventing airport hazards” (Chapter 6, Section 42-6-103(a), TCA).

Summary

Enforcement of airport zoning helps protect airport users and other members against airport hazards. Every municipality or county in Tennessee with an airport hazard area is required to adopt airport zoning regulations. Such regulations may divide the airport hazard into zones and may specify the land uses permitted and prohibited and regulated within those zones, as well as restrict height within those zones.

Statute Language

“Where an airport or an airport hazard area related to such airport, owned or controlled by a municipality, or established in cooperation with the appropriate federal agency, is located either partially or wholly outside the corporate limits of the municipality, the municipality owning or controlling the airport, and the county or counties within which the airport and the airport hazard area are located, shall adopt, by joint resolution, airport zoning regulations, or the county or counties shall authorize by resolution the adoption of such regulations by the municipality. The county or counties shall adopt regulations providing for enforcement by the municipality of the provisions of the ordinance” (Chapter 6, Section 42-6-103(b), TCA).

Summary

Where an airport hazard area overlaps jurisdictional boundaries, the jurisdiction owning the airport and the jurisdiction(s) into which the airport hazard area extends are required to adopt airport zoning regulations together, either by joint resolution, or the municipalities may adopt each others’ regulations. Chapter 6, Section 42-6-104, TCA – Relation to Other Zoning Ordinances – Resolution of Conflicts

Statute Language

“In the event a political subdivision has adopted, or hereafter adopts, a zoning ordinance... regulating, among other things, the height of buildings, any airport zoning regulations applicable to the same area or portion of the area may be incorporated in and made a part of the zoning ordinance, and be administered and enforced in connection therewith. (Chapter 6, Section 42-6-104(a), TCA).

Summary

Airport zoning regulations may be incorporated into existing zoning ordinances regulating, among other things, the height of buildings. This provides an additional pathway for municipalities or counties to adopt airport zoning regulations.

Statute Language

“In the event of conflict between any airport zoning regulations adopted under this law and any other zoning ordinance applicable to the same area, the more restricted limitation or requirement shall govern and prevail” (Chapter 6, Section 42-6-104(b), TCA).

Summary

It is important that the most restrictive ordinance regulates land uses, heights, and other zoning related matters near airports.

Statute Language

“Before the chief legislative body of a political subdivision may exercise the powers granted by § 42-6-103, the zoning plan shall be certified by the agency of the State government charged with fostering civil aeronautics and by a municipal or regional planning commission” (Chapter 6, Section 42-6-105, TCA).

Summary

Airport zoning plans must be certified by the TDOT Aeronautics Division and by a regional or municipal planning commission. Once this is done, the airport zoning plan may be enacted.

Statute Language

“Before enacting the zoning ordinance or any amendment thereof, the chief legislative body shall hold a public hearing on the ordinance or amendment, at least fifteen (15) days’ notice of the time and place of which shall be published in the official municipal journal or in a newspaper of general local circulation. No change in or departure from the text or maps as certified under § 42-6-103 shall be made, unless the change or departure is first submitted to the planning commission or office and approved by it or, if disapproved, receive the favorable vote of a majority of the entire membership of the chief legislative body” (Chapter 6, Section 42-6-106, TCA).

Summary

Public hearings are required before the certification and enforcement of airport zoning regulations or any amendments. The ordinance text and map cannot change once it has been submitted to the planning commission ahead of a public hearing.

Statute Language

“The zoning ordinance, including the maps, may from time to time be amended, but no amendment shall become effective unless it be first submitted to and approved by the agencies originally certifying the ordinance or, if disapproved, shall receive the favorable vote of a majority of the entire membership of the chief legislative body” (Chapter 6, Section 42-6-107, TCA).

Summary

Airport zoning regulations should be amended when there are changing land use compatibility factors impacting airspace and airport safety, noise, and overall airport growth. Once the amendments are made to the ordinance, it must be submitted for approval to the agency that originally certified the ordinance.

Statute Language

“The chief legislative body shall create a board of zoning appeals of three (3) or five (5) members, and shall specify the mode of appointment of members to the board and their terms, which terms shall be of such length and so arranged that the term of one (1) member shall expire each year. The compensation of the members of the board shall be as fixed by the members of the chief legislative body” (Chapter 6, Section 42-6-108 (a)(1) and (2), TCA).

Summary

Municipalities and counties that adopt airport zoning regulations must also have a board of zoning appeals for those airport zoning regulations. The municipality and county must specify the number of members, the mode and term of appointment, and the compensation of board members.

Statute Language

“...the board of zoning appeals shall be designated by the chief legislative body to hear appeals from airport zoning ordinances created under this chapter...The chief legislative body shall provide and specify, in its zoning or other ordinance, general rules to govern the organization and procedure and jurisdiction of the board of appeals, which rules shall not be inconsistent with this chapter; and the board of appeals may adopt supplemental rules of procedure, not inconsistent with this chapter or such general rules...The zoning ordinance may provide that the board of appeals may, in appropriate cases... make special exceptions to the terms of the zoning regulations in harmony with their general purpose and intent...The chief legislative body may also authorize the board of appeals to interpret the zoning maps and pass upon disputed questions of lot lines or district boundary lines or similar questions as they arise in the administration of the zoning regulations” (Chapter 6, Section 42-6-108 (b)(c)(d) and (e), TCA).

Summary

The board of zoning appeals created as part of this Chapter shall be required to conduct several duties, including hearing appeals from airport zoning regulations and developing general rules to govern the organization and procedure of the board. The board of zoning appeals may be given additional responsibilities, including:

- Adopting supplemental rules of procedure
- The power to make special exceptions to the terms of the airport zoning regulations, in harmony with their general purpose and intent
- The power to interpret zoning maps and pass upon disputed questions as the arise in the administration of airport zoning regulations.

Statute Language

“Appeals to the board of appeals may be taken by any person aggrieved or by any officer, department, board or bureau of the municipality or other political subdivision affected by any grant or refusal of a building permit or other act or decision of the enforcing official or other administrative official based in whole or in part upon the provisions of any ordinance enacted under this chapter” (Chapter 6, Section 42-6-109(a), TCA).

Summary

Individuals who may seek an appeal from the board of zoning appeals include any aggrieved person or any entity that is affected by the grant or refusal of a permit, or any other act or decision, that is enacted as part of airport zoning regulations.

Statute Language

“The board of appeals has the following powers: (1) To hear and decide any error appellant alleges to be in any order, requirement, permit, decision or refusal made by the municipal building commissioner or any other administrative official in carrying out or enforcing any provision of any ordinance enacted pursuant to this chapter; (2) To hear and decide, in accordance with the provisions of any such ordinance, requests for special exceptions or for interpretation of the map or for decisions upon other special questions upon which the board is authorized by any such ordinance to pass; (3) Where, by reason of exceptional narrowness, shallowness or shape of a specific piece of property at the time of the enactment of the zoning regulation, or by reason of exceptional topographic conditions or other extraordinary and exceptional situation or condition of such piece of property, the strict application of any regulation enacted under this law would result in peculiar and exceptional practical difficulties to or exceptional or undue hardship upon the owner of the property, to authorize, upon an appeal relating to the property, a variance from such strict application so as to relieve such difficulties or hardship; provided, that such relief may be granted without substantial detriment to the public good and without substantially impairing the intent and purpose of the zoning plan and zoning ordinance; and (4) In granting any variance or approving the issuance of any permit under this section, the administrative agency or board of appeals may, if it deems such action advisable to effectuate the purposes of this chapter and reasonable in circumstances, so 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 thereon.

Summary

- This section includes the four main powers of the board of appeals. In short summary, those include:*
- *To hear and decide whether an error has been made in carrying out or enforcing any provision of airport zoning regulations.*
 - *To hear and decide on requests for special exceptions to airport zoning regulations or any other special questions that arise as part of applying the provisions of the airport zoning regulations.*
 - *To grant a variance from any strict application of the ordinance that causes an undue hardship, provided that such relief may be granted without substantial detriment to the public good or intent of the airport zoning regulations.*
 - *In granting a variance, to require that the owner structure or tree in question install, operate, and maintain the necessary obstruction markers and lights.*

Chapter 6, Section 42-6-110, TCA – Enforcement of Ordinance – Remedies

Statute Language

“The chief legislative body may provide for the enforcement of any ordinance enacted under this chapter...A violation of any such ordinance is a Class A misdemeanor... In case any building or structure is or is proposed to be erected, constructed, reconstructed, altered, converted, or maintained, or any building, structure or land is or is proposed to be used in violation of any ordinance enacted under this chapter, the appropriate authority of the municipality or other political subdivision or any adjacent or neighboring property owner who would be specially damaged by such violation, may, in addition to other remedies, institute injunction, mandamus or other appropriate action or proceeding to prevent...or to correct or abate the violation or to prevent the occupancy of the building, structure or land.” (Chapter 6, Section 42-6-110(a), (b), and (c), TCA).

Summary

The municipality or county that adopts airport zoning regulations may provide for their enforcement. A violation of airport zoning regulations is a Class A misdemeanor. Further, in a case where a building or structure is proposed to be constructed or used in violation of airport zoning regulations, the municipality or county that adopted the airport zoning regulations or an adjacent or neighboring property owner who would be especially damaged by the violation (including the airport) may seek a remedy to correct or abate the violation or prevent its occupancy.

Chapter 6, Section 42-6-111, TCA – Airport Zoning Regulations to be Reasonable

Statute Language

“All airport zoning regulations adopted under this chapter shall be reasonable, and none shall impose any requirements or restrictions that are not reasonably necessary to effectuate the purpose of this chapter...In determining what regulations it may adopt, each political subdivision and joint airport zoning board shall consider, among other things, the character of the flying operations expected to be conducted at the airport, and the nature of the terrain within the airport hazard area” (Chapter 6, Section 42-6-111(a) and (b), TCA).

Summary

All airport zoning regulations adopted under this chapter must be reasonable and not impose any unreasonable regulations on property owners. When determining what to include in airport zoning regulations, the adopting municipality or county and joint airport board must together consider the character of flying operations expected to be conducted at the airport as well as the nature of the terrain within the airport hazard area.

Chapter 6, Section 42-6-112, TCA – Restriction on Zoning Regulations

Statute Language

“No airport zoning regulation 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 § 42-6-113” (Chapter 6, Section 42-6-112, TCA).

Summary

With some exceptions, nonconforming uses are to be grandfathered in when adopting airport zoning regulations.

Chapter 6, Section 42-6-113, TCA – Acquisition of Air Rights

Statute Language

“In any case which...it is desired to remove, lower, or otherwise terminate a nonconforming use; the approach protection necessary cannot...be provided by airport zoning regulations under this law; or 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...such an air right, easement, or other estate or interest in the property or nonconforming use in question” (Chapter 6, Section 42-6-113, TCA).

Summary

Acquisition of air rights is necessary when it is desired to remove, lower, or otherwise terminate a nonconforming use, airport zoning regulations cannot be implemented due to constitutional limitations, or when it’s advised that approach protection is provided through acquisition of property rights instead of airport zoning regulations.

Chapter 6, Section 42-6-114, TCA – Regulations and Standards Controlling Over Other Laws

Statute Language

“Whenever the regulations made under authority of this chapter require a lower height of buildings or impose other higher standards than are required in any other law, provision made under regulations or authority of this chapter shall govern” (Chapter 6, Section 42-6-114, TCA).

Summary

Chapter 6 is the prevailing authority for provisions relating to height obstructions.

Chapter 6, Section 42-6-115, TCA – Zoning Under Special Acts

Statute Language

“Nothing contained in this chapter shall be deemed to supplant or modify the provisions of any special or private act relating to the zoning or zoning powers of any municipality or county to which the special or private act is applicable, and all the provisions of the special or private act shall remain in full force and effect; but, insofar as this chapter is not inconsistent with the provisions of such special or private act, this chapter shall apply to the zoning powers and procedure of the municipality or county” (Chapter 6, Section 42-6-115, TCA).

Summary

There is nothing in this chapter that can supersede or modify the provisions of an existing special or private act related to the zoning or zoning powers of a municipality or county. Any provision under the special or private act must remain in full effect if the same location is under a different zoning ordinance.

Statute Language

“Notwithstanding this chapter or any zoning ordinance or resolution created under the powers granted... no structure shall be erected or use of land approved that would create an incompatible use. The appropriate local governing body shall give adequate notice to any affected airport governing body of any proposal for a zoning classification change or building variance before the local governing body considers the change or variance...Any airport that has not conducted an airport noise compatibility plan...shall not be required to conduct such a study, nor shall it be required to adopt zoning for purposes of addressing incompatible use...[this] does not apply in any county having a metropolitan form of government and having a population greater than one hundred thousand (100,000), according to the 1990 federal census or any subsequent federal census” (Chapter 6, Section 42-6-116, TCA).

Summary

In addition to preventing height obstructions, the Chapter states that incompatible uses are not permitted. Additionally, if an airport hasn’t already conducted a noise compatibility plan, such a plan is not required to adopt zoning regulations that address incompatible land uses. While incompatible land uses are prohibited, airport noise compatibility plans are not required. This requirement does not apply in any county with a metropolitan form of government and having a population of over 100,000.

Statute Language

“Land in a tourist resort county within nine (9) miles of the boundary of a national park established pursuant to 16 U.S.C. § 403 cannot be used as a heliport.” (Chapter 8, Section 42-8-102(a), TCA)

Summary

Land within nine miles of a national park boundary in a tourist resort county cannot be used as heliport.

Statute Language

“The department of transportation shall not issue or renew licenses pursuant to chapter 2 of this title for any heliport located on land subject to the prohibition in subsection (a), except that licenses may be renewed for heliport allowed to continue to operate under § 42-8-103.”(Chapter 8, Section 42-8-102(b), TCA)

Summary

The Department of Transportation cannot issue or renew licenses for any heliport on land within nine miles of a national park boundary in a tourist resort county, except for heliports that are allowed to continue operating under § 42-8-103.

14 Code of Federal Regulations (CFR), Part 77– Safe, Efficient Use, and Preservation of the Navigable Airspace

14 Code of Federal Regulations (CFR), Part 77– Safe, Efficient Use, and Preservation of the Navigable Airspace provides guidelines for protecting the airspace around airports. Protecting airspace around an airport is crucial to the safety and efficiency of aircraft operations at the airport. Controlled airspace helps prevent interference from obstacles such as tall buildings, drones, or unauthorized aircraft, which can create serious safety risks, cause delays, and disrupt services that rely on smooth air traffic operations. Part 77 outlines the requirements for notifying the FAA about certain proposed constructions or alterations that may affect navigable airspace; includes standards for determining obstructions to air navigation and navigational facilities, and details the process for conducting aeronautical studies to assess the impact of these obstructions on air navigation and the procedures for petitioning the FAA for discretionary reviews of determinations.

Part 77 is intended to establish:

- 1. Notification Requirements: Establishes the requirements for notifying the FAA about certain proposed constructions or alterations.
- 2. Obstruction Standards: Defines the standards used to determine obstructions to air navigation and navigational facilities.
- 3. Aeronautical Studies: Outlines the process for conducting aeronautical studies to assess the impact of obstructions on the safe and efficient use of navigable airspace.
- 4. Discretionary Reviews: Details the process for petitioning the FAA for discretionary reviews of determinations, revisions, and extensions of determinations.

Part 77.5 – Applicability

Part 77.5 outlines the applicability of notice requirements for proposed construction or alteration that may affect navigable airspace. The following provisions apply:

- 1. Any construction or alteration described in part 77.9 requires adequate notice to the FAA.
- 2. Supplemental notice may be required before commencement and upon completion of certain projects, if requested by the FAA.
- 3. Notices submitted under this subpart are used to:
 - Evaluate impacts on air commerce safety and airport traffic capacity.
 - Determine whether a proposed structure constitutes a hazard to air navigation.
 - Recommend marking and lighting per FAA Advisor Circular 70/7460-1
 - Identify additional safety measures for air navigation.
- Notify the aviation community and revise charts when necessary.

Part 77.7 Form and Timing of Notice

Part 77.7 outlines the applicability of notice requirements for proposed construction or alteration that may affect navigable airspace. The following provisions apply:

- 1. FAA Form 7460-1 must be completed and submitted for any construction or alteration requiring notice under Part 77.9.
- 2. The form must be submitted at least 45 days prior to the proposed start date or permit application date, whichever is earlier.
- 3. For projects also subject to Federal Communications Commission (FCC) licensing, notice must be submitted to the FAA on or before the FCC application date.
- 4. Structure exceeding 2,000 feet AGL are presumed to be hazardous and require justification for safety and airspace efficiency.
- 5. In emergencies involving public health, safety, or essential services, the 45-day requirement is waived. Notice must be given by any expeditious means, followed by a completed Form 7460-1 within 5 days. Outside normal hours, flight service stations may accept emergency notices.

Part 77.9 – Construction or Alteration Requiring Notice

Part.77.9 identifies specific types of construction or alternation that require FAA notification:

1. Any structure exceeding 200 feet AGL.
2. Any structure penetrating imaginary surfaces defined by
 - 100:1 slope within 20,000 feet of a runway longer than 3,200 feet.
 - 50:1 slope within 10,000 feet of a runway 3,200 feet or shorter.
 - 25:1 slope within 5,000 feet of a heliport
3. Traverse ways for mobile objects with adjusted height thresholds:
 - Interstate Highways: +17 feet
 - Other public roads: +15 feet
 - Private roads: + 10 feet or height of highest mobile object
 - Railroads: +23 feet
 - Waterways: height of highest mobile object
4. Construction or alteration on:
 - Public use airports listed in FAA publications.
 - Military or federally operated airports.
 - Airports or heliports with FAA-approved instrument approach procedures.
5. Exceptions to notice requirements include:
 - Objects shielded by substantial permanent structures or terrain in congested urban areas.
 - FAA- approved navigation or meteorological devices with fixed location and height
 - Projects requiring notice under other FAA regulations.
 - Antenna structures 20 feet or less in height, unless increasing the height of an existing antenna.

Part 77.11 Supplemental Notice Requirements

Part 77.11 outlines when and how supplemental notice must be filed:

1. Required for structures exceeding 200 feet AGL or when requested by the FAA.
2. Must be submitted on a prescribed FAA form within the timeframe specified in the FAA determination, or within 5 days of reaching maximum height if no timeframe is given.
3. If a project is abandoned, notice must be submitted within 5 days of abandonment.

Code of Federal Regulations (CFR) Part 77, Subpart C – Standards for Determining Obstructions to Air Navigation or Navigational Aids or Facilities

Part 77.17 – Obstruction Standards

Part 77.17 details specified obstruction standards that note when an existing or future object would be an obstruction to air navigation. The following standards are set for these areas:

1. 499 feet above ground level (AGL) at the site of the object.
2. 200 feet AGL or above the established airport elevation within 3 nautical miles of an airport with a runway longer than 3,200 feet. This height increases by 100 feet for each additional nautical mile up to a maximum of 499 feet.

The following existing and future objects are also considered obstructions to air navigation if they impact any of the following areas as described:

1. Terminal obstacle clearance area: Any object within this area that reduces the vertical distance between the object and the established minimum instrument flight altitude.
2. En route obstacle clearance area: Any object within this area that increases the minimum obstacle clearance altitude.
3. Takeoff and landing areas: Any object that penetrates the imaginary surfaces established under 77.19, 77.21, or 77.23.

For traverse ways used by mobile objects, the height standards are adjusted:

1. Interstate Highways: Increased by 17 feet
2. Other public roadways: Increased by 15 feet
3. Private roads: Increased by 10 feet or the height of the highest mobile object that would normally traverse the road
4. Railroad: Increased 23 feet
5. Waterway or any other traverse way: “an amount equal to the height of the highest mobile object that would normally traverse it.”

Part 77.19 – Civil airport imaginary surfaces

Part 77.19 details civil airport imaginary surfaces, which are based on the category of each runway according to the type of approach available or planned for that runway. A visual representation of imaginary surfaces is shown in [Figure 11](#) and the associated dimensional standards are provided in [Table 2](#). Civil imaginary surfaces are also often referred to as “Part 77 surfaces.” These define the spatial limits that are used to identify an “airport hazard area” as defined by Chapter 6 and referenced in Part 77.17. These imaginary surfaces are defined by the FAA and define the notification guidelines for heights within the areas surrounding an airport. They should be a guiding and central factor for any municipality when creating an airport zoning standard.

Figure 11. Imaginary Surface

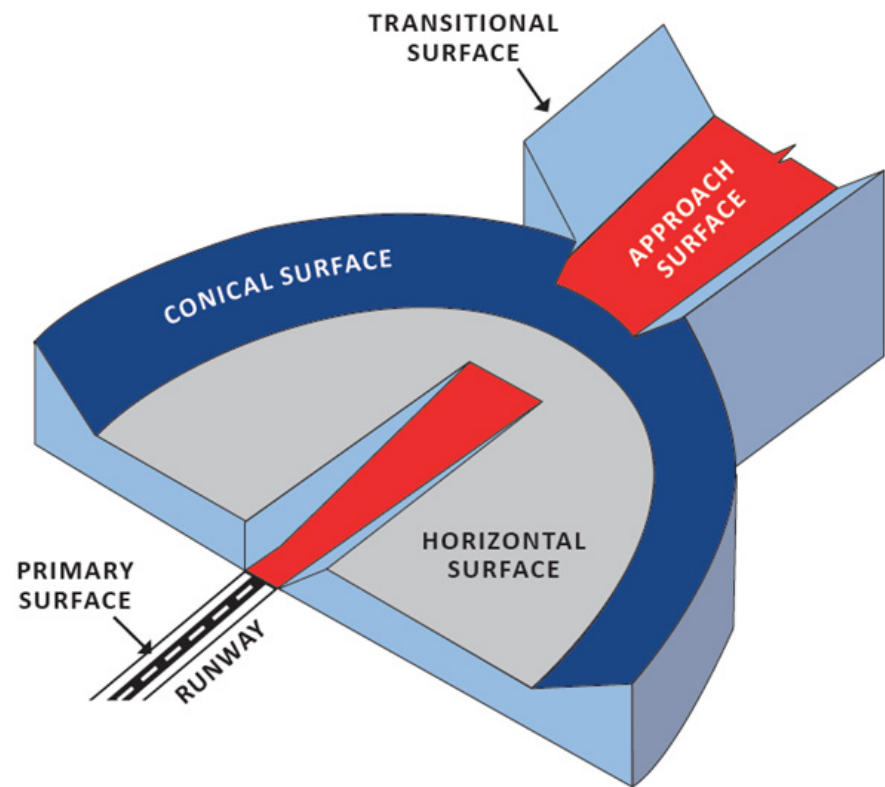


Table 2. Part 77 Surface Dimensions

Surface	Dimensional Standards (feet)					Precision Instrument Runway
	Visual Runway		Non-Precision Instrument Runway			
	A	B	A	B	C	
Width of primary surface and approach surface width at inner end	250	500	500	500	1,000	1,000
Radius of horizontal surface	5,000	5,000	5,000	10,000	10,000	10,000
Approach surface width at end	1,250	1,500	2,000	3,500	4,000	16,000
Approach surface length	5,000	5,000	5,000	10,000	10,000	
Approach Slope	20:1	20:1	20:1	34:1	34:1	
Conical Surface Slope	20:1	20:1	20:1	20:1	20:1	20:1
Width of conical Surface	4,000	4,000	4,000	4,000	4,000	4,000
Transitional Surface Slope	7:1	7:1	7:1	7:1	7:1	7:1*

Part 77, Subpart D—Aeronautical Studies and Determinations

The FAA issues determinations based on the findings of aeronautical studies. These determinations assess whether the proposed construction or alteration poses a hazard to air navigation.

Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) – Notice Criteria Tool

The Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) – Notice Criteria Tool is a web-based tool provided by the FAA that helps users determine if they need to file a notice for constructing or altering a structure near airports or navigable airspace. It evaluates whether a proposed structure could affect the safe and efficient use of airspace or interfere with airport operations. By entering location and height details, users can quickly assess whether formal FAA notification and further analysis are required. This tool is used prior to applying the requirements in Part 77 Subpart D, which outlines the formal notice process. The OE/AAA tool serves as a preliminary step to determine whether a project meets the notice criteria and if filing under Subpart D is necessary.

Types of Determinations

- 1. Determination of Hazard to Air Navigation: Concludes that the proposed construction or alteration is a hazard to air navigation.
- 2. Determination of No Hazard to Air Navigation: Concludes that the proposed construction or alteration does not pose a hazard to air navigation.
- 3. Conditional Determination: Specifies conditions that must be met to ensure the construction or alteration does not become a hazard.

Factors Considered

The FAA considers several factors when making determinations, including:

- 1. Impact on flight operations: Evaluates how the structure affects arrival, departure, and enroute procedures for aircraft.
- 2. Airport traffic capacity: Assesses the impact on existing and planned public use airports and their traffic capacity.
- 3. Obstacle clearance: Reviews minimum obstacle clearance altitudes and instrument flight rule (IFR) altitudes.
- 4. Air traffic control systems: Considers effects on radar, communication facilities, and other surveillance systems.
- 5. Cumulative impacts: Takes into account the combined effects of multiple structures.

Notification and Publication

Once a determination is made, the FAA notifies all known interested parties of the final determination of the proposed construction or alteration. Determinations are also published and made available to the public. If the FAA determines that the proposed construction or alteration is a hazard to air navigation, this determination itself does not result in the prohibition of said development. It is up to the local municipality to block the development because of that finding.

Effective Period

The effective date of a determination that is not subject to discretionary review under Part 77.37(b) is the date of issuance. For all other determinations regarding proposed or existing structures, the effective date is 40 days from the date of issuance, provided that no valid petition for review has been received by the FAA. If a valid petition for review is filed, the determination will not become final until the petition is resolved. Additionally, unless extended, revised, or terminated, each Determination of No Hazard to Air Navigation issued under this subpart expires 18 months after the effective date of the determination or on the date the proposed construction or alteration is abandoned, whichever occurs first. Conversely, a Determination of Hazard to Air Navigation does not have an expiration date.

Extensions, Terminations, Revisions, and Corrections

To petition the FAA for a revision or reconsideration of a Determination of No Hazard to Air Navigation based on new facts or to extend its effective period, certain conditions must be met. Firstly, actual structural work, such as laying a foundation

(excluding excavation), must not have started. Additionally, the petition must be submitted at least 15 days before the determination's expiration date. For construction or alteration proposals not requiring a FCC construction permit, the FAA may extend the determination once for up to 18 months. For proposals requiring an FCC construction permit, extensions of up to 18 months may be granted if evidence is provided that an application for a construction permit/license was filed with the FCC within six months of the determination's issuance, and additional time is warranted due to FCC requirements. If the FCC issues a construction permit, the final determination remains effective until the FCC's prescribed completion date. If an extension of the FCC completion date is needed, an extension of the FAA determination must be requested from the Obstruction Evaluation Service (OES). If the FCC refuses to issue a construction permit, the final determination expires on the date of refusal.

FAA AC 150/5190-4B – Airport Land Use Compatibility Planning

The primary intent of FAA AC 150/5190-4B – Airport Land Use Compatibility Planning is to help a broad audience understand the effects of land use on the safety and utility of airport operations. This AC also identifies compatible land use development tools, resources, and techniques to protect surrounding communities from adverse effects associated with airport operations.

Land uses that are incompatible with airport operations are those that cannot coexist with a nearby airport because they constrain the safe and efficient operation of the airport and expose people living or working nearby to significant environmental impacts. Incompatible land uses can pose physical obstructions, create visual distractions, and attract unwanted wildlife, threatening the safety of aircraft operations.

Both airports and communities benefit from compatible land use planning. The benefits can be local, regional, statewide, and national. There is an increasing demand for land development near airports, making land use compatibility a fundamental issue for airports across Tennessee. This Advisory Circular breaks down the benefits of compatible land use planning into three sections including benefits to aviation system, benefits to people near airports, and benefits to local and regional jurisdictions.

Having compatible land uses protects airports' approaches and provides clear operating areas for aircraft utilizing an airport. Without having compatible land uses around airports, there is limited opportunity for efficient development of airport property and expansion of airport facilities. Many airports need to expand and increase development due to increases in operations and user demand. Airport sponsors should coordinate closely with municipalities and counties regarding future development in areas surrounding the airport. This includes identifying land use patterns and growth that are compatible both with current and anticipated airport use and local community needs. They should also communicate any plans the airport might have for expanding or developing further. A key benefit of compatible land use planning is not having to mitigate any incompatible uses to make room for an airport expansion.

Maintaining compatible land uses around airports will also help maintain and protect runways of the appropriate dimensions for use by the most critical aircraft. These dimensions can quickly become noncompliant with airport design standards that are addressed in FAA AC 150/5300-13B, Airport Design. Perhaps the most important benefit of compatible land use planning is helping to prevent obstructions in the approach or departure zones, critical areas surrounding an airport. Airport safety and efficiency is enhanced when land uses underneath these approach and departure zones are compatible with airport operations.

Consequences of Incompatible Development

Land use incompatibility can have several consequences for airports and surrounding communities. Incompatible land uses are those that pose physical obstructions, create visual distractions, and attract wildlife that threaten the safety of aircraft operations. Existing or proposed physical obstructions are structures or vegetation that penetrate through any of the imaginary surfaces such as the primary surface, approach surface, transitional surface, horizontal surface, and conical surface. Tall structures are the most common type of physical obstruction. The obstructions can either be man-made or natural objects. Man-made obstructions can be buildings and cell and radio towers while natural objects are mostly tall

trees. Regardless of whether the physical obstructions are man-made or natural, tall structures within these zones reduce the utility of an airport and increase the chances of aircraft collisions with the structures.

Visual obstructions can also pose hazards to airport and aircraft operations. Many aircraft operations take place without navigational aids and rely on Visual Flight Rules (VFR) for maintaining visual clarity during an approach. Common visual obstructions include construction activities, glare, light emissions, smoke and steam, and atmospheric and electronic interference. Dust from nearby construction sites can be picked up by the wind and create a dangerous situation for pilots trying to navigate through the area without instrumentation. Issues with glare typically arise when light reflects off water bodies and shiny building materials used in proposed or existing development which can impair a pilot's vision during low level flight operations. Light emissions can be mistaken by pilots for airport operational areas (AOAs) and the bright lights can cause momentary visual impairment as pilots pass between darkness into well-lit areas. Smoke, steam and smog are more common in industrial areas and can hinder a pilot's ability to navigate aircraft due to reduced visibility.

The FAA has determined that thermal exhaust plumes can disrupt aircraft operations at nearby airports. Therefore, land use planning near airports should account for impacts to aviation from facilities that produce atmospheric interference. These impacts are largely dependent on factors like wind, ambient temperatures, stratification of the atmosphere, size, height, and number of the stacks emitting the plumes, proximity to airport and flight paths, temperature and vertical speed of the effluent, and the size and speed of aircraft. Understanding the impacts land uses like industrial facilities and power plants have on airport operations is an important aspect of land use compatibility planning. Land use planning around airports should be approached the same way for both electronic and atmospheric interference. Electronic interference can significantly impact the navigational aids used by pilots during takeoff and landing. Wind turbines and other alternative energy sources are known to have adverse effects on navigation aids and radars as well as being a physical obstruction due to their height.

It is also important to prevent or mitigate potential new incompatible land uses within the runway protection zone (RPZ). An airfield project such as a runway extension, runway shift, or a new runway altogether can make existing land uses around the airport that were compatible, now incompatible with airport operations. A new or revised instrument approach procedure that increases the RPZ dimension can also make existing land uses incompatible with airport operations. It's very important to implement airport zoning that considers future airport development.

Compatibility of Land Use Types near the Airport

Most community planning documents are classified into seven land use categories. These include residential, commercial, industrial and mining, institutional, infrastructure, agricultural and open space, and parks and recreation. Some of these land uses will have a greater level of impact on airport operations than others. For example, industrial land uses tend to have an impact on airport operations due to noise sensitivity, concentration of people, tall structures, visual obstructions, and wildlife and bird attractants. Agriculture and open spaces are typically considered compatible with airport operations because there are fewer or no concerns associated with noise sensitivity, concentrations of people, and tall structures. However, overgrown trees and vegetation could cause visible obstructions and are wildlife and bird attractants.

Table 3. Example Land Use Compatibility Chart with Major Categories and Potential Impact

Land Use	Noise Sensitivity	Concentration of People	Tall Structures	Visual Obstructions	Wildlife & Bird Attractants
Residential Uses	I	I	P	P	P
Commercial Activities	I	I	P	P	P
Industrial and Mining Activities	N	P	P	P	P
Institutional Activities	I	I	I	I	I
Infrastructure/ Utilities/ Energy Production Activities	N	N	I	I	P
Agriculture and Open Space Activities	N	N	N	I	I
Parks and Recreation Activities	I	P	P	P	P

I = Impact P = Possible Impact N = No Impact

Residential land uses continue to encroach on land that was once open space. As a result, residential development is increasingly located in approach surfaces or other imaginary surfaces.

Commercial land uses are also discouraged near airports due to potential safety impacts to commercial activity, visual interference, and wildlife attractants to aircraft and the airport. More specifically, commercial uses are strongly discouraged from Runway Protection Zones (RPZs) since they pose a major density issue.

Industrial and mining uses can pose many land use compatibility issues with nearby airports such as the height of the industrial structures, visual interferences, and being a wildlife attractant. Like commercial uses, industrial and manufacturing uses are specifically discouraged from RPZs since they pose a major density concern.

Institutional uses are impacted by incompatible land uses at all levels due to safety and noise impacts. Because the majority of these facilities are used by individuals who may not be able to respond to an emergency situation without assistance, they are generally considered to have a lower level of compatibility. The largest difference between institutional uses and all other land use types is based on the assumption that many of the people who utilize an institutional use may need additional assistance to respond to an aircraft emergency, including the evacuation of a facility.

Agriculture and open space can be a major wildlife attractant which could impact airport operations.

There are six core characteristics that are evaluated when determining whether a specific land use is compatible or incompatible with airport operations. These include aviation noise, airspace, visual/atmospheric interference, wildlife including protected species, protection of people and property, and development density. These land use characteristics are summarized in the following sections. It is important to note that since the FAA has a limited regulatory role in local land use planning, local criteria also need to be considered when assessing land use compatibility, including local, regional, and State provisions.

Aviation Noise

Commercial activities, residential uses, institutional activities, and parks and recreation activities, all of which create a significant concentration of people, can all be sensitive to aviation noise, specifically depending on the location of these land uses in relation to an airport’s approaches, departure areas, and areas of greater noise exposure. There are different noise mitigation measures that can be implemented such as decreasing the allowable density in residential uses near an airport, requiring developers to use sound-insulating building materials to minimize aircraft noise effects, disclosing noise impacts, and discouraging residential development within 65 dB DNL noise contour. This is especially true if high density housing,

commercial activities, and institutional activities are in RPZs and other approach and departure areas.

Airspace

Many land uses can result in tall structures or vegetation, including trees, that could penetrate the protected airspace around an airport and impact aircraft operations. These structures include buildings, cell/radio/TV/MET towers, wind farms, tall trees, and mountains.

Visual/Atmospheric Interference

Visual and atmospheric obstructions can be an issue with any land use and can include the visual obstruction of a tall structure, glare and glint emanating from a structure, and dust emanating from uses. While not explicitly called out in the AC, other uses that create glare, smoke, steam, and fog are also discouraged. Since this type of interference is common to all land uses, they must be mitigated when located near an airport. For example, an airport can work with the local transportation department and planning and zoning boards to avoid locating stoplights near the edge of the RPZ. This will prevent car queues (a concentration of people) from building into the RPZ. Other precautions can include avoiding dust-generating activities near the airport, mitigating the steam emanating from steam-generating uses, and controlling the illumination coming from the bright lights of sports fields.

Protection of People and Property

Many proposed land uses can introduce risks to the safety of people and property, including accident-prone locations limited emergency response access, or the presence of hazardous materials. Evaluating these factors ensures that airport development minimizes danger and supports community well-being.

Development and Density

Limiting land uses that attract high concentrations of people near airports helps reduce potential safety risks. Residential, commercial, and institutional development increase population density in the airport vicinity, which can expose more individuals to aircraft incidents, significant noise, and wildlife attractants generated by large population centers.

Wildlife

Like visual obstructions, wildlife and bird attractants are an issue associated with all land uses. Having wildlife and bird attractant uses within the approach or departure corridors or high trafficked areas increases the risk of wildlife strikes. These attractants can be trees and vegetation, tall structures, landfills, and water treatment plants. FAA AC 150/5200-33C, Hazardous Wildlife Attractants on or near Airports, provides additional guidance on certain land uses that have the potential to attract hazardous wildlife on or near airports. The AC also lists known wildlife attractants and provides separation guidance criteria for airports regarding wildlife attractants.

Coordination of Local and Regional Land Use Planning

Active participation by airports and the FAA in local planning processes is essential. Early coordination during both airport master planning and local land use planning helps ensure long-term compatibility between airports and surrounding development. It is important that both airport authorities and local jurisdictions understand each other’s development goals. While the development, implementation, and enforcement of land use plans and regulations are the responsibility of local governments, the FAA strongly encourages airport operators to engage in the development of these plans, as they have significant implications for airport operations.

The FAA specifically recommends that airport operators participate in city and county planning efforts to advocate for airport interests. Their involvement allows them to share technical expertise with municipal or county planning teams and to keep local officials informed about airport improvement and development projects. This proactive communication helps prevent issues such as encroaching incompatible land uses or future obstructions in approach zones.

In addition to shaping the development of land use plans, the FAA advises airport operators to coordinate regularly with local governments to stay informed about all nearby development activity. Close collaboration with local planning boards ensures

that airports can identify and address proposed developments that might impact airport operations.

Land Use Compatibility Tools and Techniques

Promoting land use compatibility around airports requires cooperation among multiple stakeholders in creating a comprehensive system of land use plans and regulations. Two key tools used to support airport compatibility are overlay zoning and standalone airport zoning. These tools address critical issues such as noise, population density, wildlife attractants, tall structures, and visual or atmospheric obstructions.

Overlay Zoning

Overlay zoning imposes specific standards within a defined area without changing the underlying zoning of the property. While the base permitted uses remain the same, additional regulations apply within the overlay zone. For example, an airport compatibility overlay zone may prohibit or conditionally allow noise-sensitive uses, depending on mitigation measures. It is important that overlay zoning boundaries align with areas affected by airport impacts. Noise regulations should correspond to airport noise contours, while height restrictions should follow critical airspace boundaries. Overlay zoning is best used in established communities where the public may oppose changes to the underlying zoning already in place.

Standalone Airport Zoning

Standalone airport zoning enables the adoption of specialized zoning ordinances specifically for airports. Airport zoning defines and allows known types of land uses that are generally compatible with airport operations, such as industrial; this is compared to overlay zoning, which can be tailored to address specific compatibility issues throughout an airport hazard area. Airport zoning is best used where industrial zoning or commercial use is both practical and consistent with the comprehensive or general plan and in communities that are new and growing and can establish underlying zoning prior to development.

FAA Advisory Circulars

The following ACs are those which are most closely related to achieving land use compatibility near airports in order to protect airports and the communities that surround them. ACs are intended to provide guidance to airports and industry for airport planning and development. In some cases, ACs serve as companion resources to federal regulations contained in the Code of Federal Regulations (CFR) to provide additional information and suggestions for how to comply with such regulations. ACs which are related to CFRs are noted.

[FAA AC 150/5190-4B, Airport Land Use Compatibility Planning](#)

Recently published in 2022, this AC is the primary source of current guidance available to the aviation community on this topic and provides information such as:

- Characteristics of incompatibility,
- Roles of aviation and non-aviation related stakeholders,
- Suggestions for incorporation of airport, local, and regional planning efforts,
- Example solutions for achieving compatibility and sample plans,
- Expectations of airport sponsors in addressing existing incompatible land uses and protecting against new incompatible land uses,
- And more

Information from this AC has been referenced in several locations throughout this guidebook.

[FAA AC 150/5300-13B, Airport Design](#)

This AC includes the standards for the geometric layout and engineering design of airport facilities, including runways, taxiways, aprons, and other facilities and aircraft operating areas. Several of the safety-related areas were introduced

in Chapter 1. Airport Land Use Compatibility and Why It Is Important, including the Runway Safety Area (RSA), Runway Object Free Area (ROFA), Runway Obstacle Free Zone. (ROFZ), and the Runway Protection Zone (RPZ). See Chapter 1 for the descriptions and general dimensions of these protected areas.

[FAA AC 70/7460-1M, Obstruction Marking and Lighting](#)

This AC outlines the FAA standards for the marking and lighting obstructions to promote aviation safety and is related to [14 CFR Part 77](#) discussed later in this section.

[FAA AC 150/5200-33C, Hazardous Wildlife Attractants on or near Airports](#)

This resource is dedicated to helping mitigate wildlife issues at airports by offering guidance on the types of activities that attract wildlife to airports, ways to mitigate risks and remove attractants or hazards, and the geographic areas around airports where wildlife hazards should be managed. This AC references [40 CFR Part 258, Subpart B](#) discussed later in this section.

[FAA AC 150/5200-34A, Construction or Establishment of Landfills near Public Airports](#)

Provides guidance for complying with federal statutory requirements that govern the construction or establishment of municipal solid waste landfills near public airports to prevent wildlife attractants. This resource is a companion to [40 CFR Part 258, Subpart B](#) discussed later in this section.

[FAA AC 150/5200-38, Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments and Wildlife Hazard Management Plans](#)

Airports that serve air carrier operations (scheduled operations with more than 9 seats, or unscheduled operations with at least 31 seats) must be certified by the FAA under 14 CFR Part 139 - Certification of Airports. As a condition of certification, all airports must engage a wildlife damage management biologist to conduct a Wildlife Hazard Site Visit (and a Wildlife Hazard Assessment and/or Wildlife Hazard Management Plan if needed). This AC defines the standards for conducting and preparing each. This resource is a companion to [14 CFR 139.337](#) discussed later in this section.

In addition to these ACs commonly recognized and referenced to guide compatibility efforts, there are other ACs which may be applicable to airports and communities depending on the type of compatibility concern:

[FAA AC 150/5020-1, Noise Control and Compatibility Planning for Airports \(related to 14 CFR Part 150\)](#)

[FAA AC 150/5000-9B, Guidelines for Sound Insulation of Structures Exposed to Aircraft Noise \(related to 14 CFR Part 150\)](#)

[FAA AC 150/5020-2, Guidance on the Balanced Approach to Noise Management \(related to 14 CFR Part 150\)](#)

[FAA AC 150/5100-17, Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects](#)

Relevant Code of Federal Regulation (CFR) Titles

There are two CFR titles that are most relevant to airport land use compatibility, including Title 14 and Title 40. Within Title 14 there are three Parts (Part 77, Part 150, and Part 139) that are summarized in the following subsection, along with Part 258 under Title 40.

[14 CFR Part 77 - Safe, Efficient Use, and Preservation of Navigable Airspace \(Part 77\)](#)

This resource establishes the requirements for notifying the FAA of development near airports, and standards for the FAA's review of objects which might be considered a hazard to air navigation (i.e., poses a height concern).

Airport Improvement Program (AIP) Funding and Grant Assurance

The FAA provides finding support to airports included in the National Plan of Integrated Airport Systems (NPIAS) through the AIP. In recent years, additional programs have been made available for airports to receive additional federal funding for projects under the Bipartisan Infrastructure Law (BIL). This funding is provided via grants to public agencies (i.e., airport owners/sponsors) for the planning and development of public-use airports. Projects eligible for this funding include those related to airport safety, capacity, security, and environmental concerns. Since airport land use compatibility can impact the safety of aircraft operations and the ability for airports to meet capacity demand, this funding can be used for projects that help airports achieve higher levels of compatibility, such as land acquisition or planning studies.

In addition to administering funding, the FAA acts in regulatory manner by establishing a set of contractual obligations (referred to as grant assurances) that airport sponsors must agree to, and comply with, in order to accept funding from the FAA. The purpose of the assurances is to ensure that recipients are maintaining and operating their facilities safely and efficiently. There are a total of 39 grant assurances, several of which are related to enhancing airport land use compatibility (Grant Assurance 4, 5, 6, 7, and 19) and two of which specifically address land use compatibility around airports (Grant Assurance 20 and 21). As defined in the assurances, airport sponsors are obligated to pursue all reasonable and appropriate actions to promote and establish compatible land uses near their airport. More information on FAA grant assurances and how the FAA implements them can be found in the [AIP Handbook \(FAA Order 5100.38D\)](#) and the [FAA Airport Compliance Manual \(FAA Order 5190-6B\)](#).

[Grant Assurance 20 “Hazard Removal and Mitigation”](#)

This assurance requires an airport to take appropriate actions to protect visual and instrument operations by removing, lowering, relocating, marking, lighting, or otherwise mitigating any airport hazards that currently exist, and preventing the establishment of future ones.

[Grant Assurance 21 “Compatible Land Use”](#)

This assurance requires an airport to restrict the use of property in its vicinity to land uses and activities that are compatible with airport and aircraft operations.

Airport Cooperative Research Program (ACRP)

The FAA sponsors the ACRP which is “an industry-driven, applied research program that develops near-term, practical solutions to airport challenges.” The charge of the program is to provide national guidance to the industry on topics that are not otherwise addressed through other federal research programs. Since its inception, ACRP has produced over 400 resources and tools which are free to access at any time via their website at <https://www.trb.org/ACRP/ACRP.aspx>.

A few research products from ACRP provide industry guidance and best practices for establishing and enhancing airport land use compatibility. More information on each is provided in the next sections.

[ACRP Report 27: Volume 1 Enhancing Airport Land Use Compatibility](#)

This report is the leading guidance published by ACRP on this topic and helps airport sponsors understand the varying issues of land compatibility and learn best practices, while also providing resources to enhance land use compatibility.

[ACRP Report 27: Volume 2 Land Use Survey and Case Study Summaries](#)

This report provides case studies for different types of airports and serves as tool for airport sponsors and planners on a range of issues and how different approaches to compatibility can be applied.

[ACRP Report 206: Guidebook on Effective Land Use Compatibility Planning Strategies for General Aviation Airports](#)

This resource presents land use planning and approaches relevant to airport sponsors of general aviation facilities and their communities.

[ACRP Report 15: Aircraft Noise: A Toolkit for Managing Community Expectations](#)

This report discusses ways airports can improve public relations concerning airport noise and improve communication of airport impacts and noise compatibility plans. The report also includes community outreach presentations provided by various airport managers as a toolkit to create best practices when engaging the public on noise.

APPENDIX B: MODEL ORDINANCES
MODEL AIRPORT ZONING REGULATIONS- SMALL MUNICIPALITIES AND COUNTIES

Ordinance XX [Name of Municipality or County] Airport Zoning Regulations

Section 1- Purpose and Intent

The purpose of this airport protection zoning regulation ordinance is to ensure airspace protection and land use compatibility around existing or proposed airports licensed by the Tennessee Department of Transportation (TDOT) within and/or nearby [Name of Municipality or County]. These airports include [Name(s) of Airport(s)]. These regulations aim to:

- 1. Promote public health, safety, and general welfare.
- 2. Avoid obstructions that may destroy or impair airport utility and public investment therein.
- 3. Protect the operational viability of the airport.

These airport zoning regulations recognize that airports are vital public infrastructure and that airport hazards are public nuisances that threaten safety, reduce airport utility, and risk public investment.

Section 2- Authority

The Airport Zoning Regulations created by the [Name of Municipality or County] shall regulate and restrict the height of structures, objects, and growth of natural vegetation, and limit or otherwise regulate the use of property, within the vicinity of [Name(s) of Airport(s)] to promote compatibility between the [Name(s) of Airport(s)] and surrounding land uses.

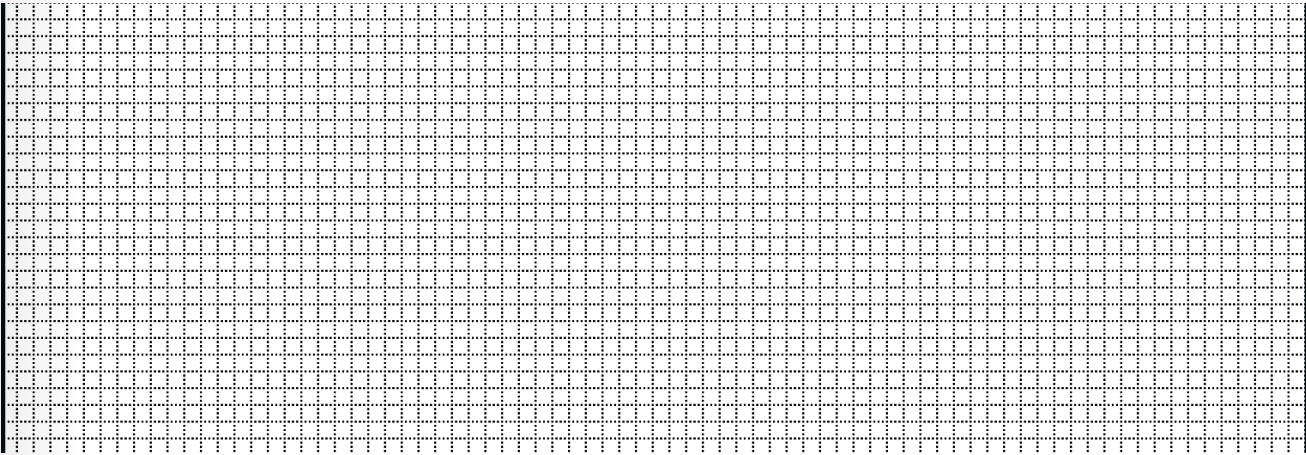
This ordinance is adopted pursuant to the [Name of Municipality or County]'s zoning authority and in accordance with applicable state laws, including Tennessee Code Annotated (TCA) Title 42, Chapter 6 on Airports and Air Navigation, TCA Title 13, Chapter 7 on Zoning, and TCA Title 12, Chapter 9 on Interlocal Cooperation Act.

Section 3- Applicability

The requirements of the ordinance apply to all existing and new development, natural growth, and construction equipment found in the areas listed as a part of the Airport Hazard Area. Section 8- Nonconforming Uses provides further detail on the specific applicability of the ordinance in regard to existing conditions and specific non-conforming use cases.

See Figure 12. [Name of Municipality or County] Airport Hazard Area Map to determine the prescribed areas.

Figure 12. [Name of Municipality or County] Airport Hazard Area Map



source: TDOT

Section 4- Definitions

Above Ground Level (AGL) - The height an object is above the ground.

Above Mean Sea Level (MSL) - The height an object is above the average sea level for the area. This will change depending on the airport's airport reference code (ARC).

Aeronautical Study – Evaluation conducted by the FAA to determine the potential impact of a proposed or existing structure—or an alteration to such a structure—on the safe and efficient use of navigable airspace.

Airport – Any area of land or water 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 such purpose.

Airport Hazard - Any structure or tree or use of land that obstructs the airspace required for the flight of aircraft in landing or taking off at an airport or is otherwise hazardous to such landing or taking off of aircraft.

Airport Hazard Area - Any area of land or water upon which an airport hazard might be established if not prevented.

Airport Hazard Area Map – A map designed to depict the zones of the Airport Hazard Area.

Airport Zoning Regulations – Regulations adopted pursuant to Title 42, Chapter 6 of the Tennessee Code Annotated (TCA) which govern airport hazard areas.

Airspace - The area above the ground in which aircraft travel. It is divided into corridors, routes, and restricted zones for the control and safety of aircraft operations.

Runway Approach Surface - Imaginary surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is designated for each runway end based upon the type of approach available or planned for that runway end.

Conical Surface - Imaginary surface extending upward and outward from the outer limits of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

FAR Part 77 - Federal regulation covering objects affecting navigable airspace. Part 77 establishes standards for determining obstructions in navigable airspace; sets forth the requirements for Notice to the FAA 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. It provides for the establishment of “imaginary surfaces” on and around an airport to identify potential aeronautical hazards in order to prevent or minimize adverse impacts to the safe and efficient use of navigable airspace. Imaginary surfaces include the primary surface, approach surfaces, transitional surfaces, the horizontal surface, and the conical surface.

Federal Aviation Administration (FAA) - A branch of the U.S. Department of Transportation responsible for ensuring the safe and efficient use of the nation's airspace. In addition to regulating civil airports, aircraft manufacturing and parts certification, aircraft operation, and pilot certification, the FAA operates Air Traffic Control Towers (ATCT), purchases and maintains navigation equipment, certifies airports and aids airport development, among other activities. The FAA also administers the Airport Improvement Program (AIP), which supports airport development.

Height - For zoning purposes, the vertical distance from the AGL or MSL at a given point to the highest point of a structure, object, or natural growth.

Height Restriction Zone - A designated area around an airport where structures or natural growth are limited in height to protect navigable airspace.

Horizontal Surface - Imaginary surface which is 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 airport's runway and connecting the adjacent arcs by lines tangent to those arcs.

Imaginary Surfaces - Specific areas around each airport or military airfield that should not contain any protruding objects from a height standpoint which may pose potential hazards to airports and/or air navigation as established by Part 77. Imaginary surfaces include the primary surface, approach surfaces, transitional surface, horizontal surface, and the conical surface.

Incompatible Use – Any structure or use of land, as identified in airport noise compatibility planning, in title 14 of the Code of Federal Regulations, part 150, which was promulgated pursuant to the former Aviation Safety and Noise Abatement Act of 1979, 49 U.S.C. § 2101 et seq. [repealed], concerning the exposure of residents or occupants in the vicinity of airports to aircraft noise; provided, that “incompatible use” does not apply in any county having a metropolitan form of government and having a population greater than one hundred thousand (100,000), according to the 1990 federal census or any subsequent federal census.

Land Use Compatibility - The suitability of particular land uses in relation to an airport, considering noise, safety, and operational impacts.

Navigable Airspace - Airspace above the minimum altitudes of flight prescribed by FAA regulations, including airspace needed for safe takeoff and landing.

Nonconforming Use - Any structure or land use that was lawful before the adoption of the ordinance but does not conform to the current regulations.

Obstruction - Any existing or proposed object, terrain, or structure construction or alteration that exceeds the federal obstruction standards contained in FAR Part 77, Subpart C. The term includes:

1. Any object of natural growth or terrain.
2. Permanent or temporary construction or alteration, including equipment or materials used and any permanent or temporary apparatus.
3. Alteration of any permanent or temporary existing structure by a change in the structure's height, including appurtenances, lateral dimensions, and equipment or materials used in the structure.

Ordinance - A law enacted by government.

Permit - Written authorization issued by the zoning administrator for construction or land use within the airport hazard area.

Person - Any individual, firm, co-partnership, corporation, company, association, joint stock association, or body politic and includes any trustee, receiver, assignee, or other similar representative thereof.

Primary Surface - An area longitudinally centered on a runway. For a runway with a hard surface, this primary surface extends 200 feet beyond each end of that runway; for a runway with no hard surface, the primary surface ends at the physical end of the runway. The width of the primary surface is specified for each runway for the most precise approach existing or planned for either end of the runway. No structure or obstruction is permitted within the primary surface that is not part of the landing/takeoff area or that is of a height greater than the nearest point on the runway centerline.

Political Subdivision – Any municipality or county.

Runway - A defined rectangular surface on an airport prepared or suitable for the landing or takeoff of airplanes.

Runway End Elevation – The highest point of the runway's usable landing surface at the end, typically measured in feet above MSL.

Runway Protection Zone (RPZ) – A trapezoidal area at ground level extending from the end of a runway and centered on the extended centerline of the runway.

Structure - Any object constructed, erected, altered, or installed, including, but not limited to, buildings, towers, smokestacks, utility poles, power generation equipment, and overhead transmission lines.

Tennessee Code Annotated (TCA) - A structured collection of statutes enacted by the Tennessee General Assembly. It

includes laws that govern everything from criminal offenses and civil procedures to education, transportation, and wildlife.

TCA Title 42; Chapter 6 on Airports and Air Navigation - Establishes airport zoning regulations to control hazards and ensure safe air navigation near airports.

TCA Title 13; Chapter 7 on Zoning - Grants counties and municipalities the authority to regulate land use through zoning ordinances for orderly development and public welfare.

TCA Title 12; Chapter 9 on Interlocal Cooperation Act - Authorizes public agencies to enter into agreements for jointly performing governmental functions and sharing resources.

Transitional Surface - A surface area that surrounds and protects the lateral boundaries of the primary and approach surfaces; this surface extends outward and upward at right angles to the runway centerline and the extended runway centerline at specified ratios. Height limits of the transitional surface are the same as the primary surface or approach surface at the boundary line where it adjoins and increases at a rate of one foot vertically for every seven feet horizontally.

Tree – Any object of natural growth.

Variance - A grant of relief from the strict application of the ordinance provisions, typically issued by a board of zoning appeals.

Section 5- Establishment of Airport Hazard Area Zones

The Airport Hazard Area shall consist of the following zones (“Airport Hazard Area Zones”) based on Title 14 Code of Federal Regulations Part 77 (FAR Part 77) Civil airport imaginary surfaces and defined as in the previous Section:

- 1. Primary Surface (Zone 1)
- 2. Runway Protection (Zone 2)
- 3. Runway Approach Surface (Zone 3)
- 4. Transitional Surface (Zone 4)
- 5. Horizontal Surface (Zone 5)
- 6. Conical Surface (Zone 6) -

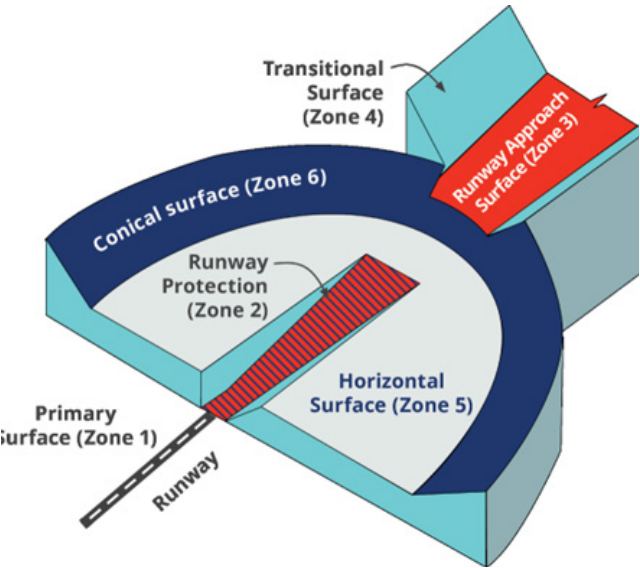


Figure 13. Airport Hazard Area Zones (Isometric View)

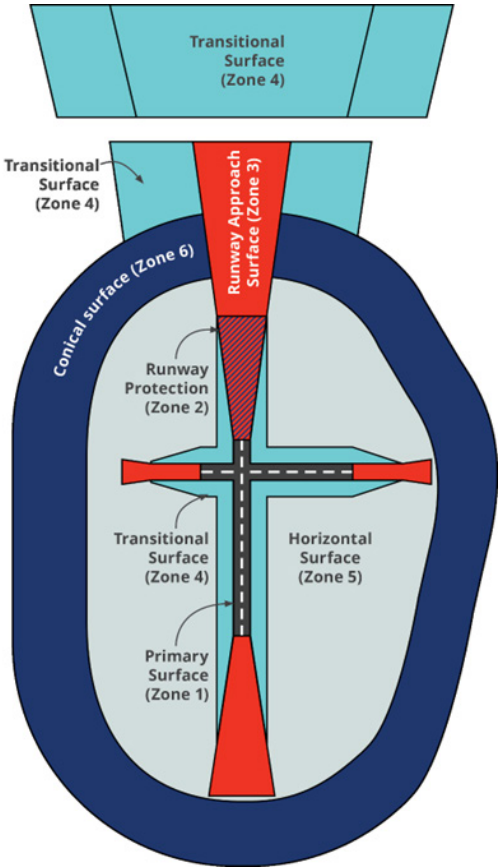


Figure 14. Airport Hazard Area Zones (Plan View)

Section 6- Height Limitations

Airport Hazard Area Zones established by these Airport Zoning Regulations regulate the use of land lying beneath the Hazard Area Zones 1 through 6 as defined in Section 6. Unless otherwise provided for in these Airport Zoning Regulations, no structure, object, natural vegetation, or terrain shall be erected, altered, allowed to grow or be maintained within any Airport Hazard Area Zones to a height in excess of the following table.

Table 4. Allowable Uses in Airport Hazard Area Zones

Zone	Zone Name
1	No development permitted excepting structures essential to runway operations such as runway lighting systems, navigational aids, and pavement markings.
2	All development Subject to FAA Airspace Review 7460-1*
3	1' in height for every 20' in horizontal distance of beginning at a point of 200' beyond and at the elevation of the end of the runway extending to a point 5,200' from the end of the runway.
4	1' in height for every 7' in horizontal distance beginning at a point 250' normal to and at the elevation of the center line of the runway extending 200' beyond each end, thereof, and extending to a maximum height of 150' above the established airport elevation of [Airport Elevation MSL] above MSL.
5	150' above the established airport elevation or a maximum of 250' above MSL.
6	1' in height for each 20' of horizontal distance beginning at the periphery of the horizontal zone extending to a height of 350' above the airport elevation or 4,000' above MSL.

Source: TDOT

Any proposed construction or alteration that is more than 200 ft. above ground level (AGL), or that exceeds an imaginary surface; or any proposed construction or alteration at a public-use airport or airport under construction, a military airport under construction, an airport operated by the Federal government or U.S. Department of Defense (DOD), or an airport or heliport with at least one FAA-approved instrument approach procedure, is required to file notice with the FAA. Filing notice includes submitting the Notice of Proposed Construction or Alteration (Form 7460-1).

Property owners and developers can determine whether a project requires FAA review by using the FAA's Notice Criteria Tool, available at: <https://oeaaa.faa.gov>

If required, Form 7460-1 must be submitted electronically through the FAA's Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) system. The FAA will evaluate the proposal and issue a determination of hazard or no hazard to air navigation.

Variances to the listed height limitations can be granted if the owner/developer can provide one of the following requests:

- 1. Use of the FAA Notice Criteria Tool resulted in the development not requiring a Form 7460-1.
- 2. The FAA finds no hazard or impact to airport approaches after conducting the required airspace review.

In the case that a proposed structure or vegetation is located between zones, the zone with the most significant height restriction shall be utilized.

Section 7- Allowable Uses

Airport Hazard Area Zones established by these Airport Zoning Regulations regulate the use of land lying beneath the Hazard Area Zones 1 through 6 as defined in Section 6. Unless otherwise provided for in these Airport Zoning Regulations, no structure, object, natural vegetation, or terrain shall be erected, altered, allowed to grow or be maintained within any Airport Hazard Area Zones to a height in excess of the following table.

Table 5. Allowable Uses in Airport Hazard Area Zones

Zone	Zone Name	Allowable Uses	Notes
1	Primary Surface	Runway Lighting Navigational Aides Pavement Markings	No other development permitted.
2	Runway Protection Zone	[Determined by Municipality or County]	[Determined by Municipality or County]
3	Runway Approach Surface	[Determined by Municipality or County]	[Determined by Municipality or County]
4	Transitional Surface	[Determined by Municipality or County]	[Determined by Municipality or County]
5	Horizontal Surface	[Determined by Municipality or County]	[Determined by Municipality or County]
6	Conical Surface	[Determined by Municipality or County]	[Determined by Municipality or County]

Source: [Name of Municipality or County]

Any use not specifically listed or authorized under this Code shall be deemed prohibited. This includes, but is not limited to, uses that pose a hazard to air navigation such as dense residential developments, schools, hospitals, landfills, industrial operations emitting smoke or steam, recreational facilities with high occupancy, reflective surfaces, and electronic installations that may interfere with airport operations

Section 8- Nonconforming Uses

1.

Existing Uses

- Structures or vegetation that existed prior to the effective date of these Airport Zoning Regulations and do not conform to the newly established height limitations shall not be subject to removal, modification, or alteration solely due to their nonconformance.

Further, these Airport Zoning Regulations shall not impede the continuation of any lawful nonconforming use. Construction or alteration of any structure that commenced prior to the ordinance’s effective date and is being pursued with due diligence shall not be affected by the provisions herein.
2.

Marking or Lighting

- Notwithstanding the protections afforded to existing nonconforming structures or vegetation, the owner of any such obstruction shall, upon request, allow the installation, operation, and maintenance of appropriate markers and/or lighting as determined necessary by the [Name of Municipality or County] and the [Name(s) of Airport(s)]. These visual aids are intended to alert aircraft operators to the presence of potential obstructions in the vicinity of the airport. All associated costs for installation, operation, and maintenance shall be borne by the [Name(s) of Airport(s)].

Section 9- Implementation

1.

Existing Uses

- No building permit shall be granted that would allow the establishment or creation of an obstruction or permit a nonconforming use, structure, or tree to become a greater hazard to air navigation than it was on the effective date of this ordinance or any amendments.
2.

Future Uses

- No material change shall be made in the use of land, no structure shall be erected, or otherwise, established, and no tree shall be planted in any zone hereby created, unless a building permit, therefore, shall have been applied for and granted.

Each application for a building permit within an Airport Hazard Area shall indicate the purpose for which the building permit is desired, with sufficient particularity to permit it to be determined whether the resulting use, structure, or tree would conform to the height regulations of the Airport Hazard Area Zones herein prescribed.

No building permit for a use inconsistent with the provisions of this ordinance shall be granted, unless a height variance has been qualified for in accordance with the provisions of Section 6.

Section 10- Enforcement and Penalties

It shall be the duty of the [Name of Municipality or County] Building Inspector to enforce the zoning codes of each jurisdiction to administer, inspect, and enforce the provisions set forth in this ordinance.

Any violation of this ordinance or any regulation, order, or ruling promulgated hereunder, shall be issued penalties as prescribed within the [Name of Municipality or County] Zoning ordinance, which has jurisdiction over the territory in question.

(Consider recommending minimum penalty standards or referencing specific enforcement procedures. Any enforcement or penalties should be consistent with local zoning enforcement procedures.)

Section 11- Board of Appeals

The [Name of Municipality or County] chief legislative body shall create a board of zoning appeals of three (3) or five (5) members, and shall specify the mode of appointment of members to the board and their terms, which terms shall be of such length and so arranged that the term of one (1) member shall expire each year. The compensation of the members of the board shall be as fixed by the members of the chief legislative body. The duties of the board of zoning appeals shall include:

- Insert duty
- Insert duty
- Insert duty
- Etc

Section 12- Severability

If any section or provision of this ordinance is held invalid, the remainder shall not be affected.

Section 13- Effective Date

This ordinance shall take effect upon adoption by the [Name of Municipality or County] governing body. Adopted on this [day] day of [month], [year].

MODEL AIRPORT ZONING REGULATIONS- LARGE

Ordinance XX [Name of Municipality or County] Airport Zoning Regulations

Section 1–Purpose and Intent

The purpose of this airport protection zoning regulation ordinance is to ensure airspace protection and land use compatibility around existing or proposed airports licensed by the Tennessee Department of Transportation (TDOT) within and/or nearby [Name of Municipality or County]. These airports include [Name(s) of Airport(s)]. These regulations aim to:

- 1. Promote public health, safety, and general welfare.
- 2. Avoid obstructions that may destroy or impair airport utility and public investment therein.
- 3. Protect the operational viability of the airport.

These airport zoning regulations recognize that airports are vital public infrastructure and that airport hazards are public nuisances that threaten safety, reduce airport utility, and risk public investment.

Section 2–Authority

The Airport Zoning Regulations created by the [Name of Municipality or County] shall regulate and restrict the height of structures, objects, and growth of natural vegetation, and limit or otherwise regulate the use of property, within the vicinity of [Name(s) of Airport(s)] to promote compatibility between the [Name(s) of Airport(s)] and surrounding land uses.

This ordinance is adopted pursuant to the [Name of Municipality or County]'s zoning authority and in accordance with applicable state laws, including Tennessee Code Annotated (TCA) Title 42, Chapter 6 on Airports and Air Navigation, TCA Title 13, Chapter 7 on Zoning, and TCA Title 12, Chapter 9 on Interlocal Cooperation Act.

Section 3- Interlocal Agreement Requirement

Where an Airport Hazard Area, as defined in this ordinance, extends into or affects the jurisdiction of more than one local government, the establishment and enforcement of airport zoning regulations shall require the adoption, by joint resolution, airport zoning regulations, or the county or counties shall authorize by resolution the adoption of such regulations by the municipality.

Such joint resolution shall be executed pursuant to TCA Title 12, Chapter 9 Interlocal Cooperation Act and shall, at a minimum:

- 1. Define the boundaries of the Airport Hazard Area subject to joint regulation.
- 2. Establish uniform zoning regulations and overlay zones within that Airport Hazard Area applicable to all participating jurisdictions.
- 3. Specify procedures for joint review and enforcement of development applications.
- 4. Include provisions for data sharing, coordinated planning, enforcement, and dispute resolution.
- 5. Ensure compliance with all applicable state and federal aviation regulations.

No airport zoning regulation shall be effective within any Airport Hazard Area that crosses jurisdictional boundaries unless and until such joint resolution has been adopted and implemented by all affected local governments.

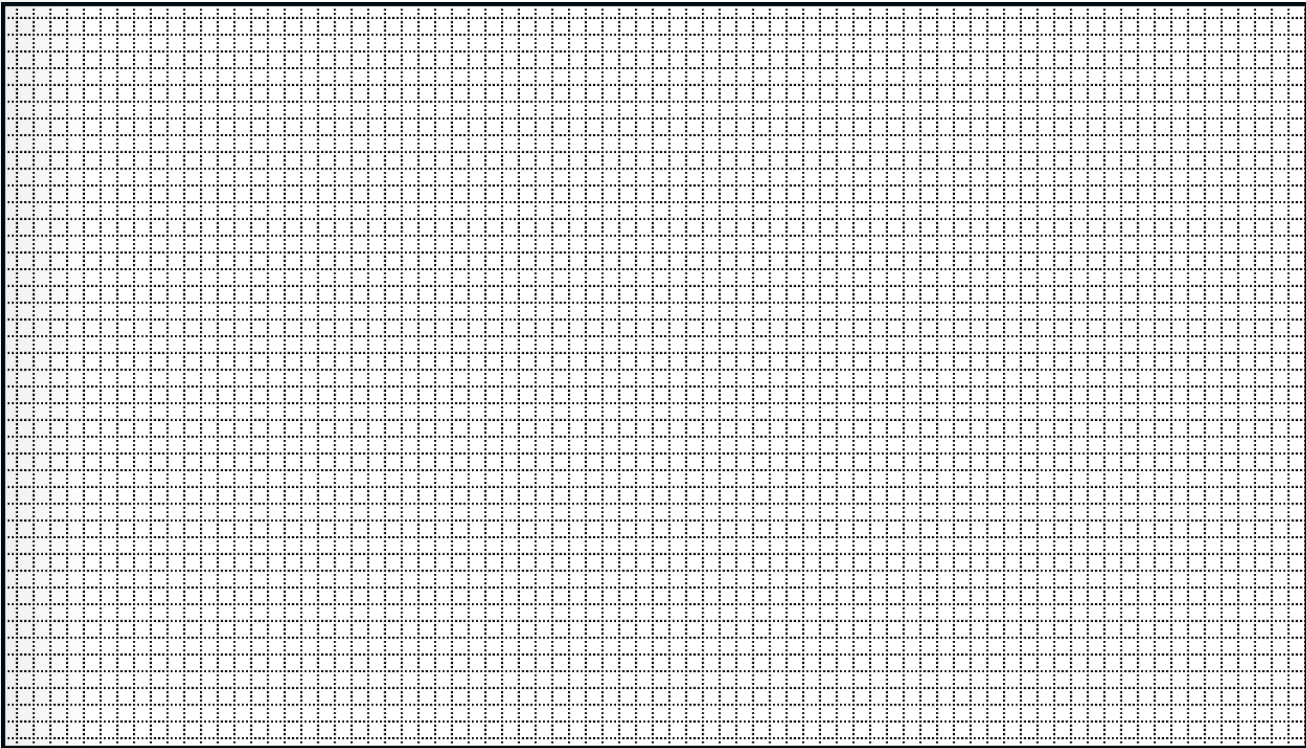
Section 4–Applicability

The requirements of the ordinance apply to all existing and new development, natural growth, and construction equipment

found in the areas listed as a part of the Airport Hazard Area. [Section 9- Nonconforming Uses](#) provides further detail on the specific applicability of the ordinance in regard to existing conditions and specific non-conforming use cases.

See [Figure 15. \[Name of Municipality or County\] Airport Hazard Area Map](#) to determine the prescribed areas.

Figure 15. [Name of Municipality or County] Airport Hazard Area Map



Source: TDOT

Section 5–Definitions

Above Ground Level (AGL) - The height an object is above the ground.

Above Mean Sea Level (MSL) - The height an object is above the average sea level for the area. This will change depending on the airport's airport reference code (ARC).

Aeronautical Study – Evaluation conducted by the FAA to determine the potential impact of a proposed or existing structure—or an alteration to such a structure—on the safe and efficient use of navigable airspace.

Airport – Any area of land or water 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 such purpose.

Airport Hazard - Any structure or tree or use of land that obstructs the airspace required for the flight of aircraft in landing or taking off at an airport or is otherwise hazardous to such landing or taking off of aircraft.

Airport Hazard Area - Any area of land or water upon which an airport hazard might be established if not prevented.

Airport Hazard Area Map – A map designed to depict the zones of the Airport Hazard Area.

Airport Zoning Regulations – Regulations adopted pursuant to Title 42, Chapter 6 of the Tennessee Code Annotated (TCA) which govern airport hazard areas.

Airspace - The area above the ground in which aircraft travel. It is divided into corridors, routes, and restricted zones for the control and safety of aircraft operations.

Runway Approach Surface - Imaginary surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is designated for each runway end based upon the type of approach available or planned for that runway end.

Conical Surface - Imaginary surface extending upward and outward from the outer limits of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

FAR Part 77 - Federal regulation covering objects affecting navigable airspace. Part 77 establishes standards for determining obstructions in navigable airspace; sets forth the requirements for Notice to the FAA 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. It provides for the establishment of “imaginary surfaces” on and around an airport to identify potential aeronautical hazards in order to prevent or minimize adverse impacts to the safe and efficient use of navigable airspace. Imaginary surfaces include the primary surface, approach surfaces, transitional surfaces, the horizontal surface, and the conical surface.

Federal Aviation Administration (FAA) - A branch of the U.S. Department of Transportation responsible for ensuring the safe and efficient use of the nation’s airspace. In addition to regulating civil airports, aircraft manufacturing and parts certification, aircraft operation, and pilot certification, the FAA operates Air Traffic Control Towers (ATCT), purchases and maintains navigation equipment, certifies airports and aids airport development, among other activities. The FAA also administers the Airport Improvement Program (AIP), which supports airport development.

Height - For zoning purposes, the vertical distance from the AGL or MSL at a given point to the highest point of a structure, object, or natural growth.

Height Restriction Zone - A designated area around an airport where structures or natural growth are limited in height to protect navigable airspace.

Horizontal Surface - Imaginary surface which is 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 airport’s runway and connecting the adjacent arcs by lines tangent to those arcs.

Imaginary Surfaces - Specific areas around each airport or military airfield that should not contain any protruding objects from a height standpoint which may pose potential hazards to airports and/or air navigation as established by Part 77. Imaginary surfaces include the primary surface, approach surfaces, transitional surface, horizontal surface, and the conical surface.

Incompatible Use – Any structure or use of land, as identified in airport noise compatibility planning, in title 14 of the Code of Federal Regulations, part 150, which was promulgated pursuant to the former Aviation Safety and Noise Abatement Act of 1979, 49 U.S.C. § 2101 et seq. [repealed], concerning the exposure of residents or occupants in the vicinity of airports to aircraft noise; provided, that “incompatible use” does not apply in any county having a metropolitan form of government and having a population greater than one hundred thousand (100,000), according to the 1990 federal census or any subsequent federal census.

Land Use Compatibility - The suitability of particular land uses in relation to an airport, considering noise, safety, and operational impacts.

Navigable Airspace - Airspace above the minimum altitudes of flight prescribed by FAA regulations, including airspace needed for safe takeoff and landing.

Nonconforming Use - Any structure or land use that was lawful before the adoption of the ordinance but does not conform to the current regulations.

Obstruction - Any existing or proposed object, terrain, or structure construction or alteration that exceeds the federal obstruction standards contained in FAR Part 77, Subpart C. The term includes:

1. Any object of natural growth or terrain.
2. Permanent or temporary construction or alteration, including equipment or materials used and any permanent or temporary apparatus.
3. Alteration of any permanent or temporary existing structure by a change in the structure's height, including appurtenances, lateral dimensions, and equipment or materials used in the structure.

Ordinance - A law enacted by government.

Permit - Written authorization issued by the zoning administrator for construction or land use within the airport hazard area.

Person - Any individual, firm, co-partnership, corporation, company, association, joint stock association, or body politic and includes any trustee, receiver, assignee, or other similar representative thereof.

Primary Surface - An area longitudinally centered on a runway. For a runway with a hard surface, this primary surface extends 200 feet beyond each end of that runway; for a runway with no hard surface, the primary surface ends at the physical end of the runway. The width of the primary surface is specified for each runway for the most precise approach existing or planned for either end of the runway. No structure or obstruction is permitted within the primary surface that is not part of the landing/takeoff area or that is of a height greater than the nearest point on the runway centerline.

Political Subdivision – Any municipality or county.

Runway - A defined rectangular surface on an airport prepared or suitable for the landing or takeoff of airplanes.

Runway End Elevation – The highest point of the runway’s usable landing surface at the end, typically measured in feet above MSL.

Runway Protection Zone (RPZ) – A trapezoidal area at ground level extending from the end of a runway and centered on the extended centerline of the runway.

Structure - Any object constructed, erected, altered, or installed, including, but not limited to, buildings, towers, smokestacks, utility poles, power generation equipment, and overhead transmission lines.

Tennessee Code Annotated (TCA) - A structured collection of statutes enacted by the Tennessee General Assembly. It includes laws that govern everything from criminal offenses and civil procedures to education, transportation, and wildlife.

TCA Title 42; Chapter 6 on Airports and Air Navigation - Establishes airport zoning regulations to control hazards and ensure safe air navigation near airports.

TCA Title 13; Chapter 7 on Zoning - Grants counties and municipalities the authority to regulate land use through zoning ordinances for orderly development and public welfare.

TCA Title 12; Chapter 9 on Interlocal Cooperation Act - Authorizes public agencies to enter into agreements for jointly performing governmental functions and sharing resources.

Transitional Surface - A surface area that surrounds and protects the lateral boundaries of the primary and approach surfaces; this surface extends outward and upward at right angles to the runway centerline and the extended runway centerline at specified ratios. Height limits of the transitional surface are the same as the primary surface or approach surface at the boundary line where it adjoins and increases at a rate of one foot vertically for every seven feet horizontally.

Tree – Any object of natural growth.

Variance - A grant of relief from the strict application of the ordinance provisions, typically issued by a board of zoning appeals.

Section 6–Establishment of Airport Hazard Area Zones

The Airport Hazard Area shall consist of the following zones (“Airport Hazard Area Zones”) based on Title 14 Code of Federal Regulations Part 77 (FAR Part 77) Civil airport imaginary surfaces and defined as in the previous Section:

- 1. Primary Surface (Zone 1)
- 2. Runway Protection (Zone 2)
- 3. Runway Approach Surface (Zone 3)
- 4. Transitional Surface (Zone 4)
- 5. Horizontal Surface (Zone 5)
- 6. Conical Surface (Zone 6) -

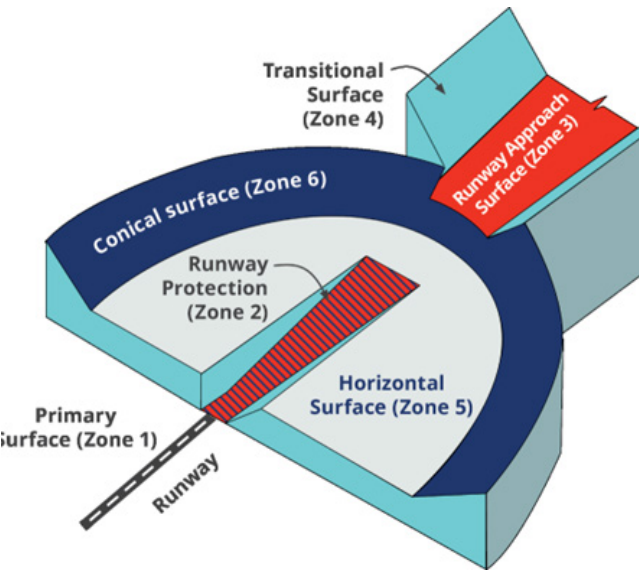


Figure 16. Airport Hazard Area Zones (Isometric View)

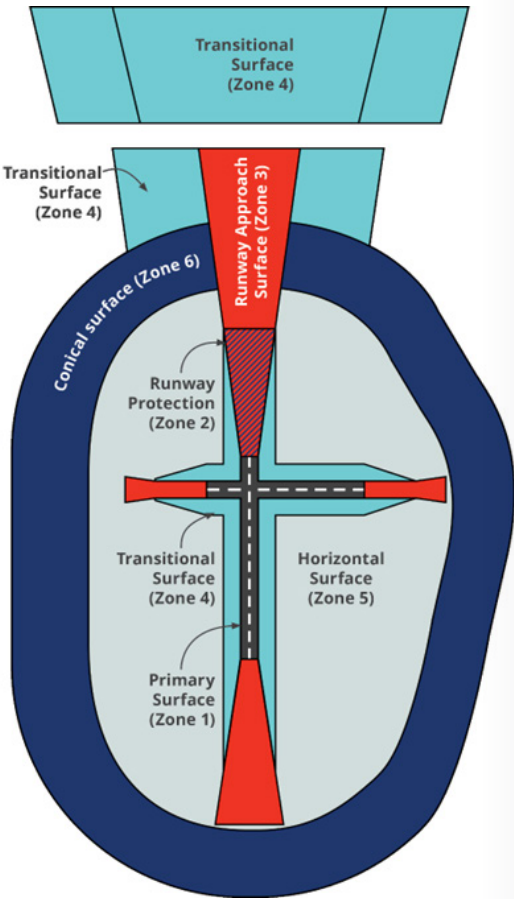


Figure 17. Airport Hazard Area Zones (Plan View)

Section 7–Height Limitations

Airport Hazard Area Zones established by these Airport Zoning Regulations regulate the use of land lying beneath the Hazard Area Zones 1 through 6 as defined in Section 6- Establishment of Airport Hazard Area Zones. Unless otherwise provided for in these Airport Zoning Regulations, no structure, object, natural vegetation, or terrain shall be erected, altered, allowed to grow or be maintained within any Airport Hazard Area Zones to a height in excess of the following table.

Table 6. Airport Hazard Area Zone Height Limitations

Zone	Zone Name
1	No development permitted excepting structures essential to runway operations such as runway lighting systems, navigational aids, and pavement markings.
2	All development Subject to FAA Airspace Review 7460-1*
3	1' in height for every 20' in horizontal distance of beginning at a point of 200' beyond and at the elevation of the end of the runway extending to a point 5,200' from the end of the runway.
4	1' in height for every 7' in horizontal distance beginning at a point 250' normal to and at the elevation of the center line of the runway extending 200' beyond each end, thereof, and extending to a maximum height of 150' above the established airport elevation of [Airport Elevation MSL] above MSL.
5	150' above the established airport elevation or a maximum of 250' above MSL.
6	1' in height for each 20' of horizontal distance beginning at the periphery of the horizontal zone extending to a height of 350' above the airport elevation or 4,000' above MSL.

Source: TDOT

Any proposed construction or alteration that is more than 200 ft. above ground level (AGL), or that exceeds an imaginary surface; or any proposed construction or alteration at a public-use airport or airport under construction, a military airport under construction, an airport operated by the Federal government or U.S. Department of Defense (DOD), or an airport or heliport with at least one FAA-approved instrument approach procedure, is required to file notice with the FAA. Filing notice includes submitting the Notice of Proposed Construction or Alteration (Form 7460-1).

Property owners and developers can determine whether a project requires FAA review by using the FAA's Notice Criteria Tool, available at: <https://oeaaa.faa.gov>

If required, Form 7460-1 must be submitted electronically through the FAA's Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) system. The FAA will evaluate the proposal and issue a determination of hazard or no hazard to air navigation.

Variances to the listed height limitations can be granted if the owner/developer can provide one of the following requests:

- 1. Use of the FAA Notice Criteria Tool resulted in the development not requiring a Form 7460-1.
- 2. The FAA finds no hazard or impact to airport approaches after conducting the required airspace review.

In the case that a proposed structure or vegetation is located between zones, the zone with the most significant height restriction shall be utilized.

Section 8–Allowable Uses

Land use within the Airport Hazard Area Zones shall be permitted only if they comply with the regulations established in Section 7- Height Limitations and do not create airport hazards as defined in this ordinance. All uses must be consistent with the safe and efficient operation of the airport and compatible with FAA regulations.

Table 7. Allowable Uses in Airport Hazard Area Zones

Zone	Zone Name	Allowable Uses	Notes
1	Primary Surface	Runway Lighting Navigational Aides Pavement Markings	No other development permitted.
2	Runway Protection Zone	[Determined by Municipality or County]	[Determined by Municipality or County]
3	Runway Approach Surface	[Determined by Municipality or County]	[Determined by Municipality or County]
4	Transitional Surface	[Determined by Municipality or County]	[Determined by Municipality or County]
5	Horizontal Surface	[Determined by Municipality or County]	[Determined by Municipality or County]
6	Conical Surface	[Determined by Municipality or County]	[Determined by Municipality or County]

Source: [Name of Municipality or County]

Any use not specifically listed as allowable under this Code shall be prohibited unless reviewed and approved by the JAZB to ensure compatibility with airport operations and safety. Notwithstanding the foregoing, uses that pose a hazard to air navigation—including but not limited to dense residential developments, schools, hospitals, landfills, industrial operations emitting smoke or steam, recreational facilities with high occupancy, reflective surfaces, and electronic installations that may interfere with airport operations—shall not be approved under any circumstances.

Section 9–Nonconforming Uses

1.

Existing Uses - Structures or vegetation that existed prior to the effective date of these Airport Zoning Regulations and do not conform to the newly established height limitations shall not be subject to removal, modification, or alteration solely due to their nonconformance.
- Further, these Airport Zoning Regulations shall not impede the continuation of any lawful nonconforming use. Construction or alteration of any structure that commenced prior to the ordinance’s effective date and is being pursued with due diligence shall not be affected by the provisions herein. Requests to expand, modify, or continue nonconforming uses within the Airport Hazard Area shall be subject to review by the JAZB.
2.

Marking or Lighting - Notwithstanding the protections afforded to existing nonconforming structures or vegetation, the owner of any such obstruction shall, upon request, allow the installation, operation, and maintenance of appropriate markers and/or lighting as determined necessary by the [Name of Municipality or County] and the [Name(s) of Airport(s)]. These visual aids are intended to alert aircraft operators to the presence of potential obstructions in the vicinity of the airport. All associated costs for installation, operation, and maintenance shall be borne by the [Name(s) of Airport(s)].

Section 10–Implementation

1.

Existing Uses - No building permit shall be granted that would allow the establishment or creation of an obstruction or permit a nonconforming use, structure, or tree to become a greater hazard to air navigation than it was on the effective date of this ordinance or any amendments.
2.

Future Uses - No material change shall be made in the use of land, no structure shall be erected, or otherwise, established, and no tree shall be planted in any zone hereby created, unless a building permit, therefore, shall have been applied for and granted.

Each application for a building permit within an Airport Hazard Area shall indicate the purpose for which the building permit is desired, with sufficient particularity to permit it to be determined whether the resulting use, structure, or tree would conform to the height regulations of the Airport Hazard Area Zones herein prescribed.

No building permit for a use inconsistent with the provisions of this ordinance shall be granted, unless a height variance has been qualified for in accordance with the provisions of [Section 7- Height Limitations](#).

All applications for building permits, variances, or changes in land use within the Airport Hazard Area shall be subject to review and approval by the JAZB prior to final action by the [Name of Municipality or County] permitting authority.

Section 11–Enforcement and Penalties

It shall be the duty of the [Name of Municipality or County] Building Inspector to enforce the zoning codes of each jurisdiction to administer, inspect, and enforce the provisions set forth in this ordinance.

Any violation of this ordinance or any regulation, order, or ruling promulgated hereunder, shall be issued penalties as prescribed within the [Name of Municipality or County] Zoning ordinance, which has jurisdiction over the territory in question.

(Consider recommending minimum penalty standards or referencing specific enforcement procedures. Any enforcement or penalties should be consistent with local zoning enforcement procedures.)

Section 12–Board of Appeals

The [Name of Municipality or County] chief legislative body shall create a board of zoning appeals of three (3) or five (5) members, and shall specify the mode of appointment of members to the board and their terms, which terms shall be of such length and so arranged that the term of one (1) member shall expire each year. The compensation of the members of the board shall be as fixed by the members of the chief legislative body. The duties of the board of zoning appeals shall include:

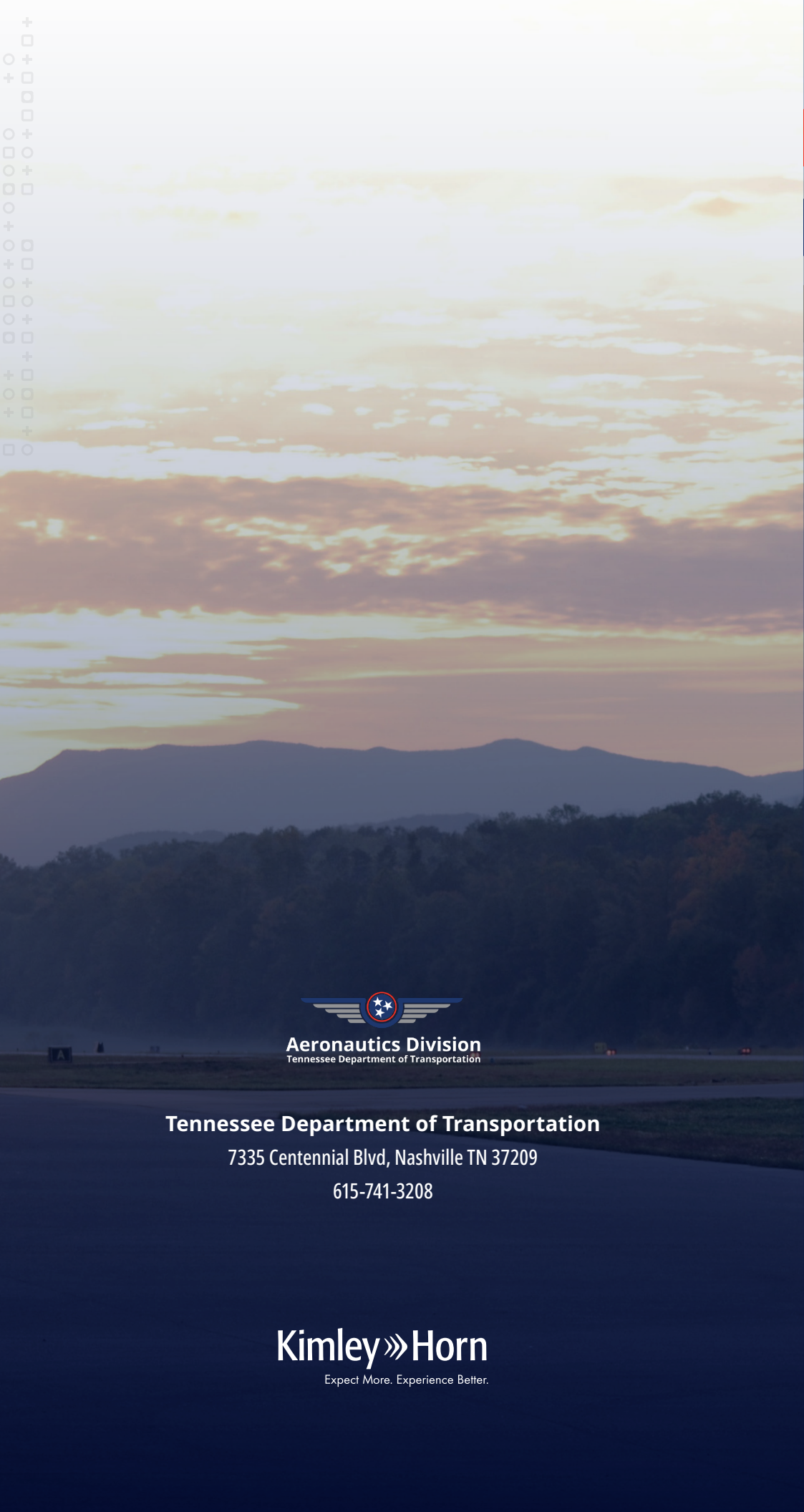
- Insert duty
- Insert duty
- Insert duty
- Etc

Section 13–Severability

If any section or provision of this ordinance is held invalid, the remainder shall not be affected.

Section 14–Effective Date

This ordinance shall take effect upon adoption by the [Name of Municipality or County] governing body. Adopted on this [day] day of [month], [year].



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