

AIRPORT LAND USE COMPATIBILITY EXECUTIVE SUMMARY



The Tennessee aviation industry upholds core values of respect, integrity, service, and excellence while maintaining public trust and supporting neighborhood compatibility. Tennessee's airports connect communities, boost the economy, and protect public safety and security.

Land Use Basics

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 promote effective protection. Protecting the land surrounding an airport from incompatible uses and height obstructions helps ensure safe and efficient airport operations. These protections help airports continue serving their communities today while allowing room for future growth as community needs change.

Adopting Compliant Airport Zoning Regulations

Adopting airport zoning regulations for communities with an airport hazard area is required under **Tennessee Code Annotated (T.C.A.) Title 42, Chapter 6**, which establishes the legal framework for protecting airports from incompatible development and airport hazards.

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.

Suggested Elements:

- 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, stormwater impoundments, or agricultural practices that attract birds.



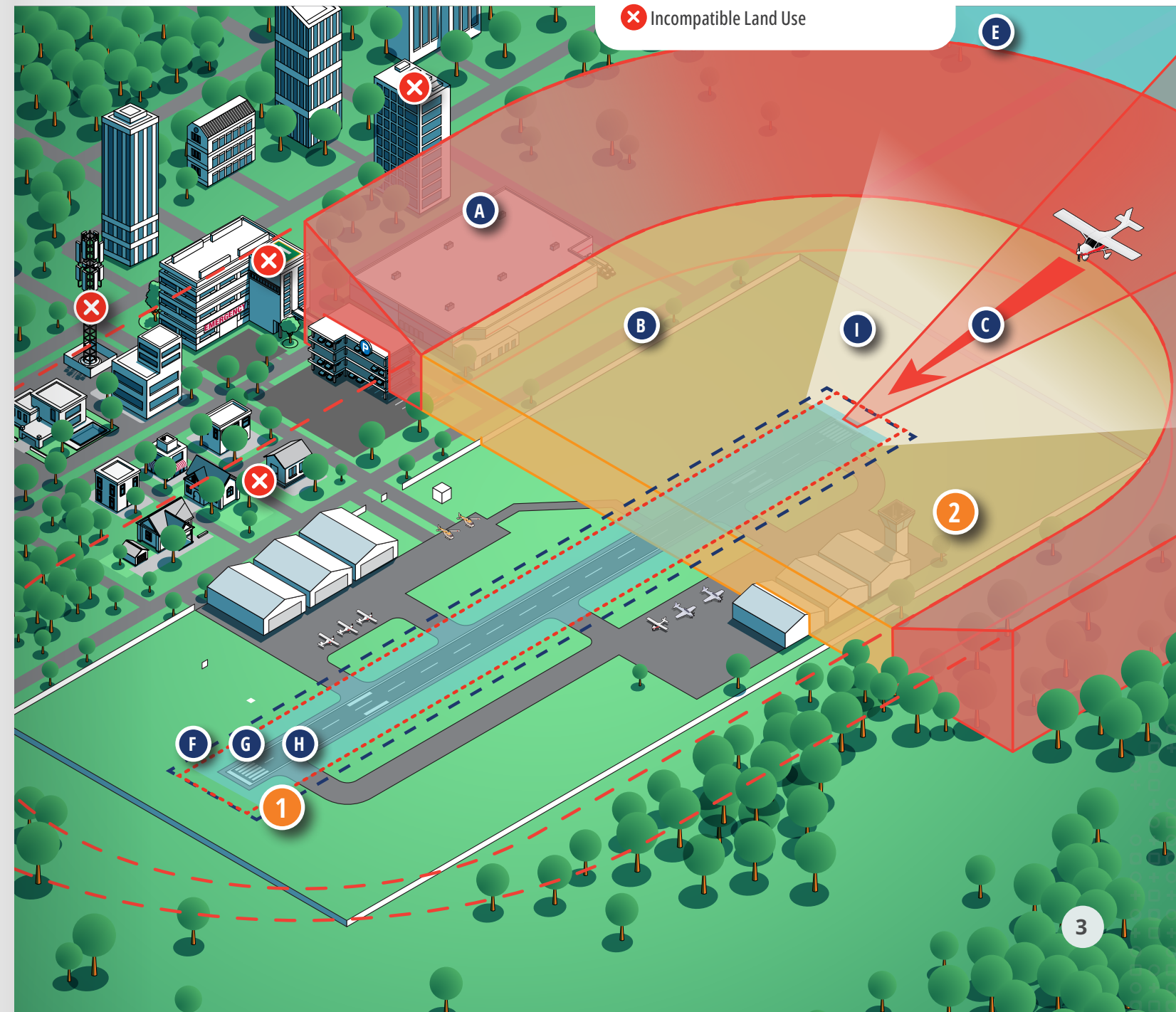
Imaginary Surfaces

Figure 1 depicts the Runway Protected Surfaces, which defines the required safety zones surrounding runways. These surfaces establish obstacle-free areas necessary for safe aircraft operations and inform land-use controls both on and adjacent to the airfield

Figure 2 shows the imaginary surfaces, which are regulatory obstruction-evaluation planes used to ensure that structures, vegetation, and other potential obstacles do not penetrate protected airspace or interfere with aircraft approach, departure, or circling procedures.

Legend

- 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





Regulatory Basics

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.

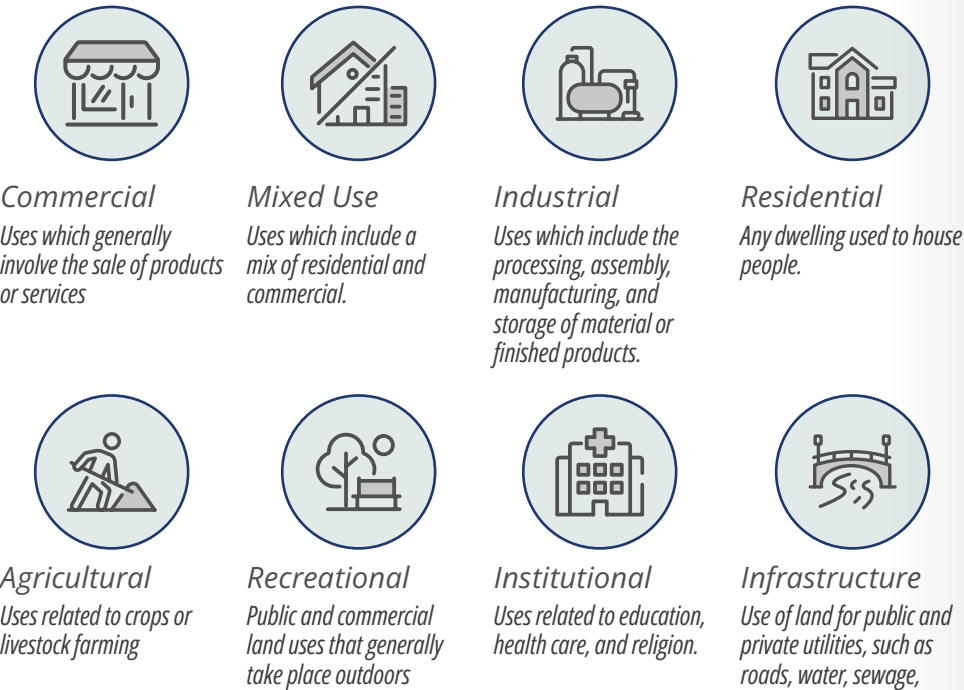
State Role supports compatibility by providing regulatory direction, oversight, and funding support for planning and airport development.

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

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.

Figure 3. Classifications of Land Use

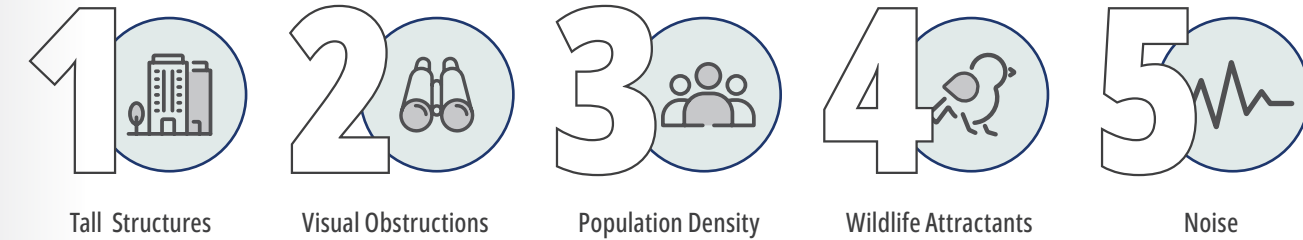


Five Main Characteristics of Incompatible Land Use

Five primary characteristics influence land use compatibility near an airport, as shown in **Figure 4**. These characteristics 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 4. Five Main Characteristics of Incompatible Land Uses



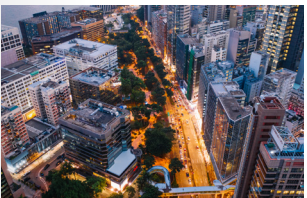
Tall Structures

Tall structures are one of the most common sources of land use incompatibility near airports. These obstructions may affect both visual and instrument flight procedures, sometimes requiring adjustments to approach paths that complicate takeoffs and landings.



Visual Obstructions

Visual obstructions are considered incompatible development characteristics because they can interfere with a pilots or air traffic controller ability to see aircraft, runways, or other critical features.



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.



Wildlife Attractants

Wildlife attractants are considered an incompatible development characterisitc because they increase the risk of wildlife strikes, which can damage aircraft and threaten safety.



Noise

Noise sensitivity is considered an incompatible development characteristics 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.



Current Compliance with State and Federal Law

Airport zoning regulations are required for every municipality or county with an airport hazard area, including those without airports. To determine which municipalities and counties are required to adopt airport zoning regulations, TDOT Aeronautics Division analyzed which were within airport hazard areas. Below highlights current how many municipalities and counties that have adopted airport zoning regulations

166 municipalities and counties that are required to maintain airport zoning regulations

43 municipalities and counties that have adopted airport zoning regulations accessible online

123 municipalities and counties that need to adopt regulations

TDOT Has Provided Model Zoning Ordinances to Support Adoption

For more information on adopting compliant airport zoning regulations, check the full Guidebook

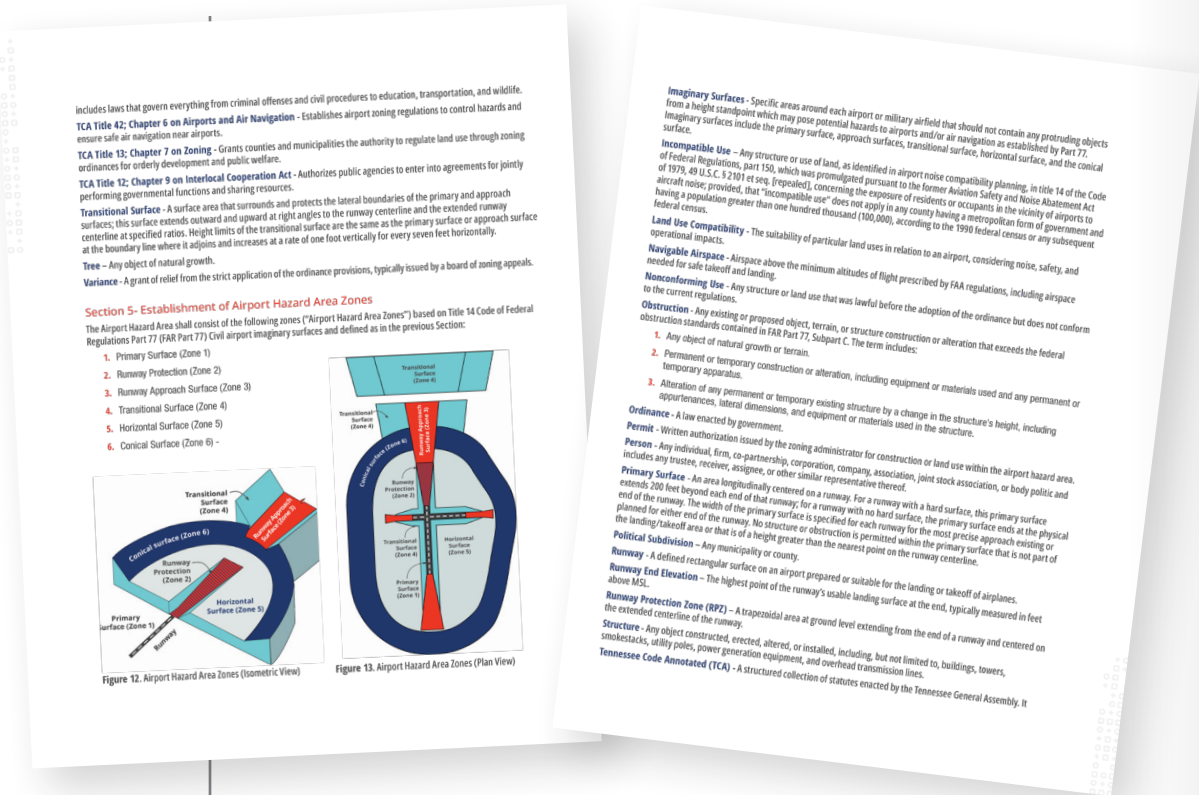


Table 1: Land Use Compatibilities

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

Where to Adopt Zoning Regulations?

Zoning Ordinances

Ordinances related to zoning are established and enforced by local governments. To support communities in this process, TDOT has developed state-compliance model ordinances that local communities may consider adopting in their zoning ordinances.

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.

Comprehensive Plan Updates

Updating the local comprehensive plan is a critical step in maintaining land use compatibility around airport facilities. 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.



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