



Tennessee General Aviation Airport Management Guide

A Guide for General Aviation Airport Managers

Tennessee Department of Transportation | Aeronautics Division | November 2021



Contents

.....	0
DISCLAIMER	6
FORWARD	6
CHAPTER 1: INTRODUCTION	7
CHAPTER 2: ROLES AND RESPONSIBILITIES	9
I) TENNESSEE DEPARTMENT OF TRANSPORTATION.....	9
II) TENNESSEE DEPARTMENT OF TRANSPORTATION AERONAUTICS DIVISION.....	10
III) FEDERAL AVIATION ADMINISTRATION.....	11
IV) TENNESSEE AIRPORT SPONSORS	11
<i>NPIAS Airports</i>	11
<i>Public Use/Non-NPIAS Airports</i>	13
V) OTHER STATE AGENCIES.....	13
VI) OTHER FEDERAL AGENCIES	14
VII) REGIONAL PLANNING ORGANIZATIONS	15
<i>Metropolitan Planning Organizations (MPOs)</i>	16
<i>Rural Planning Organizations (RPOs)</i>	16
CHAPTER 3: TDOT AERONAUTICS DIVISION AIRPORT PROGRAMS	17
I) STATE AIRPORT IMPROVEMENT PROGRAM.....	17
II) AIRPORT MAINTENANCE PROGRAM	17
III) AIRPORT GROUNDS MAINTENANCE EQUIPMENT GRANT PROGRAM	18
IV) STATE SAFETY AND MAINTENANCE INSPECTIONS	18
V) STATE AVIATION EDUCATION AND OUTREACH PROGRAMS.....	19
VI) AIRPORT PAVEMENT MANAGEMENT PROGRAM	20
VII) AUTOMATED WEATHER OBSERVATION SYSTEM (AWOS) PROGRAM.....	21
VIII) FAA SAFETY INSPECTIONS AND REPORTING.....	22
IX) TENNESSEE AVIATION SYSTEM PLAN	23
CHAPTER 4: AIRPORT PLANNING	24
I) INTRODUCTION	24
<i>NPIAS Performance Factors</i>	25
<i>NPIAS Planning Principles</i>	25
<i>NPIAS National Priority System</i>	26

<i>TDOT Aeronautics Division Tennessee Aviation System Plan (TASP)</i>	26
II) STATE AIRPORT PLANNING DOCUMENTS	28
<i>Airport Master Plans and Airport Layout Plans</i>	28
<i>Environmental Planning Documents</i>	29
III) AIRPORT DEVELOPMENTAL PLANNING PROCESS	29
<i>Airport Master Plan and ALP Development Process</i>	31
<i>Pre-Planning Assessment</i>	31
<i>Community and Public Engagement Planning</i>	32
<i>Existing Conditions</i>	34
<i>Aviation Forecasts</i>	34
<i>Facility Requirements</i>	34
<i>Alternatives Development and Evaluation</i>	34
<i>Airport Layout Plans (ALPs) or Standalone Airport Layout Plan Updates</i>	36
<i>Implementation Plan/Airport Capital Improvement Plan (ACIP)</i>	37
<i>Financial Feasibility Analysis</i>	38
<i>Airport Environmental Planning</i>	38
CHAPTER 5: FUNDING FOR AIRPORT IMPROVEMENT PROJECTS	42
I) INTRODUCTION	42
<i>STATE BLOCK GRANT PROGRAMS</i>	43
<i>APPORTIONMENT FUNDING</i>	44
<i>Non-Primary Airports</i>	44
<i>Non-Primary Entitlements</i>	44
<i>Revenue Producing Facility Projects</i>	44
<i>NPE Reimbursement Option</i>	45
<i>State Apportionment</i>	45
<i>DISCRETIONARY FUNDING</i>	46
III) STATE FUNDING ASSISTANCE	46
<i>AIRPORT IMPROVEMENT PROJECTS</i>	46
<i>STATEWIDE PROGRAMS</i>	47
<i>AERONAUTICS ECONOMIC DEVELOPMENT FUND</i>	47
IV) LOCAL FUNDING.....	47
V) OTHER FUNDING SOURCES.....	48
VI) PROJECT FUNDING ASSISTANCE AND PROJECT ELIGIBILITY.....	48

VII) GRANT FUNDING PROCESS.....	48
<i>Requesting Grants</i>	50
<i>Project Review and Funding Procedures</i>	50
<i>Types of Grants</i>	53
<i>General Grant Information</i>	54
<i>General Invoicing Information</i>	56
<i>Grant Invoicing Process</i>	57
<i>Grant Assurances</i>	57
CHAPTER 6: AIRPORT CAPITAL IMPROVEMENT AND DEVELOPMENT	58
I) ACIP OVERVIEW	58
II) AIRPORT PROJECT PRIORITIZATION AND EXECUTION PROCESS	58
<i>STEP 1: PLAN AIRPORT DEVELOPMENT AND PROJECTS (PLANNING PHASE)</i>	60
<i>STEP 2: STUDY, EVALUATE AND PRIORITIZE PROJECTS (PLANNING PHASE)</i>	60
<i>STEP 3: STUDY AND ACQUIRE LAND (LAND PHASE)</i>	61
<i>STEP 4: NEGOTIATE PROJECT DESIGN SCOPE AND PRELIMINARY STUDY (DESIGN PHASE)</i>	67
<i>STEP 5: WRITE/EXECUTE PROJECT DESIGN GRANTS (DESIGN PHASE)</i>	67
<i>STEP 6: PROJECT DESIGN (DESIGN PHASE)</i>	68
<i>STEP 7: BID PROJECT (DESIGN PHASE)</i>	69
<i>STEP 8: NEGOTIATE SCOPE AND NEGOTIATE FEES (CONSTRUCTION PHASE)</i>	70
<i>STEP 9: WRITE/EXECUTE GRANT (CONSTRUCTION PHASE)</i>	70
<i>STEP 10: CONSTRUCT PROJECT (CONSTRUCTION PHASE)</i>	71
<i>STEP 11: CLOSE PROJECT</i>	73
CHAPTER 7: AIRPORT FINANCE.....	76
I) GENERAL FINANCE.....	76
<i>AIRPORT BUDGET DEVELOPMENT</i>	76
<i>Airport Income Sources</i>	77
<i>Airport Expenses</i>	77
<i>MEASURING AIRPORT ECONOMIC IMPACT</i>	78
<i>FAA POLICY REGARDING USE OF AIRPORT REVENUE</i>	80
<i>AIRPORT REVENUE GENERATION</i>	80
II) LEASING AND USE AGREEMENTS.....	81
<i>MINIMUM STANDARDS</i>	82
<i>RULES AND REGULATIONS</i>	82
<i>EXCLUSIVE RIGHTS</i>	83
<i>RATES AND CHARGES</i>	84

TERMS AND CONDITIONS.....	84
III) LIABILITY AND INSURANCE.....	85
IV) CONSULTANT SELECTION	86
CHAPTER 8: AIRPORT OPERATIONS.....	89
I) SAFETY.....	89
<i>Public Safety Protection.....</i>	<i>90</i>
<i>Tenant and Contractor Safety Protection / Minimum Standards.....</i>	<i>91</i>
<i>Employee Protection</i>	<i>91</i>
<i>Aircraft Fueling and Fuel Storage</i>	<i>92</i>
<i>Notice to Airmen (NOTAM)</i>	<i>94</i>
<i>Airfield Driving Programs</i>	<i>94</i>
<i>Wildlife Hazard Mitigation</i>	<i>94</i>
<i>Maintenance Equipment</i>	<i>95</i>
<i>Airfield (Airside) Maintenance.....</i>	<i>95</i>
<i>Landside Maintenance</i>	<i>97</i>
<i>Record Keeping.....</i>	<i>97</i>
III) EMERGENCY PREPAREDNESS.....	97
<i>Airport Emergency Plan.....</i>	<i>98</i>
<i>Emergency Training and Airport Orientation</i>	<i>98</i>
<i>Aircraft Accidents and Incidents.....</i>	<i>98</i>
IV) SECURITY	99
<i>Safety and Security Guidelines</i>	<i>99</i>
<i>Development of an Airport Security Program</i>	<i>100</i>
TDOT AERONAUTICS DIVISION CONTACT INFORMATION.....	101
<i>MAILING ADDRESS</i>	<i>101</i>
<i>WEBSITE.....</i>	<i>101</i>
<i>EMAIL ADDRESSES</i>	<i>101</i>
DEFINITIONS.....	102
APPENDICES	110
• APPENDIX A: GENERAL AVIATION DEVELOPMENT PLAN CHECKLIST	110
• APPENDIX B: ELIGIBLE AND INELIGIBLE NPE PROJECTS.....	110
• APPENDIX C: PROJECT RESTRICTIONS BY FEDERAL FUND TYPE.....	110
• APPENDIX D: AERONAUTICS DIVISION ACIP FLYER.....	110

- **APPENDIX E: TDOT AERONAUTICS DIVISION HANGAR LEASE AGREEMENT TEMPLATES**110
- **APPENDIX F: TDOT AERONAUTICS DIVISION AIRPORT LEASE AGREEMENT GUIDE**.....110
- **APPENDIX G: EXAMPLE TDOT AERONAUTICS DIVISION AIRPORT DEVELOPMENT STANDARDS**
110
- **APPENDIX H: MINIMUM STANDARDS FOR AGRICULTURAL AVIATION OPERATORS**110
- **APPENDIX I: MINIMUM STANDARDS FOR FIXED BASE OPERATORS**.....110
- **APPENDIX J: AIRPORT HANGAR LEASE**110
- **APPENDIX K: TDOT AERONAUTICS DIVISION TEMPLATE HANGAR LEASE**110
- **APPENDIX L: AIRPORT LEASE AGREEMENTS AND LAND RELEASE PROCEDURES GUIDE** 110
- **APPENDIX M: TENNESSEE GENERAL AVIATION AIRPORT INSPECTION GUIDE**.....110
- **APPENDIX N: TSA SECURITY GUIDELINES FOR GENERAL AVIATION AIRPORT OPERATORS AND**
USERS110
- ACKNOWLEDGEMENTS**.....110

Disclaimer

This is a living document produced and updated by TDOT Aeronautics Division. Reproduction of this document is prohibited.

FORWARD

Tennessee's 79 public use airports are critical components of the nation's and state's transportation network, linking and providing access to regional, national and global transportation systems. Tennessee's unique geographic location in the middle of the country provides convenient business and logistics access to domestic and global markets. In fact, Tennessee is home to FedEx World Hub at Memphis International Airport, the nation's busiest, and world's second busiest cargo airport. Aviation infrastructure and related aeronautical activities throughout Tennessee are a vital part of the state infrastructure network contributing an estimated \$31 billion in total economic activity annually to the state's economy; representing associated annual tax revenues of \$888 million and supporting 237,000 jobs in aviation related industries. Additionally, many of Tennessee's General Aviation airports are integral to the growth and economic opportunity of many community-based manufacturers and businesses throughout the state, granting those businesses access to global markets.

This guide is developed for Tennessee General Aviation Airport Sponsors and Managers to assist them in their efforts planning, managing, and operating their respective airports through the documentation of policies, procedures, and guidelines for the planning, operation, and maintenance of public use airports. The subjects included in the guide are not all inclusive and, for most subjects, contain only general information. This guide supersedes the previous Tennessee Airport Management Manual which was first distributed to Tennessee Airport Sponsors and Managers in 1978. The original 1978 Airport Management Manual was produced by Middle Tennessee State University (MTSU) under a grant from the Tennessee Department of Transportation, Aeronautics Division. This guide follows the general outline of the previous edition and incorporates established standards and accepted aviation and engineering practices from that document which remain applicable today. The guidebook update aligns with Division retrospective regulatory and guidance review initiatives to modify, streamline or repeal regulations or guidance that are obsolete or out-of-date.

CHAPTER 1: INTRODUCTION

The State of Tennessee maintains one of the nation's most comprehensive and well-developed statewide aviation systems. To support the continuing growth and operation of the system, the Tennessee Department of Transportation Aeronautics Division provides financial and technical assistance to publicly owned Airport Sponsors and Managers for the planning, development, promotion, construction, and operation of public-use airports throughout the state. The Aeronautics Division administers both state and federal funding for Airport Capital Improvement projects in accordance with Tennessee Code Annotated Title 42 – Aeronautics. Additionally, the Aeronautics Division is responsible for the operational safety and efficiency of the state aviation system including providing engineering services, aviation planning studies, airport improvement and project design consultation services to state airports. Additional division duties include airport safety inspections, airport maintenance, maintaining a statewide airport system plan, promoting aviation education, and providing flight services to all branches of state government.

Title 42 Chapter 2 of Tennessee Code Annotated contains the authority for the Tennessee Department of Transportation to carry out aviation programs and provides specific guidelines concerning Tennessee Department of Transportation - Aeronautics Division administration. Title 42 also establishes state law related to Aircraft and Airports and outlines eligibility for state and federal aviation grants.

The Aeronautics Division developed this guide to provide Airport Sponsors, Airport Managers and other interested parties with an understanding of Aeronautics Division funding and development programs, airport planning, funding processes, and associated state and federal requirements. Additionally, the guide is intended to provide information and guidance to Airport Sponsors and Airport Managers in order to assist them with a wide range of activities under their purview to include financial management, oversight of contracts and leases, safety and security, noise control, community relations, compliance with federal grant provisions, facility maintenance, and revenue producing projects.

The guide is intended to present a broad array of relevant material in a way that will assist Airport Sponsors, Airport Managers, and Airport stakeholders in the effective management of General Aviation Airports. The guide does not represent all material relevant to managing a General Aviation Airport, nor is it intended to be a complete reference guide. Due to the diversity of Tennessee General Aviation Airports, both in terms of geography and size, as well as

constantly changing regulatory guidance and the dynamic nature of the aviation industry, the guide cannot be considered a single authoritative source.

Topics regarding General Aviation Airport administration and management not covered in this guide should be addressed to the Tennessee Department of Transportation Aeronautics Division. The Tennessee Department of Transportation Aeronautics Division encourages Airport Sponsors and Airport Managers to freely share their knowledge and feedback with the division and other Tennessee General Aviation Airport Sponsors and Managers.

Federal Aviation Administration (FAA) advisory circular citations in this manual are current at the time of adoption. The advisory circular numbers and subject matter may be changed by FAA and can be confirmed on FAA's website at [\[link\]](#).

CHAPTER 2: ROLES AND RESPONSIBILITIES

There is a strong partnership between the Tennessee Department of Transportation Aeronautics Division and Airport Sponsors and Managers. Additionally, there are many other agencies and groups that have a vested interest in, and are integral to, maintaining the growth and development of Tennessee's aviation system. Each of the agencies and groups identified in this chapter serve a role and has responsibilities that support individual airports in Tennessee, the Tennessee aviation system, and the overarching regional and national transportation network.

I) TENNESSEE DEPARTMENT OF TRANSPORTATION

It is the responsibility of the Tennessee Department of Transportation to support the development of airports and aviation in the state. Tennessee Department of Transportation is authorized per Chapter 2, Title 42 of Tennessee Code Annotated:

"The department is authorized to spend funds that may be available for the purpose of furthering aeronautics generally in the state of Tennessee." (TN Code Annotated § 42-2-218)

"The department is empowered to work in connection with the Tennessee valley authority, or any department or agency of the federal government, for the purpose of rendering service or advancing aeronautics generally in the state, and to spend such available funds as are necessary to carry out the work." (TN Code Annotated § 42-2-220)

The Tennessee Department of Transportation develops goals, policies, and standards to guide funding programs most efficiently. The Tennessee Department of Transportation is also authorized to operate state-owned airports and accept federal grant money through the State Block Grant Program.

The Tennessee Aeronautics Commission (TAC) advises the Tennessee Department of Transportation Commissioner on the issuance of loans and grants through the State Transportation Equity Fund (TEF) and upon any matters relating to airports to which the Commissioner may refer. This includes funding to airport sponsors for the purpose of planning, acquiring, constructing, or improving public airport facilities.

II) TENNESSEE DEPARTMENT OF TRANSPORTATION AERONAUTICS DIVISION

The Aeronautics Division is a transit division within the Tennessee Department of Transportation that supports, promotes, and delivers services that encourage and enhance a sustainable, efficient, and safe state air transportation system. The mission of the Aeronautics Division is to provide Tennessee with a quality, integrated aviation system that is safe, efficient, economical and sensitive to environmental concerns, serves the needs of local communities; and, provides state government with safe, professional, courteous flight services in an efficient, comfortable manner. To achieve this mission, the Aeronautics Division's responsibilities include the following:

- Administers funding programs including the Federal Aviation Administration (FAA) State Block Grant Program, the State Transportation Equity Fund (TEF), and the Aeronautics Economic Development Fund.
- Administers applicable provisions of the Tennessee Code Annotated Title 42.
- Provides engineering technical assistance with airport project development and facility improvements.
- Assists Airport Sponsors with financial aspects of proposed projects including, coordinating all phases of federal grants and state contracts, reviewing all project requests received from Airport Sponsors, and provides guidance and assistance on funding eligibility, guidelines and procedures.
- Plans for the development of the state aviation system via the Tennessee Aviation System Plan.
- Coordinates and maintains Tennessee's Airport Capital Improvement Plans (ACIPs).
- Performs safety and maintenance inspections of all non-Part 139 certified General Aviation Public Use Airports.
- Supports maintenance activities of General Aviation Airports.
- Promotes aviation throughout the state through communications, outreach, and educational activities.

In order to fulfill the Aeronautics Divisions mandate to support public use airports and aviation requirements throughout the State of Tennessee, the division is organized into three sections: Flight Services Section, Transportation Programs Section, and Engineering and Planning Section. The Aeronautics Division has assigned engineers and aviation planners from the Engineering and Planning Section to each state airport to provide technical assistance and expertise with

airport planning, engineering, design, and construction. Additionally, Program Monitors from the Transportation Programs Section have been assigned to airports to provide for the administration and management of state and FAA grant programs for their respective airports. Pilots and Ground Support Crewmembers from the Flight Services Section provide air transport support to various branches of state government.

III) FEDERAL AVIATION ADMINISTRATION

The continuing mission of the Federal Aviation Administration (FAA) is to provide the safest, most efficient airspace system in the world. The FAA aids with the planning, design, and construction of airports through the Airport Improvement Program (AIP). The FAA also establishes and disseminates design and operational standards for airports through Advisory Circulars (ACs) and other publications. The FAA holds airports accountable to Federal Grant Obligations and enforces these obligations through the Airport Compliance Program which is jointly administered with TDOT Aeronautics Division.

IV) TENNESSEE AIRPORT SPONSORS

All Airport Sponsors in Tennessee, regardless of ownership and public or private airport operations, have obligations and responsibilities to ensure the safe operation of their airports. All airport operators are responsible for the maintenance of their airports as well as budgeting and financial activities associated with the airport. The Airport Sponsor maintains the overall responsibility for individual airport development projects. Airport Sponsors are encouraged to coordinate with TDOT Aeronautics Division and contracted professional airport consulting services for technical and financial guidance, however the initiation and completion of airport improvement projects is the responsibility of the Airport Sponsor.

Additional specific responsibilities of Airport Sponsors are dependent on the classification of the airport and the airport role in the FAA National Plan of Integrated Airport Systems (NPIAS). Airports that are included in the NPIAS are eligible for federal funding and therefore must adhere to additional FAA and state standards and obligations.

NPIAS Airports

The responsibilities of the public-use airports in Tennessee included in the NPIAS include (but are not limited to) the following:

- **Compliance with Tennessee Code Annotated Title 42, Chapter 5.** Part 1 of Title 42, Chapter 5 authorizes incorporated cities, incorporated towns, and counties to establish

public airports. Part 1 of Title 42, Chapter 3 defines the powers of municipalities to establish municipal airport authorities to administer the airport.

- **Compliance with State and Federal Grant Assurances.** Both federal and state aid programs carry with them certain obligations on the part of the local government receiving funds. Airport Sponsors are obligated to both FAA and TDOT for past grants.
- **Up-to-date Airport Layout Plan (ALP).** Sponsors, in conjunction with Airport Managers, are responsible for the long-term development planning of the airport. TDOT Aeronautics Division recommends airports update their ALPs at least every ten years or as frequently as needed.
- **Participation in the Five-Year Airport Capital Improvement Program (ACIP).** The ACIP is a need based, five-year plan of potential planning, development or equipment purchases that identifies and prioritizes projects for airports based on the approved ten-year ALP. The ACIP is the primary planning tool for systemically identifying, prioritizing, and assigning funds to meet critical airport development and associated capital needs. Submission of airport projects to the ACIP is required to secure federal and state, project funding. Additional information on funding programs is provided later in this guide in Chapter 5: *Funding for Airport Improvement Projects*.
- **Adherence to State Safety and Maintenance Requirements.** The State General Aviation Airport Inspection is an annual inspection requirement used to verify and validate the safety and maintenance status of the airport installation and surrounding areas for annual State Public-Use Airport Licensing. The annual General Aviation Airport License review, inspection, and approval are a critical component of a systematic review process that ensures the overall maintenance and safe functioning of State General Aviation Public Use Airports. Airport Sponsors are required to obtain annual airport licensing from the State and meet State airport inspection requirements. Additional information on State Safety and Maintenance requirements is found in *Chapter 8: Airport Operations*.
- **Obstruction Clearance.** Sponsors are responsible for keeping their runway approaches clear of obstructions to the appropriate FAA standards found at this [\[link\]](#).
- **Airport Minimum Operating Standards.** Airport Sponsors should develop and publish up-to-date Airport Minimum Operating Standards and Rules and Regulations that have been adopted by local ordinance. The development and adherence to Airport Minimum Standards will ensure and promote safe airport operations and proper business practices.

- **Consultant Selection.** Airport Sponsors are required to select airport professional services consultants who will provide high-quality services at reasonable expense. Guidelines for formal and informal consultant selection can be found in *Chapter 7: Airport Finance, Section IV Consultant Selection*.
- **Federal Aviation Regulations (FAR) Part 77 Height Restrictions and Land Use Zoning.** Airport sponsors must work with local planning offices at the municipality, county and regional level to establish and enforce local ordinances regarding height restrictions around the airport and ensure land use plans and airport overlay zones support compatible land use around airports. Chapter 6 Title 42 of Tennessee Code Annotated – Airport Zoning – provides zoning and land use guidance to airports.
- **Update FAA 5010 Master Record and Based Aircraft data.** Tennessee Airport Managers and Airport Sponsors are responsible for maintaining accurate airport facility information via the FAA 5010 Master Record. TDOT Aeronautics Division Program Monitors in the Transportation Programs Section can assist airport professionals with updating their facility's 5010 Master Record. Airport Managers can maintain the tail numbers of the aircraft based at their facility via that FAA's National Based Aircraft Inventory Program held on basedaircraft.com.

Public Use/Non-NPIAS Airports

Non-NPIAS airports do not receive federal funding; therefore, they are not required to adhere to most federal grant assurances. Although Non-NIPIAS airports are not subject to many of the federal requirements, they must maintain a safe operating environment for pilots and aircraft utilizing the facility as well as adhering to basic airport safety and design requirements. Non-NPIAS public-use airports in Tennessee can participate in several state-funded TDOT Aeronautics Division airport programs. Privately owned public use non-NPIAS airports also receive annual State Airport Safety Inspections, maintain annual State Airport Licensure, and must adhere to the FAR Part 77 height zoning models. Typically, these airports are not included within the NPIAS because they do not meet the minimum criteria:

- At least 10 based aircraft,
- Located at least 20 miles from another NPIAS airport, and
- Adequate opportunities for expansion or improvements at the site.

V) OTHER STATE AGENCIES

There are additional state agencies that are a factor in airport planning, development and funding. These agencies include, but are not limited to:

- **Tennessee Department of Tourism Development.** Tennessee’s tourist attractions are easily accessible via air transportation and Tennessee’s Department of Tourism Development is a key stakeholder for Airport Sponsors who wish to promote tourist attractions accessible via community public-use airports.
- **Tennessee Department of Economic and Community Development.** The Tennessee Department of Economic and Community Development is the lead agency for economic, community, and business development in the state. The department actively promotes aeronautics, aerospace, and defense related business and development opportunities throughout the state.
- **Tennessee Department of Environment and Conservation.** The Tennessee Department of Environment and Conservation, Division of Water Pollution Control manages runoff from facilities. Airports may be subject to licensing and permitting by the department.
- **Tennessee Department of Revenue.** The Tennessee Department of Revenue administers the state aviation fuel sales tax and the department provides guidance for collecting the aviation fuel tax and the use of airport revenues. Airport Managers and Airport Sponsors are required to report aviation fuel sales and submit fuel sales information to the Department of Revenue via the Tennessee Taxpayer Access Point (TNTAP).
- **Tennessee Department of Agriculture.** The airport fuel system is subject to licensing and certification by the Tennessee Department of Agriculture, Division of Weights and Measures.
- **Tennessee Wildlife Resources Agency.** Protected and non-protected wildlife damage and hazard control procedures at airports are subject to Tennessee Wildlife Resources Agency permitting.

VI) OTHER FEDERAL AGENCIES

In addition to the FAA, there are other federal agencies and resources that may play a role in the development and operation of airports in the state. These agencies include, but are not limited to:

- **Transportation Security Administration (TSA):** The TSA provides passenger and baggage security at commercial air carrier airports in the state. In addition, the TSA has published Security Guidelines for General Aviation Airport Owners and Users. This reference contains guidelines and recommendations to Airport Sponsors, Airport

Managers, and operators for implementing security initiatives at general aviation airports and facilities.

- **Environmental Protection Agency (EPA):** The EPA requires airports to follow several rules and regulations to reduce any potential environmental impact from airport development and operation. The basic rules and regulations concerning General Aviation airports are:
 - Airports that store AVGAS or jet fuel are required to develop Spill Prevention, Control, and Countermeasure (SPCC) Plans to reduce the likelihood of a spill in accordance with Section 311(j) of the Clean Water Act.
 - Airports must obtain stormwater discharge permits under the National Pollutant Discharge Elimination System (NPDES) permit program. Additionally, NPDES regulations require that a Stormwater Pollution Prevention Plan be written for each facility that has been issued a stormwater discharge permit.
 - Airports must follow Airport Deicing Effluent Guidelines to ensure that wastes from deicing are properly collected and treated.
 - If a proposed project contains potential environmental impacts, that project may be subject to National Environmental Policy Act (NEPA) regulations. NEPA regulations may require Environmental Assessments (EAs), Environmental Impact Statements (EISs), and Documented Categorical Exclusions (CATEX) to assess the likelihood of any impacts to the natural or human environment as well as any alternative courses of action. The State and the FAA require the EPA documents prior to funding a project. Agencies are required to disclose any environmental impacts identified in the EA or EIS to the general public or interested parties.
- **U.S. Army Corps of Engineers:** The Nashville District administers the Corps of Engineers regulatory permit program for streams and wetlands in Tennessee. When airport projects involve wetlands or other aquatic resources, the airport must coordinate with the Corps to determine if the proposed project or activity requires a permit under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act.

VII) REGIONAL PLANNING ORGANIZATIONS

Federal law and Federal transportation legislation require states to consult and coordinate with local officials in both metropolitan and rural areas of the state with Metropolitan Planning Organizations (MPOs) and Rural Planning Organizations (RPOs) respectively. These

organizations were developed to support statewide coordination and planning of transportation projects through a continuing, comprehensive, and cooperative transportation planning process. It is important that MPOs/RPOs have a clear understanding of aviation development requirements outlined in the Airport Layout Plan and Airport Master Plans in their regions. It is incumbent upon Airport Sponsors and Airport Managers to convey to MPO and RPO representatives the importance of continued development and maintenance of airports in their region as well as integration into the regional transportation network.

Metropolitan Planning Organizations (MPOs)

Federal transportation legislation requires all urbanized areas of over 50,000 or greater population to maintain a continuing, comprehensive and cooperative transportation planning process. The organization responsible for carrying out this transportation planning process is called a Metropolitan Planning Organization (MPO). Federal funding for transportation projects and programs is channeled through this planning process. Tennessee’s MPOs are Bristol, Chattanooga, Clarksville, Cleveland, Jackson, Johnson City, Kingsport, Knoxville, Lakeway, Memphis, and Nashville.

Rural Planning Organizations (RPOs)

Federal law requires states to consult and coordinate with local officials in rural areas of the state. Rural Planning Organizations (RPOs) serve a similar function as MPOs for the rural areas of the state. The purpose of an RPO is to involve local officials in multimodal transportation planning through a structured process, to ensure quality, competence, and fairness in the transportation decision-making process.

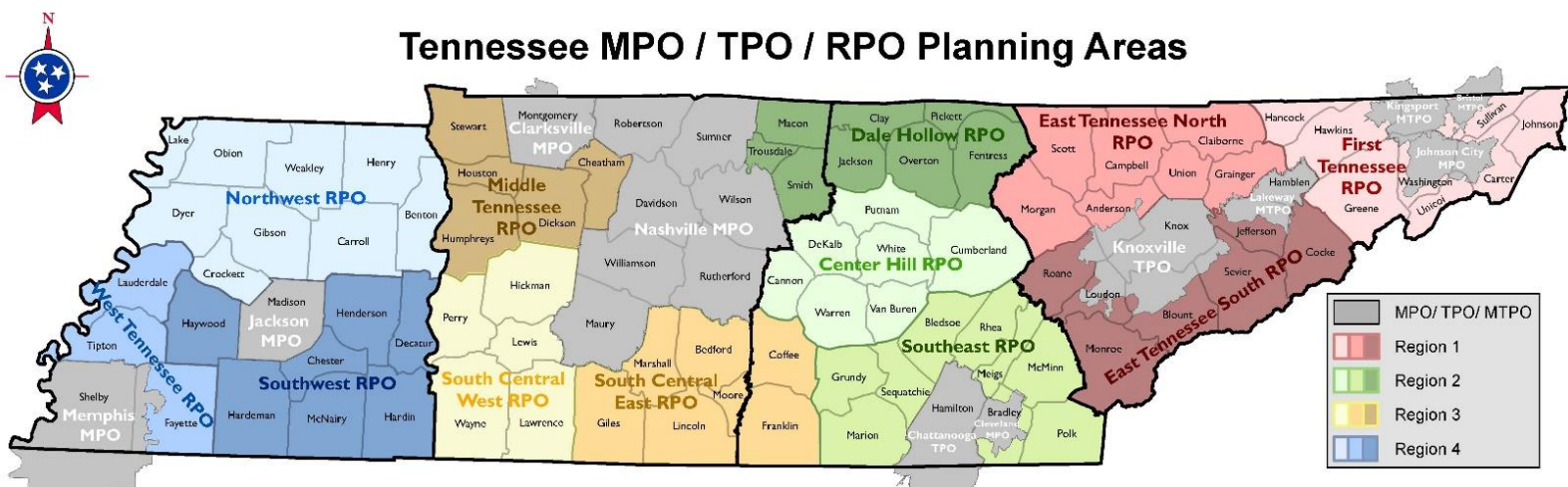


Figure 1 outlines the MPOs and RPOs throughout Tennessee

CHAPTER 3: TDOT AERONAUTICS DIVISION AIRPORT PROGRAMS

I) STATE AIRPORT IMPROVEMENT PROGRAM

The State Airport Improvement Program is the state funding program of the Tennessee Department of Transportation which is authorized under Tennessee Code Annotated § 42-2-218. The State Airport Improvement Program funds airport safety, regulatory, and operations projects as well as capital development projects. Safety and regulatory projects include projects such as improving the condition of pavement and the replacement of airport equipment such as lights or navigational aids. Capital development projects expand the airport for the purpose of increasing capacity and/or alleviating congestion. Airport capital development projects are processed and approved through the Tennessee Aeronautics Commission. This program is supported through federal, state and local funding. Additional information on airport project funding and the funding process can be found later in *Chapter 5: Funding for Airport Improvement Projects*.

II) AIRPORT MAINTENANCE PROGRAM

The Airport Maintenance Program is intended to assist municipalities with their efforts to maintain and preserve their publicly owned public use airport facilities. Under the Airport Maintenance Program, airports are eligible for reimbursement for minor airport maintenance and safety correction projects that utilize both local municipality staff and on-call consultants and contractors necessary for the safe and efficient functioning of the airport. Maintenance projects include, but are not limited to:

- Minor crack sealing,
- Small full-depth pavement patching,
- Minor pavement markings,
- Minor seal coating,
- Joint sealing, seal grading, and seal rejuvenation,
- General grounds maintenance and mowing activities,
- Minor drainage repair, shoulder grading and erosion control,
- Beacon painting/rehabilitation,
- Marking and rubber removal,
- Airport signage,

- Fire extinguishers maintenance, and
- Pressure washing.

In order to participate in the Airport Maintenance Program, Airport Sponsors are required to sign a Maintenance Grant Agreement with TDOT Aeronautics Division. TDOT Aeronautics Division will reimburse a percentage of actual documented costs for eligible expenses as defined in the grant contract, not to exceed the limiting amount of the airport's maintenance contract. Airports should contact their Aeronautics Division Airport Project Manager with any maintenance project or eligibility inquiries. This program is supported with state funding.

III) AIRPORT GROUNDS MAINTENANCE EQUIPMENT GRANT PROGRAM

The TDOT Aeronautics Division Grounds Maintenance Equipment Grant Program is a state funded program designed to assist public use airport operators for the upkeep and preservation of airport grounds, roads and other physical airport infrastructure. The program is intended to assist airports with offsetting the high cost of grounds maintenance equipment acquisitions required to maintain the airport facility in a condition adequate to support safe and efficient airport operations. The equipment eligible for funding under the program includes grounds maintenance equipment required by the airport for planned, preventative, and routine grounds maintenance necessary to provide a safe, well-ordered, and secure airport environment. Additionally, the state and TDOT stipulates that grounds maintenance equipment acquired through the program be primarily garaged and solely utilized on the airport.

Airport operators should contact their Aeronautics Division Airport Project Manager or Program Monitor for Ground Maintenance Equipment Grant Program eligibility and equipment use inquiries. This program is supported with state and local funding.

IV) STATE SAFETY AND MAINTENANCE INSPECTIONS

Tennessee Code Annotated § 42-2-211 requires that landing areas for aircraft are inspected or evaluated annually to determine if the facility meets the minimum safety standards and requirements for TDOT licensing. Aeronautics Division administers the safety inspection and licensing program for all public use General Aviation airports. During the inspections, an Aeronautics Division inspector examines runway, taxiway and ramp conditions, airport markings, airport lighting, runway approach angles, and control of approach obstructions. Following the inspection, an inspection report is generated by Aeronautics Division staff and

submitted to Airport Sponsors and Airport Managers. The inspection report outlines the inspector's observations and any safety concerns identified.

Airport inspection reports are divided into two parts, Section I and II. Section I describes safety violations that must be corrected to meet TDOT licensing standards. Section II describes other safety or maintenance items that the inspector noted during the inspection and that require attention before they become Section I violations impacting TDOT licensing standards. Section II may include additional items that relate to FAA requirements or operational recommendations.

Airport Sponsors are responsible for ensuring the items noted in the report are corrected as promptly as possible. Issuance of a State Public-Use Airport License depends on the correction of the item(s) identified in Section I of the report. The Airport Sponsor is required to forward a response outlining the plan-of-action to correct the safety problems. In some instances, a re-inspection may be necessary. Failure to address safety violations identified in the inspection report may result in the loss of State Public-Use Airport licensure and associated airport funding.

V) STATE AVIATION EDUCATION AND OUTREACH PROGRAMS

The purpose of TDOT Aeronautics Division Aviation Education and Outreach Program is to increase public awareness and knowledge of aviation related fields throughout Tennessee. The program focus involves increased concentration on aviation educational programs and activities for students in high school and higher education programs. The goal of the education programs is to cultivate student interest in, and knowledge of, aeronautics and aviation related career fields in Tennessee. Emphasis on these student outcomes, in conjunction with greater involvement with service and education organizations, increases knowledge of the economic benefits of aviation in Tennessee. Additionally, the program may result in a trained workforce for employment aviation businesses. These results can be used by community leaders to attract aviation related businesses or industry to the area.

Promotion of the aviation field in Tennessee is primary objective of the Aviation Outreach and Education Program and the updated program application requires applicants to specifically identify how the prospective Aviation Outreach and Education Program intends to influence Tennesseans to pursue aviation education, careers, activities, and more in the state. The

program application requires that each applicant describe in detail the type of program for which the applicant is requesting funding along with the program's targeted population, location, dates, and purpose. In addition, each applicant is required to outline in detail how the program will promote aviation in the state, the goals and objectives of the program, and the aviation subject area or areas that will be addressed during the program. An additional requirement of the application process is the use of performance measures to determine if the program is meeting its stated goals, objectives, and aviation impacts. Finally, applicants are required to provide detailed justification of why the applicant requires funding from TDOT Aeronautics Division for the proposed program. Applicants should contact the Transportation Programs Section to determine program appropriateness and project eligibility.

VI) AIRPORT PAVEMENT MANAGEMENT PROGRAM

Pavement condition is a critical measure of airport performance in Tennessee and is important both from a cost effectiveness and aviation safety standpoint. Aircraft perform takeoffs and landings under extremely high speeds, making airfield pavements vulnerable to cracks, loose debris, and other structural weaknesses. Additionally, maintenance and preservation of runway, taxiway and apron pavements represents one of the largest capital investments in the State Aviation System. It is imperative that these pavements are appropriately maintained to sustain a safe and efficient system.

A Pavement Management Program (PMP) provides a consistent, objective, and systematic procedure for establishing facility policies, setting priorities and schedules, allocating resources, and budgeting for pavement maintenance and rehabilitation. The program elements include pavement inventory, pavement inspection/survey schedules, record keeping, and information retrieval. Please see FAA AC 150-5380-7B for additional information.

The Pavement Condition Index (PCI) procedure is the standard used by the aviation industry to visually inspect pavement condition. The PCI provides a consistent, objective, and repeatable tool to represent the overall pavement condition. The methodology involves walking over the pavement, identifying the type and severity of distress present, and measuring the quantity of distress. The information is then used to develop a composite index (PCI number) that represents the overall condition of the pavement in numerical terms, ranging from 100 (excellent) to 0 (failed). Further, the distress information provides insight into what is causing the pavement to deteriorate, which is the first step in selecting the appropriate repair. The

Tennessee Aviation System Plan overall PCI performance objective is 78 for runways and 75 for all other pavements.

To assist in developing the pavement program, TDOT Aeronautics Division uses PMP software. The PMP software uses the inspection results to efficiently identify pavements requiring maintenance and rehabilitation, reconstruction or repair. This information allows the user to assess overall pavement network condition, to prepare and forecast the budgets required to maintain the Tennessee Aviation System facility pavements at an acceptable condition level, and to identify required maintenance, rehabilitation, and reconstruction activities. Additionally, pavement surfaces are an inspectable area during the annual TDOT Aeronautics Division State Airport Inspection and the results of the inspection can provide Airport Sponsors and Airport Managers an additional understanding of their current pavement condition and pavement maintenance project recommendations.

The PCI system enables TDOT Aeronautics Division to make data-driven, proactive, cost-effective and strategic investments into the pavements at Tennessee's airports. It also allows TDOT to prioritize and effectively communicate to legislators, Tennessee Aeronautics Commission and Airport Sponsors the pavement needs at Tennessee airports.

Additionally, under the Airport Pavement Management Program airports may be eligible for additional pavement related professional and testing activities funding. Examples of professional and testing activities include:

- Pavement project planning assistance,
- Pavement structure determination,
- Pavement Classification Number (PCN) determinations,
- Geotechnical investigations and studies,
- Pavement marking reflectivity testing,
- Pavement friction testing,
- Pavement roughness testing.

VII) AUTOMATED WEATHER OBSERVATION SYSTEM (AWOS) PROGRAM

The Automated Weather Observation System (AWOS) is an array of weather collection equipment that utilizes a computerized system to collect aviation specific weather parameters every 20 minutes. The systems are designed to promote pilot safety and provide on-site weather information at General Aviation airports.

The system also formulates and publishes the information into a report called a METAR (Meteorological Aerodrome Report) that can be used by pilots during flight planning. Additionally, the METAR information can be relayed to weather agencies, television stations, and other agencies via the National Airspace Data Interchange Network (NADIN) for analysis and further weather information distribution. The AWOS monitors aviation weather conditions such as:

- Wind direction and speed,
- Temperature,
- Relative humidity,
- Visibility,
- Barometric pressure,
- Density altitude, and
- Cloud ceiling.

Due to the importance of this weather information TDOT Aeronautics Division has made a commitment to providing weather information to both the flying and general public by installing and maintaining a network of 40 AWOS at airports throughout the state.

Airport Sponsors are responsible for routine user level sensor maintenance to include:

- Landscaping near the system,
- Electricity to the unit,
- Phone line to the unit and,
- Internet access for system information dissemination.

VIII) FAA SAFETY INSPECTIONS AND REPORTING

The FAA Airport Safety Data Program is the primary means for the collection, maintenance, and dissemination of information contained in State General Aviation Airport Master Records. The TDOT Aeronautics Division administers the FAA 5010 Safety Data Program for the state's public-use airports. TDOT Aeronautics Division collects and records FAA 5010 airport data every three years typically in conjunction with the State Annual Safety and Maintenance Inspection required for public use airport licensure. The information is used by the FAA to develop the Airport and Facility Directory as well as by the state to update the Tennessee Airport Guide.

IX) TENNESSEE AVIATION SYSTEM PLAN

The Tennessee Aviation System Plan (TASP) provides the State of Tennessee with critical data and information to assist in decision making and project prioritization for the State's airports. The primary purpose of the TASP is to study the performance and interaction of Tennessee's airports to understand their interrelationship and identify the overall State airport system needs. The TASP is intended to guide decisions and educate those who oversee the system, including local, State, and federal policy makers.

Tennessee has five commercial service airports (FAA terms these airports as Primary Airports) that provide regularly scheduled passenger air service, in addition to other General Aviation, cargo, and military operations. Another 74 General Aviation public-use airports provide mixed aviation services that support air cargo service, unscheduled passenger operations, medical services, military operations, recreational flying and a variety of other aviation-related activities.



Tennessee Public Use Airport System

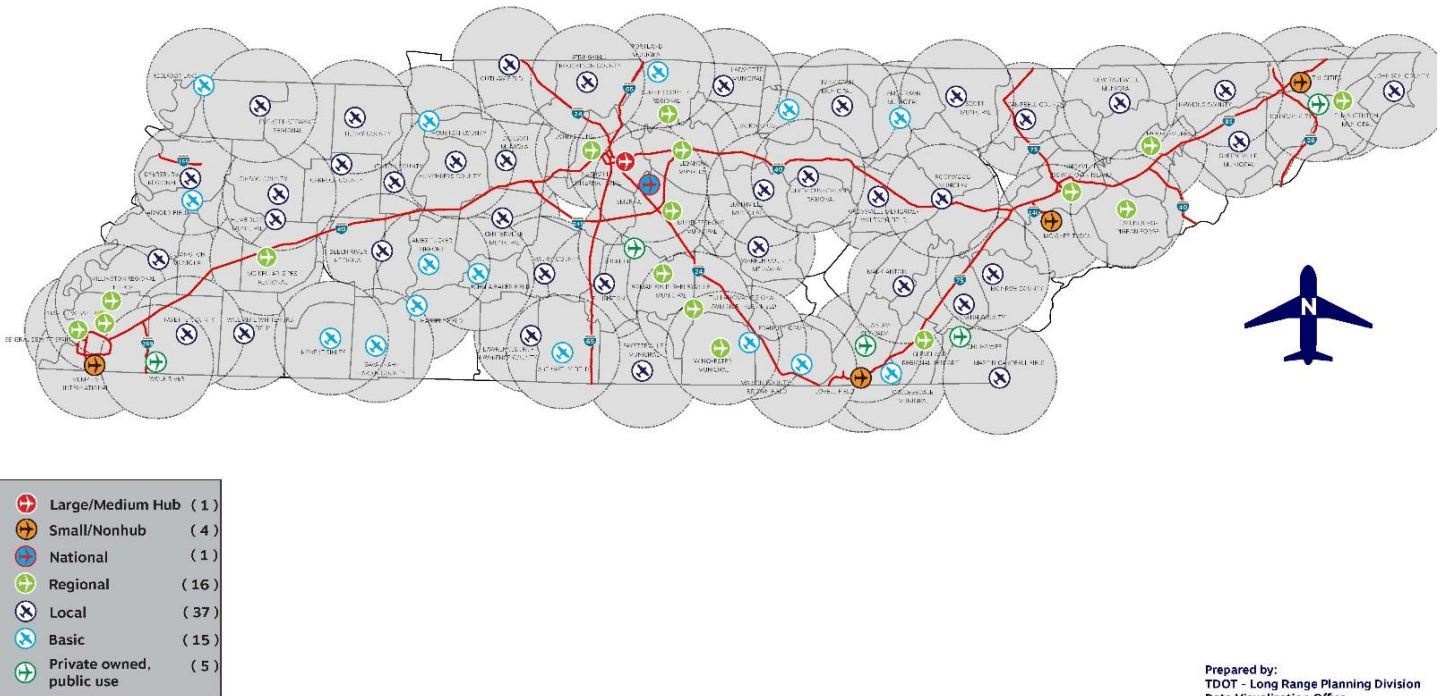


Figure 2 depicts the locations of these facilities and the 20-mile local area radius served by the airport

CHAPTER 4: AIRPORT PLANNING

1) INTRODUCTION

Airport planning and development is essential for the success of an airport. Airport planning provides the foundation of an airport by creating a plan not only for the development, but also for the process used to implement the planned project. Airport planning is one of the key responsibilities of the Airport Sponsor that cannot be delegated. It is the Airport Sponsor's responsibility to ensure that the local airport remains an asset to the community. The airport must be adequately developed to meet the requirements of the local area. Conversely, it is equally important to ensure that the airport does not become over-developed and an unsupportable public liability.

Airport planning is conducted to:

- Meet current and future demand,
- Promote safe and efficient airport operations,
- Determine the most cost-effective method to implement facility improvements, and
- Ensure that the facilities fit into the community and regional transportation and economic development plan.

Airport development is conducted to avoid:

- Being unprepared for emerging airport requirements
- Incompatibility with local land use plans and zoning ordinances
- Outdated planning documents
- Poor communication with TDOT Aeronautics and/or FAA
- Not involving all stakeholders throughout the entire planning process
- Lack of foresight (i.e. releasing or selling land that should be kept for future airport development).
- Inflexibility/rigidity (i.e. developing hangars and a hangar layout that accommodates existing aircraft types/mix without considering if the based aircraft fleet will change in the future).
- Non-integrated facility approach (i.e. failure to consider traffic flows to hangars, FBOs, and terminals when developing taxiway system or location of fuel farms, aircraft and vehicle co-use traffic).

- Piecemeal planning (i.e. proceeding with development without project prioritization, focusing on revenue producing projects ahead of fundamental maintenance and safety projects, project does not fit with existing airport plans or vision).
- Unrealistic planning (i.e. failing to understand the true demand associated with the airport market area, overambitious airport planning documents leave an airport with facilities that are difficult to fund or result in an overbuilt airport with unused or empty facilities).

NPIAS Performance Factors

NPIAS System Performance Factors were developed by FAA planners to assess the overall quality of the national aviation system and the provision of air transportation. The NPIAS System Performance Factors are:

- Capacity,
- Safety,
- Environment,
- Pavement Condition,
- Surface accessibility, and
- Financial performance.

The six performance factors are utilized by the FAA to provide an indication of system performance as a whole and can be used to assess the performance of individual airports and guide airport development. Airports can utilize the six factors to set priorities for project development. Recently, the FAA has placed emphasis on improvements in safety, maintenance, and capacity. Please see FAA Order 5090.5. for additional information.

NPIAS Planning Principles

Airport planning and development in Tennessee is guided by the nine primary principles of the NPIAS:

- Airports should be safe and efficient, located at optimum sites, and developed and maintained to appropriate standards.
- Airports should be affordable to both users and government, relying primarily on user fees and placing minimal burden on the general revenues of the local, state, and federal governments.

- The airport system should help air transportation contribute to a productive national economy and international competitiveness.
- The airport system should support national objectives for defense, emergency readiness, and postal delivery.
- Airports should be compatible with surrounding communities, maintaining a balance between the needs of aviation and the requirements of residents in neighboring areas.
- Airports should be permanent, with assurances that they will remain open for aeronautical use over the long term.
- Airports should be flexible and expandable, able to meet increased demand and to accommodate new aircraft types.
- Airports should be developed in concert with improvements to the air traffic control system.
- The airport system should be extensive, providing as many people as possible with convenient access to air transportation, typically by ensuring that most travelers will have no more than 20 miles to travel to the nearest NPIAS airport.

NPIAS National Priority System

The national priority system, as outlined by the NPIAS through the principles, guides the general distribution of funds, with flexibility provided if there is additional analysis and justification. The state airport priority and planning process is consistent with the NPIAS principles and provides for evaluating projects based on the following criteria:

- Aviation needs,
- Economic benefits,
- Population requirements, and
- Surface transportation needs of the local area and the state.

TDOT Aeronautics Division Tennessee Aviation System Plan (TASP)

The TDOT Aeronautics Division Project Management and Planning Office assist Airport Sponsors with their airport planning responsibilities. At the state level, the Tennessee Aviation System Plan (TASP) identifies airport needs such as runway extensions, new runways, navigational aids, and pavement needs over a 20-year period. The TASP expands beyond the NPIAS to include additional state airports that would serve the requirements of the state air transportation system in addition to the national system. Aeronautics Division concentrates planning efforts on statewide aviation system planning to include:

- Inventory information,
- State Aviation system capabilities,
- Airport Master Plan recommendations,
- Airport Layout Plan (ALP) updates,
- Airport Capital Improvement Plan (ACIP) programming, and
- Aeronautics Division budgetary outlays.

The Aeronautics Division can assist Airport Sponsors with evaluation of proposed airport developmental projects with respect to overall statewide airport systems plan objectives, as well as federal and state policies and guidelines. When conducting a joint evaluation and prioritization of a proposed project with Aeronautics Division Project Managers and Planners, Airport Sponsors can expect to evaluate projects based on the following factors:

- Costs – Are adequate funds available to support the project?
- Local Support – Is there enough interest by the local government? Is the local government willing to provide full local share? Historically, how well have local government/sponsors supported the airport and/or its projects?
- Transportation, Industry, and Regional Impacts – Is there a special need by local or regional industry? What are the local economic impacts of the project? Is there adequate transportation to support the project?
- Aircraft Operations – Does the project have merit based on the number and type of aircraft operations at the airport?
- Airport Infrastructure – Do the existing airport facilities complement the project?
- Based Aircraft – Does the project have merit based on the number and type of aircraft based at the airport?
- Airspace Constraints – Is the project feasible, acceptable, and suitable based on available airspace?
- Geography – What impacts will geography have on the feasibility of the project?
- Environmental Impacts – What are the potential environmental constraints or impacts of the proposed project?

For more detailed information on TDOT Aeronautics Division airport project evaluation requirements refer to **Appendix D: Aeronautics Division ACIP Flyer**.

II) STATE AIRPORT PLANNING DOCUMENTS

Three main planning documents are used for planning at General Aviation airport facilities. These planning documents (Airport Master Plan, Airport Layout Plans, and environmental planning documents) are specific in their purpose, can be developed at various points during the lifecycle of the airport, and relate to each other. These documents are used by both commercial service and General Aviation airports. These documents are the foundation for conducting airport planning and codifying future airport development plans.

Airport Master Plans and Airport Layout Plans

Airport Master Plans and Airport Layout Plans (ALPs) are long-range plans that detail the growth and development of the airport. The Airport Master Plans are typically based on a 20-year planning time frame and are required to be reviewed and updated every 20 years. TDOT Aeronautics recommends that ALPs be reviewed and updated every 10 years. Additionally, in order to receive project funding, a proposed airport development project must be annotated on either an Airport Master Plan or ALP. An Airport Master Plan is a comprehensive study of an airport and typically describes the short, medium- and long-term development plan to meet future aviation demands. Generally, Master Plan studies are completed at: Air Carrier airports, proposed new or replacement airports, and General Aviation Airports with significant based aircraft or operations.

In most instances, an ALP is the planning document that will be developed or updated at most General Aviation Airports instead of a complete Master Plan. Funding is available through the Aeronautics Division to assist Airport Sponsors and Airport Managers in the development and update of both the Airport Master Plan and ALP.

Airport Master Plans and ALPs are a companion set of documents essential to the development of an airport. These two documents combine to provide the foundation from which an airport sponsor can make decisions about the future growth and development of an airport. The Master Plan document is the detailed narrative piece of the planning process that documents the planning process itself, alternatives, and recommendations based on FAA approved aviation forecasts. The ALP is the airport planning drawing set that graphically depicts the recommendations of the planning process consisting of at least a cover sheet and seven scaled drawings of existing and proposed land and facilities required for the operation of the airport. Additionally, the ALP contains air usage information, land usage information along with a narrative report to provide justification for airport improvement projects.

Generally the ALP should be updated at least every ten years and whenever a major improvement project has been completed at the airport or sooner if airport development has accelerated beyond the scope of the previous ALP, when a major improvement is anticipated but not shown on the current ALP or as requested by the state or the FAA. Tennessee public use airports not included in the NPIAS are requested to maintain an ALP and update that ALP as requested by TDOT Aeronautics Division. Private Airports open for Public Use are not required to maintain an ALP or Engineering Drawing; however, other conditions of this section may apply as noted. Additionally, Private Airports open for Public Use are subject to TDOT Aeronautics Division and/or TAC funding requirements. Although the initial review of all proposed airport developments is part of the Airport Layout Plan update process, the ALP is a planning document and all construction or other improvement projects will require submission of a *FAA Form 7460-1, Notice of Proposed Construction or Alteration*, to the FAA. Submission of the FAA Form 7460-1 can be completed online and must be completed by the Airport Sponsor or representative 60 days prior to the start of project construction.

Environmental Planning Documents

The National Environmental Policy Act (NEPA) is the primary law that guides aviation environmental planning considerations. NEPA assures that proper technical, economical, and environmental analyses are performed before development occurs. The FAA's Airport Environmental Program assists airports in implementing NEPA regulations as well as applicable Federal environmental laws via FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Projects*. Additionally, Tennessee maintains environmental laws that must be followed in addition to NEPA regulations.

There are three primary levels of review and two planning documents required to adhere to NEPA and FAA directives. The reviews are Categorical Exclusions (Cat Ex), Environmental Assessments (EA), and Environmental Impact Statements (EIS). The planning documents are Aircraft Noise Compatibility Planning and Compatible Land Use Planning. These reviews and documents are covered in detail in the Airport Environmental Planning section of the Airport Developmental Planning Process overview.

III) AIRPORT DEVELOPMENTAL PLANNING PROCESS

Airport developmental planning is the detailed planning process based upon a previously completed Airport Master Plan or ALP. The planning process is designed to ensure that guidelines are met, funding is resourced and procured, funds are properly expended, and

construction work meets specifications among other considerations. Airport planning requires significant budget formulation, communication and coordination with community officials, and local community engagement efforts.

The contents of an Airport Master Plan are governed by FAA AC 150/5070-6B, Change 2, *Airport Master Plans*. AC 150/5070-6B indicates that an Airport Master Plan and the associated ALP planning process should meet the following nine objectives:

- Document the issues that the proposed development will address;
- Justify the proposed development through the technical, economic, and environmental investigation of concepts and alternatives;
- Provide an effective graphic presentation of the development of the airport and anticipated land uses in the vicinity of the airport;
- Establish a realistic schedule for the implementation of the development proposed in the plan, particularly the short-term capital improvement program;
- Propose an achievable financial plan to support the implementation schedule;
- Provide enough project definition and detail for subsequent environmental evaluations that may be required before the project is approved;
- Present a plan that adequately addresses the issues and satisfies local, state, and federal regulations;
- Document policies and future aeronautical demand to support municipal or local deliberation on spending, debt, land use controls, and other policies necessary to preserve the integrity of the airport and its surroundings; and
- Set the stage and establish the framework for a continuing planning process. Such a process should monitor key conditions and permit changes in plan recommendations as required.

The goals of the Airport Master Plan as defined by the FAA are:

- Represent existing airport features, future airport development, and anticipated land use graphically,
- Establish a realistic schedule for implementing the proposed development,
- Identify a realistic financial plan to support development,
- Validate the plan technically and procedurally through investigation of concepts and alternatives on technical, economic, and environmental grounds,

- Prepare and present a plan to the public that addresses all relevant issues and satisfies local, state, and federal regulations, and
- Establish a framework for a continuous planning process.

Airport Master Plan and ALP Development Process

The FAA Airport Master Plan Advisory Circular provides detailed guidance on developing an Airport Master Plan and ALP. The FAA recognizes that each airport is different and that each planning process will need to be tailored to the size, function, and local challenges facing each individual airport, however each planning effort will require the same basic components:

- Pre-Planning Assessment.
- Community and Public Engagement Planning.
- Existing Conditions.
- Aviation Forecasts.
- Facility Requirements.
- Alternatives Development and Evaluation.
- Airport Layout Plans (ALPs) or Standalone Airport Layout Plan Updates
- Implementation Plan/Airport Capital Improvement Plan (ACIP).
- Financial Feasibility Analysis.

Pre-Planning Assessment

Pre-planning is the informal process conducted by Airport Sponsors and Airport Managers prior to initiating the formal airport planning process and will determine the need for public involvement during the formal planning process. Pre-planning contains several of the tasks and steps involved in developing an airport planning document. Some of the basic elements and documents required for assessing the airport and requirements for meeting development goals during pre-planning are:

- Inventory of existing conditions and facilities,
- Forecasts of aviation demand,
- Market service area assessments/cargo market studies,
- Local community economic growth plans,
- Population and employment trends,
- Operations,
- Number and/or type of based aircraft,
- Facility requirements,

- State Safety and Maintenance Inspections,
- Alternatives for development,
- Recommendations for development,
- Environmental overview,
- Financial feasibility,
- Cost estimates for development,
- Rates and fees for airport services,
- Airport revenues and budgetary information,
- Airport Layout Plan,
- Airport data sheet,
- Airport layout sheets
- Aerial and topographic features sheet,
- Approach Sheets,
- Current Airport Capital Improvement Plan (ACIP),
- FAR Part 77 surfaces sheet, and
- Airport property plan/map or Exhibit A.

Outcomes of the pre-planning process are:

- A tentative airport needs determination,
- Consultant selection (if applicable),
- Setting planning goals and objectives, and
- Obtaining planning/study funding.

Community and Public Engagement Planning

Following pre-planning meetings with key airport sponsors, a follow-up component of airport development planning is community and public involvement. Comprehensive public involvement should be used to assist in the development of individual goals for an airport consistent with local community requirements and needs. Following an initial review of airport data gathered, a series of community planning meetings should be held to discuss realistic development expectations based on the needs and issues at the airport. Furthermore, it is important for Airport Sponsors and Airport Managers to use community planning meetings to engage and educate the community on airport development fundamentals to mitigate any resistance to development projects later in the planning process. Tools and techniques for engaging key stakeholders and the public in the planning process are:

- **Master Plan Advisory Group.** A Master Plan Advisory Group provides input on information being considered and findings being developed throughout the airport planning process. The group can help assess issues and needs and can act as a sounding board for proposed development alternatives.
- **Public Information/Outreach Meetings.** The purpose of these meetings is to gather input and inform the broader public and other stakeholders of the progress of the airport planning effort.
- **City Council, Airport Authority, and/or Advisory Commission Meetings.** These meetings provide regular updates to the City Council, Airport Authority, and/or Advisory Commission on key information and the status of the planning, as well as obtaining input.
- **Public Awareness Campaign.** A public awareness campaign gets word to the general public about the airport and airport planning process. The campaign can include developing a website or newsletter to provide access to information about the airport planning project or proposed projects.

The Airport Sponsor should address the needs and goals for airside (i.e. runways, taxiways, aprons, etc.), landside (i.e. terminals, vehicle parking areas, etc.), and facilities and services, (i.e. fuel, crew cars, maintenance, etc.) at the community meetings. Finally, TDOT Aeronautics Division planners and Metropolitan Planning Organizations (MPOs) or Rural Planning Organizations (RPOs) can assist during community planning meetings or committees. Additional stakeholders required for public engagement and involvement will vary based on the complexity of the planning effort. Key airport planning stakeholders include:

- **Airport Sponsor Representatives** (i.e. airport authority, board, or commission representatives); Airport Manager; and key Airport Sponsor staff (i.e. city engineer, Economic Development Director).
- **TDOT Aeronautics Division Personnel.**
- **FAA Personnel** (if applicable).
- **Airport Users and Tenants.**
- **Other Interested Groups** (i.e. Adjacent landowners and/or developers, Chamber of Commerce representatives, neighborhood associations, historical societies etc.)
- **Other Governmental Agencies** (i.e. local political representatives, State, Regional, or Metropolitan planning agencies/organizations, TSA, etc.)

Existing Conditions

The first task in formal airport planning following the informal pre-planning process is to conduct an evaluation of existing conditions at the airport. This task becomes the foundation of the planning process because it provides information not only on the current conditions at the airport (landside/airside facilities), but also relevant information about the airport's surrounding communities and operating environment.

Aviation Forecasts

Due to the variety of different types and sizes of General Aviation aircraft and associated General Aviation activities it is important to develop projections of aviation demand. The projections of aviation demand based on aircraft sizes/types and associated activities will inform and drive future facility needs. Aviation demand is typically projected in 5, 10 and 20 year periods and includes aircraft operations, based aircraft, and aircraft fleet mix.

Facility Requirements

An airport's ability to accommodate existing and projected activity is determined using FAA approved capacity methods. Capacity is the level of activity at an airport at which unacceptable delay occurs. The derived airport capacity is then compared to aviation forecasts to determine if any additional facility capacity is required.

Typical airport facilities evaluated for capacity are:

- Runway length, width, and alignment;
- Aircraft parking,
- Fuel storage and location,
- Security,
- Access,
- NAVAIDS, and
- Facility utilities.

Future facility requirements will provide the basis for evaluating alternative development actions that might be adopted to satisfy the need for improved facilities.

Alternatives Development and Evaluation

Based on the results of the Facility Requirements assessment, feasible alternatives for developing all facilities on the airport will be evaluated. Alternatives evaluated will take into consideration the long-term development of the airport while planning for near-term

implementation of projects. Each of the identified alternatives will be compared based on overall merits and deficiencies and then ranked quantitatively and qualitatively according to their ability to meet the goals of the FAA. The basic goals and principles guiding airport development as defined by the FAA are:

- **Safety.** Facilities should be developed per FAA runway/taxiway separation geometric standards, creating no hazards to air navigation, nor obstructing any line-of-sight, and minimizing the opportunity for runway incursions. (Example of poor planning: locating a new terminal area development that blocks line-of-sight between intersecting runways.)
- **Efficiency.** The plan should maximize development space, reflect consideration of airfield traffic flow, minimize conflicts between operations, and ensure that ground access is efficient. (Example of poor planning: locating two FBO areas adjacent to one another on the same apron confusing customers.)
- **Economics.** The plan should reflect consideration of benefits versus cost, reasonable construction costs, a reasonable financing plan, consideration of opportunities for generating airport revenue, and opportunities for competition. (Example of poor planning: constructing a large hangar development without clear indication of its need or potential revenue to help offset the cost of development.)
- **Expansion.** Facilities should be planned so that once built they can be expanded if necessary. (Example of a plan often resulting from site constraints: buildings/hangars around the perimeter of an apron, not allowing future expansion of the apron.)
- **Balance.** The General Aviation facilities plan should be consistent with the airport's Airplane Design Group and runway/taxiway capability. The capacity of each facility should be in balance with that of the other facilities as appropriate. The plan should reflect the existing and forecast facility requirements. (Example of an unbalanced plan: development of apron and hangars for aircraft larger than the existing or planned runway capability.)
- **Consistency.** The General Aviation facilities plan should be consistent with the airport vision, community goals and plans, the ALP, and the intent of FAA grant assurances and established airport minimum standards.

Once a preferred development has been selected, the next step is to update the airport's ALP to illustrate all existing and planned facility development at the airport.

Appendix A contains an example of a General Aviation Development Plan Checklist that contains planning criteria that must be addressed during Airport developmental planning initiatives in accordance with FAA planning principles.

Airport Layout Plans (ALPs) or Standalone Airport Layout Plan Updates

The ALP is a package of plans that graphically present existing and future development of the airport. The FAA requires that Airport Sponsors who receive federal grants to maintain a current ALP at all times. The specific plan sheets that comprise an ALP plan set will vary with each airport planning project depending on the requirements identified in the pre-planning process, however most ALP updates contain the following components:

- **Cover Sheet.** This plan sheet has the airport's name on it and an index of drawings included in the plan set.
- **Airport Data Sheet.** This airport data sheet summarizes important existing and planned airport information.
- **Airport Layout Plan.** The ALP sheet is developed using guidelines identified in FAA AC 150/5300-13, *Airport Design*. Features depicted include prominent airport facilities (e.g., runways, taxiways, buildings, and parking areas) and any facilities to be phased out or added in the future. Areas available for aviation development and services (e.g., airport maintenance areas) are also defined in the ALP.
- **Airport Airspace Drawing.** The airspace plan or FAR Part 77 airspace drawings depict penetrations of the FAR Part 77 imaginary surfaces.
- **Inner Portion of the Approach Surface Drawing.** Runway approach drawings depict plan and profile views of the runways and governing approach surfaces. These plans include existing and future safety areas identified in FAA AC 150/5300-13, *Airport Design*.
- **Terminal Area Plan.** A detailed terminal area plan depicts aircraft parking/tie-down areas, fueling facilities, aircraft storage/hangars, buildings, and security facilities.
- **On-Airport Land Use Drawing.** The on-airport land use drawing divides the airport into aviation-related functional areas and can include noise contours to depict the level of sound occurring on the airport as a result of aircraft operations.
- **Off-Airport Land Use Drawing.** The off-airport land use drawing depicts existing and future land use of the parcels of land surrounding the airport.
- **Airport Property Map or Exhibit A.** The airport property map shows the boundary of the airport and any aviation easements owned by the airport.
- **Runway Departure Surface Drawing.** This drawing depicts departure surfaces as defined by FAA AC at [\[link\]](#).

While an ALP is part of an Airport Master Plan and the airport planning process, an update to an ALP can be done without going through the full Master Plan process. A standalone ALP update project is viewed as appropriate by the FAA when “fundamental assumptions of the previous master plan have not changed.”

Using the ALP checklist provided in Appendix C of the FAA AC 150/5070-6B, *Airport Master Plans*, airport sponsors and management can develop the scope of work for a new or updated ALP and move forward with a standalone ALP. A standalone ALP typically involves fewer components than a full master plan; however, it still requires close coordination between the Airport Sponsor, TDOT Aeronautics Division, and the consultant preparing the ALP (if applicable). The standalone ALP update or study will contain two primary sets of documents, a narrative report and the updated graphical ALP drawing set.

- **Narrative Report.** This report explains the changes to the ALP and contains the following elements:
 - Basic aeronautical forecasts
 - Basis for proposed items of development
 - Rationale for unusual design features and/or modifications to FAA Airport Design Standards
 - Summary of the three (short-term, mid-term, long-term) stages of development and drawings of the major items of development in each stage
 - An environmental overview to document environmental conditions that should be considered in analyzing development alternatives and proposed projects.
- **ALP Set.** The ALP set contains the following elements:
 - Airport Layout Drawing
 - Airport Airspace Drawing
 - Inner Portion of the Approach Surface Drawing
 - Terminal Area Drawing
 - Land Use Drawing
 - Exhibit A
 - Airport Departure Surfaces

Implementation Plan/Airport Capital Improvement Plan (ACIP)

The planning process will identify a set of various projects and facilities necessary to build or maintain airport capacity and the feasibility of proposed alternatives. Cost estimates associated with this list of projects are developed to help determine the priority and desired

sequencing of projects over the planning period. An Airport Capital Improvement Plan (ACIP) is developed as part of this task to help determine when projects will occur. Chapter Five of this guide covers airport funding for improvement projects in detail.

Financial Feasibility Analysis

The final task in the comprehensive airport planning process is the financial evaluation of the benefits and costs associated with the recommended airport development plan. This financial analysis can include the following:

- Projection of expenses, revenue, and debt service,
- Assessing rates and charges, and
- Establishing financial feasibility.

Airport Environmental Planning

When Airport Sponsors are in the early planning stages of facility development, it is important that they remain cognizant of potentially applicable Tennessee and federal environmental regulations. TDOT Aeronautics Division can provide Airport Sponsors guidance and information on specific environmental requirements for proposed projects. Environmental planning is divided into two broad categories, Environmental Review and Environmental Compatibility planning.

- **Environmental Review.** Environmental Review planning is used in conjunction with specific individual airport development projects and fulfills NEPA requirements. TDOT Aeronautics Division and engineering firms hired in support of specific development projects can assist Airport Managers and Airport Sponsors with navigating the specific environmental review requirements of proposed projects. Environmental Assessments are typically conducted by the state on behalf of the FAA under the Block Grant State arrangement. In turn, Environmental Assessments are completed by contracting firms on behalf of the state. FAA Orders 1050.1, *Environmental Impacts: Policies and Procedures* [[link](#)], and 5050.4B, *NEPA Implementing Instructions for Airport Projects* [[link](#)], provide guidance for compliance with NEPA regulations. There are three types of environmental reviews which airports can complete based on the complexity and nature of a development project. FAA Order 1050.1 identifies these major levels of review as:
 - **Categorical Exclusion (Cat Ex).** This first level of environmental review is the simplest of the three reviews. If a project or action meets certain criteria that a federal agency has previously determined as having no significant impact, the

project or action can be categorically excluded from a detailed environmental analysis.

- **Environmental Assessment (EA).** The next level of review is when a project or action must undergo an EA to determine whether a federally funded project would significantly affect the environment. If the answer is no, the state issues a Finding of No Significant Impact (FONSI). The FONSI may address measures that may have to be taken to mitigate any impacts.
- **Environmental Impact Statement (EIS).** An EIS is the most detailed of environmental reviews. At the end of the EIS, the state prepares a public record of its decision addressing the findings of the review. An EIS is conducted because (1) an EA determines that the environmental consequences of a proposed project or action may be significant, (2) the state determines that the project is environmental controversial, or (3) the state anticipates the project may significantly impact the environment.

In addition to NEPA regulations and Environmental Assessments, other types of environmental planning and requirements that could affect General Aviation facility development and planning include:

- **Aircraft Noise Compatibility Planning.** FAR Part 150 is the administrative rule promulgated to implement the *Aviation Safety and Noise Abatement Act of 1979*. FAR Part 150 sets requirements for airport operators who choose to undertake an airport noise compatibility study with federal funding assistance. Part 150 provides for developing Noise Exposure Maps (NEM) and a Noise Compatibility Program (NCP). Terminal areas, hangars, and aprons are examples of General Aviation facilities that serve as concentration points for aircraft activity and are include in the analyses conducted in Part 150 study.
- **Compatible Land Use Planning.** The most successful methods for regulating land use incompatibilities surrounding airports are local planning efforts including comprehensive plans, zoning ordinances, and previously conducted Airport Master Plans. The FAA's *Land Use Compatibility and Airports, A Guide for Effective Land Use Planning* provides guidance to airports on how to establish and maintain compatible land uses around airports. Land use planning issues can and should be considered during the airport planning process. Specific land use planning efforts include Airspace Protection and Land Use Compatibility.

- **Airspace Protection.** Airspace Protection is one of the most important roles that an Airport Sponsor can hold when interfacing with the local community. The Airport Sponsor must prevent development that would encroach on the airport's airspace. Some of the most common encroachments into terminal airspace include smokestacks, cellphone or TV towers, water towers, high rise buildings, and high-tension powerlines that might impact the approach surfaces around the airport.

Most Airport Layout Plan sets include an airspace drawing. The airspace drawing is a two-dimensional representation of the Imaginary Airport Surfaces as identified in Part 77 of the Federal Aviation Regulations (FAR). Adopting and enforcing an airport height zoning ordinance (incorporating the airspace drawing) can partially protect the airspace around the airport. Local zoning ordinances must be evaluated so that developments around the airport will not be permitted to infringe upon the landing rights, safety area or obstruction clearance altitude.

Proposed airport plans should also be designed to anticipate expected airport expansion to meet community needs as far out as 20 years into the future. The airport sponsor is also bound (through the Grant Assurances) to take appropriate action to protect the airport by restricting the use of land adjacent to and in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations. (FAA Grant Assurance, number 21).

- **Land Use Compatibility.** Airport Sponsors should consider and include land use drawings when updating their ALP sets. There are four drawings in a standard ALP set that can assist the Airport Sponsor in addressing land use compatibility. The drawings include: The Airport Layout Drawing (ALD), the Airspace Use Drawing, Land Use Drawing, and the Exhibit A. Each drawing contains information that will contribute to the Airport Sponsor and associated planners understanding of imaginary surfaces and safety areas in vicinity of the airport.

ALP Land Use Drawings contain the following types of information:

- Airport features and approximate airport boundaries,

- Land uses identified on and off airport,
- Public facilities,
- Airport Impact Zone (future planning),
- Notations detailing and recommended land use changes, ordinances, statutes, etc.

CHAPTER 5: FUNDING FOR AIRPORT IMPROVEMENT PROJECTS

1) INTRODUCTION

Public-use Airport Sponsors in Tennessee have several funding sources available to improve and maintain their airports. While the Airport Sponsor is responsible for the project justification, oversight of design and construction of projects, and managing the grant process, many of the project-related costs are eligible for state and/or federal aid described later in the chapter. Airport Sponsors can use a combination of federal, state and local funds to ensure their airports are appropriately maintained, meet federal and state safety standards, and accommodate aviation demand.

It is the Airport Sponsor's responsibility to develop and submit to TDOT Aeronautics Division and FAA an annual Airport Capital Improvement Plan (ACIP) in order to receive state and federal funding. The ACIP identifies and prioritizes projects for all airports in the state system. Annual ACIPs must be submitted to TDOT Aeronautics Division prior to the federal fiscal year end for the following fiscal year through the Aeronautics system of record. More information on the funding process can be found in Section VII Grant Funding Process of this chapter.

The state of Tennessee participates in the FAA State Block Grant Program. Under this program federal funds are awarded to the state each year in a block grant. The state then sub-awards federal funds to Airport Sponsors for airport improvement projects. TDOT Aeronautics Division manages the State Block Grant Program for the state of Tennessee. Both state and federal funding sources have eligibility requirements regarding the types of projects that can receive funding. The separate funding sources and associated requirements adds a level of complexity regarding project funding eligibility depending on project type. Frequently, a project submitted to TDOT Aeronautics Division for consideration can be eligible for state and/or federal funding.

Once a project is submitted to Aeronautics Division via the Aeronautics system of record, Aeronautics Division vets the submission and determines which funding source the project should be assigned based on eligibility requirements. Once all airport projects are submitted for funding, Aeronautics Division prioritizes the projects based on the state's priority system and the individual airport's needs. More information on the Aeronautics Division prioritization process can be found in **Appendix D: Aeronautics Division ACIP Flyer**. The following

sections discuss state and federal sources of funding for airport projects, as well as local and other non-traditional funding sources.

II) FEDERAL FUNDING ASSISTANCE

The FAA's Airport Improvement Program (AIP) funding is only available to airports that are included in the National Plan of Integrated Airports System (NPIAS). The Federal AIP provides funds for projects to improve airside and landside airport infrastructure development in accordance with [*FAA Order 5100.38D, Airport Improvement Program Handbook*](#). Specific project eligibility varies by funding types; however, land purchases, runways, taxiways, aprons, lighting, navigational aids, safety, and security are typical eligible projects. Federal AIP is funded entirely by aviation-related fees and taxes such as airline ticket taxes, segment and international travel fees, cargo fees, and aviation fuel taxes that are deposited into the Federal Airport and Airway Trust Fund. Please see FAA Order 5100.38D for additional information.

In Tennessee, Federal AIP funding falls under one of three broad categories and associated subcategories. The three broad Federal AIP funding categories for General Aviation Airports are: Non-Primary Airport Entitlements (NPE), State Apportionment, and Discretionary Funding (Non-Primary Discretionary including Military Airport Program (MAP)).

STATE BLOCK GRANT PROGRAMS

Tennessee is one of ten states that participate in the FAA State Block Grant Program governed by FAA AC 150/5100-21, *State Block Grant Program*, [\[link\]](#). TDOT Aeronautics Division assumes responsibility for administering FAA AIP funding to Non-Primary classified NPIAS airports and acts as the conduit by which eligible Airport Sponsors apply for and receive FAA funding. During the project planning, development and approval process, TDOT Aeronautics Division operates in a similar manner as the FAA. Under this arrangement, TDOT Aeronautics Division is afforded additional flexibility and discretion administering AIP funds. The Block Grant arrangement has allowed TDOT Aeronautics Division the flexibility to meet statewide airport funding requirements and maximize limited AIP and state funds. From initial planning of each project, to reviewing and approving project design, to processing grant applications, through construction of the project, to approving payment requests/invoices, and finally, acceptance for closing out each airport project. Conversely, federal funding for Primary Airports in Tennessee is allocated and administered by the FAA.

APPORTIONMENT FUNDING

Non-Primary Airports

Non-Primary Airport funds accounts for 20 percent of total Federal AIP funding and is divided into two funds, Non-Primary Entitlements and State Apportionment.

Non-Primary Entitlements.

General Aviation Airports and Commercial Service Airports with fewer than 10,000 enplanements receive Non-Primary Entitlements (NPE) up to \$150,000 per year. Non-Primary Entitlements are designated for use at specific airports eligible for NPE funding, however projects must be eligible for Federal NPE funding, justified on the Airport ALP and ACIP, and meet all airside safety needs. NPE can be carried over and accumulated year to year, however NPE funds expire in four years. The maximum NPE balance that an airport can accumulate is \$600,000 at the beginning of the fiscal year; however, airports with an accumulated NPE balance of over \$450,000 at the end of the federal fiscal and insufficient eligible projects and/or matching local share lose NPE funds.

TDOT Aeronautics Division Project Managers and Program Monitors work closely with Airport Sponsors and Airport Managers to determine the best use of NPE funding. NPE funding can be used in conjunction with other funding sources on airport projects. Project eligibility for NPE funding is typically less restrictive than other sources of federal funding. NPE funding can be used for a variety of both airside and landside improvements including revenue producing projects. Broad categories of eligible projects include:

- Airport Planning
- Airport Development
- Noise Compatibility Planning
- Noise Compatibility Projects

See **Appendix B** for a detailed table of eligible and ineligible NPE projects.

Revenue Producing Facility Projects

The Federal share of AIP eligible revenue producing facilities can only be funded with NPE funds. State apportionment and Discretionary funds cannot be used for the federal share of

these projects. Additionally, the Airport sponsor must demonstrate to TDOT Aeronautics and/or FAA ADO that the airside needs within the current FY and next two future FYs will be accommodated through local or accumulated NPE funds, barring a specific unforeseen, safety issue that must be addressed. (FAA Order 5100.38D, Change 1)

To offer guidance in evaluating the eligibility of a revenue-producing facility for AIP Funding the [Revenue-Producing Facility Application for Eligibility](#) should be completed prior to each funding request supporting a revenue-producing facility. This application does not replace or supersede any statute or regulation. A copy of the application can be found [here](#).

NPE Reimbursement Option.

Consistent with 49 USC § 47110 - Allowable Project Costs, nonprimary National Plan of Integrated Airport Systems (NPIAS) TN Airports that certify all airside needs will be funded locally for the current FY and next two FYs can choose to designate future NPE for up to three FYs (current and next two) for revenue producing aeronautical support facilities. Upon application and approval, such airports may also designate future NPE for non-revenue producing projects. This equates to a maximum of 6 years of NPE that can be reimbursable. Please understand the future NPE reimbursement will be delayed until the future NPE accrues and will require annual amendments as NPE becomes available (i.e. funding is not provided up front, airports pay for the services and are then reimbursed when NPE for current FY is available). Designating future NPE is not without liability to the Sponsor, as the State makes no assurances regarding the availability of future FAA funds. Sponsors must comply with all prompt pay laws for work performed.

State Apportionment. State Apportionment Funds can be used for a variety of eligible projects; however, they may not be used for revenue producing projects and some landside improvement projects. In most instances, State Apportionment Funds can be used at the discretion of the FAA. As a participant in the State Block Grant Program, Tennessee administers these funds at the state level. TDOT Aeronautics Division uses the State Airport Development Project Priority Ranking System as well as the FAA's prioritization methodology and eligibility guidelines to select projects that will receive State Apportionment funds.

See **Appendix C** for a table of eligible and ineligible Apportionment Fund projects.

DISCRETIONARY FUNDING

TDOT Aeronautics Division works in conjunction with the FAA to award Discretionary Funds to Non-Primary Airports. As a Block Grant State, TDOT Aeronautics Division administers and manages Discretionary Funds to General Aviation airports included in the NPIAS system throughout the state. More information about Discretionary Funding can be found in FAA Order 5100.38D.

See **Appendix C** for a detailed table of eligible and ineligible Discretionary Fund projects.

III) STATE FUNDING ASSISTANCE

Both NPIAS and non-NPIAS public-use airports are eligible for state funding assistance. State funding is used to fund three overarching categories of projects:

- **Airport Improvement Projects (AIP).** AIP projects are those airport projects that are required to meet state and maintenance requirements as well as those intended to expand the airport for the purpose of increasing capacity and/or alleviating congestion. The project must meet or exceed State Aviation System objectives or regulatory requirements. There must be a verified need for the project as listed in the approved Airport Layout Plan (ALP).
- **Statewide Programs.** Aviation and airport specific projects that include, but are not limited to Airport Grounds Maintenance Equipment Grant Program, Airport Maintenance Grant Program, Community Education and Outreach Programs, Airport Pavement Management Program, etc.
- **Aeronautics Economic Development Fund.** Aviation related projects eligible for Aeronautics Economic Development Fund financing include aviation research projects, aviation capital investment projects, aviation education, aviation workforce training initiatives judged critical to the development of economic development of communities across the state.

Each of these three state funding categories are discussed in additional detail in the following subsections.

AIRPORT IMPROVEMENT PROJECTS

All public use airports, including non-NPIAS airports, are eligible to request state funding in this category. State funds in this category are used to compliment federal AIP funds and prioritized

during the ACIP programming process. Airport projects that are eligible for Airport Improvement Project funding include those that maintain existing infrastructure, meet current airport design standards, improve the safety of the airport or expand the airport for the purpose of increasing capacity and/or alleviating congestion. State funding in this category comes from the State's Transportation Equity Fund (TEF). Aviation's share of TEF is generated by a sales tax on aviation fuel sold in Tennessee.

Airport projects submitted for Airport Improvement Project funding follow the **TDOT Aeronautics Division ACIP Project Prioritization System (see Chapter 6, Section III)** to ensure appropriate airport project prioritization.

STATEWIDE PROGRAMS

There are several statewide programs that provide funding for a specific type of aviation related projects or programs as discussed in *Chapter Three: TDOT Aeronautics Division Airport Programs*.

AERONAUTICS ECONOMIC DEVELOPMENT FUND

The purpose of the Aeronautics Economic Development Fund is to create or expand employment opportunities and investment in Tennessee's aviation industry. The fund is a reimbursement grant initiative receiving funding allocated from the State General Fund and subject to annual recommendation by the Governor and renewal and approval by the State General Assembly. Aviation related projects eligible for Aeronautics Economic Development Fund financing include aviation research projects, aviation capital investment projects, aviation education, aviation workforce training initiatives judged critical to the development of economic development of communities across the state. In order to participate in this program, Airport Sponsors should contact their TDOT Aeronautics Division airport Project Manager for specific funding requirements and funding availability for the fiscal year.

IV) LOCAL FUNDING

Local municipalities throughout the state also play a major role in local airport project funding. In Tennessee, the local match funding required for state and federally funded project varies on the type of grant and funding source for the project. While some airports can utilize excess revenue from airport operations and leases to achieve their local match requirements, many other airports must rely on additional local public funds, especially when funding large projects. Sources of local funding might include general city/county funds or various bonds such as:

- General obligation bonds used for debt financing of capital development,
- Revenue bonds secured from the revenue generated from the specific development project, and
- Industrial development bonds issued to finance facilities that are in turn leased to a private entity or user at terms equal to the debt service of the bond.

Project eligibility and funding eligibility is covered in detail in **Section VI of this chapter *Project Funding Assistance and Project Eligibility***.

V) OTHER FUNDING SOURCES

Some Airport Sponsors have been successful in obtaining economic development grants or loans for airport development. Some sponsors have received donations from private individuals, aviation organizations or corporations for specific facilities such as a General Aviation terminal building. General Aviation airports that serve smaller aircraft rely heavily on private individual financing for non-eligible AIP improvements, particularly capital projects that can generate revenue for the airport. An example of the latter public-private partnership funding might be private hangars built on land the airport leases to the private individual or corporation.

VI) PROJECT FUNDING ASSISTANCE AND PROJECT ELIGIBILITY

There are several factors which determine what type of funding is available to airports as well as project eligibility by funding type. Some of the factors that determine funding type and project eligibility include category of airport, state or federal funding sources, airside or landside projects, revenue producing or non-revenue producing project, etc. Airport Sponsors are strongly encouraged to contact TDOT Aeronautics Division for project funding guidance and prior to submitting a project for funding consideration.

VII) GRANT FUNDING PROCESS

Funding for airport or aviation related projects are typically dispersed via grants. Grants are legal agreements between the funding organization (typically the state or FAA) and delivered to the Airport or Aviation Project Sponsor in which the State makes an offer to pay a portion of the allowable costs of an eligible project.

TDOT Aeronautics Division assists public-use Airport Sponsors with securing funding for eligible projects through the funding sources outlined in the previous section. TDOT Aeronautics

Division maintains oversight of airport project prioritization, airport funding grant applications, grant processing, grant assurances, and reimbursement for eligible projects. Additionally, TDOT Aeronautics Division can assist with project development, preliminary engineering, feasibility assessments, and cost estimates. Following preliminary assessments, TDOT Aeronautics Division can assist Airport Sponsors with identifying the best funding vehicle available to fund the project and the grant application process.

TDOT Aeronautics Division requires that Airport Sponsors meet the following requirements prior to requesting grants:

- The airport must hold a valid license from the Tennessee Aeronautics Division.
- An Airport Capital Improvement Plan (ACIP) containing a list of potential airport projects must be on file with the Tennessee Aeronautics Division and must be updated annually by the specified date (General Aviation Airports only).
- The airport fuel tax report for the previous quarter must have been properly submitted to the Tennessee Department of Revenue.
- Project requests must be made by the responsible elected official or representative of the Airport during the approved Tennessee Aeronautics Commission meeting.
- Projects must be identified on the Airport Capital Improvement Plan (ACIP) and the Airport Layout Plan (ALP) for review and approval by the Tennessee Aeronautics Commission. Projects not listed at the time of the request will be reviewed by the Tennessee Aeronautics Division for eligibility and need on a case by case basis.
- For privately owned airports, State funds will only be granted to those projects that add to airport safety. The privately owned airport must be open to the public to be eligible for State funds.

Additionally, for AIP Funding, the Airport Sponsor must meet the following criteria, some of which overlap with state requirements:

- The project sponsorship requirements have been met.
- The project is reasonably consistent with the plans of planning agencies for the development of the area in which the airport is located.
- Enough funds are available for the portion of the project not paid for by the State or Federal Government.
- The project will be completed without undue delay.
- The airport location is included in the current version of the NPIAS.
- The project is depicted on a current airport layout plan approved by FAA.

Requesting Grants

Following guidance and initial concurrence with TDOT Aeronautics Division Project Management personnel, Airport Sponsor can convert the proposed project into a project funding request via the Aeronautics system of record. Step by step instructions may be found on the Aeronautics website at this [\(link\)](#) and the PowerPoint, "How to Submit a Successful Grant Application."

The first step in the Grant Request process is for the airport sponsors to contact TDOT Aeronautics Division and request access to Aeronautics system of record as an airport user. TDOT Aeronautics Division recommends at minimum two registered users per airport. Once access to the program is approved, users will be able to navigate the system to update Airport Capital Improvement Plans (ACIPs), request funding for projects, track contract and funding payments, and update airport organizational data. The program contains an online guide under the **HELP** link that provides step by step instructions to use the program and perform various airport project planning, funding and administrative functions.

Individual airport development projects identified during airport planning efforts and codified in the approved Airport Master Plan or Airport Layout Plan are entered and maintained in the Airport Capital Improvement Plan (ACIP). The Aeronautics system of record is used to catalog, document, and track potential ACIP projects. Following the start of the Federal Fiscal Year, Airport Sponsors are required to add, update or modify any new or existing ACIP projects in the **ACIP**. Following completion of project modifications or populations of new project submissions in the **ACIP**, users must **SUBMIT** the updates in the system.

Following initial account establishment, airport/user data input and project data population in the ACIP tab, the Airport Sponsor will be able to request funding for a proposed project. To convert a proposed project into a funding request, the Airport Sponsor will follow guidance in the system training.

Project Review and Funding Procedures

Following conversion of the proposed project from the ACIP into a Project for funding request, the project will enter the Project Funding review process.

TDOT Aeronautics Division will assist sponsors in defining project development, establishing a project schedule and preparing preliminary engineering cost estimates in support of project funding requests.

Airport Sponsors are required to ensure that TDOT Aeronautics Division personnel possess the following basic information to ensure that project can be considered for funding. Requested Project Staff Review (PSR and/or TAC) Date

- Airport Name
- Associated Municipality
- Amount Requested for the Review
- Supporting Background Information Regarding the Project and Funding Request
- Tentative Schedule
- Estimated Project Total or Bids

Failure to provide all required information with the request for state funding will result in an incomplete funding request and funding action will be deferred until all required documentation is received.

When a complete request is received, TDOT Aeronautics Division will review the following additional information to ensure that the Airport and project meet guidelines and requirements.

- Funding Source and Funding Splits Requested
- Available Airport Non-Primary Entitlement Balance
- Status of State Airport License
- Unresolved Maintenance or Safety issues identified during last State Airport Inspection
- Date of Most Recent ALP
- Consistency of Requested Project with ALP/ACIP
- Project(s) Description(s) with Budget, Current Expenditures (if amendment to previous grant)
- Any Additional Relevant Airport or Project Information

TDOT Aeronautics Division project funding requests are divided into three categories for consideration. The three categories are:

- **Routine Projects.** Funding requests for routine projects will be considered by the TDOT Aeronautics Division without review by the Tennessee Aeronautics Commission (TAC) if the projects meet the following criteria:
 - The project/funding need is well-documented,
 - The eligibility for state assistance is clear,
 - Local matching funds are available,
 - The total project cost is less than \$100,000,
 - The project does not represent a change of funding policy, and
 - Airport Layout Plans (ALP) project costing \$200,000 or less.
- **Non-Routine Projects.** Projects that do not meet the criteria for Routine Project funding will be submitted to TDOT Aeronautics Division for initial review. Following initial review and refinement, TDOT Aeronautics Division will refer the project to the Tennessee Aeronautics Commission (TAC) for consideration at their next scheduled meeting. The Aeronautics Commission will recommend project funding approval or denial to the TDOT Commissioner. Per policy, project requests must be made by the responsible elected official or representative of the airport during the Tennessee Aeronautics Commission meeting.
- **Emergency Projects.** Emergency projects are those airport projects that are unanticipated safety and/or operationally critical projects that require immediate funding to rectify a significant deficiency. In the advent an Airport Sponsor is presented with an Emergency Project funding requirement, the sponsor must enter the Emergency Project in the Grant Management System and immediately contact the TDOT Aeronautics Division to outline the situation and request funding approval. If approved for funding, the Routine Project funding procedure will be followed. TDOT Aeronautics Division personnel can guide and assist the Airport Sponsor through Emergency Project Funding Request procedures.

Completed funding requests will be reviewed in accordance with the following procedures:

- Completed applications and associated documentation must be received by TDOT Aeronautics Division via the Aeronautics system of record no later than the published deadline. If a funding application does not meet all requirements, TDOT Aeronautics Division personnel will contact the Airport Manager for additional information.
- If the funding application meets all initial requirements, the project request will be reviewed by TDOT Aeronautics Division during the monthly Project Staff Review (PSR).

- During PSR, Routine Projects and associated funding requests may be approved, rejected or deferred for additional information.
- Non-Routine Projects will be reviewed during PSR and referred to Tennessee Aeronautics Commission (TAC) for their consideration, review and recommendation. If the grant request application is referred to TAC, the Airport Sponsor will be asked to present the request at the next scheduled Commission meeting.

The TDOT Aeronautics Division Airport Project Funding Request Checklist is contained in **Appendix C** and contains the complete requirements for project consideration.

Types of Grants

There are two grant contracts that are commonly prepared by TDOT Aeronautics Division for eligible airport projects.

Reimbursement Contract A Reimbursable Contract provides for payment of allowable incurred costs, to the extent prescribed in the contract. These contracts establish an estimate of total cost for the purpose of obligating funds and establishing a ceiling that the contractor may not exceed (except at its own risk) without the approval of TDOT Aeronautics Division.

The Reimbursable Contract requires the Airport Sponsor to submit local matching funding within 15 days of receiving the contract document from TDOT Aeronautics Division. For most projects, the local matching funding is typically five percent of the grant total approved. The local share of the grant funding is applied to available funding by Tennessee Department of Transportation Finance Division. Any remaining local project funding is returned to the Airport Sponsor following project closure.

The Airport Sponsor is required to submit proof a cost was incurred (invoice) with supporting documentation to TDOT Aeronautics Division for initial review. TDOT Aeronautics Division Project Management and Program Monitoring personnel will review the invoice and supporting documentation for accuracy and completeness prior to submitting the request for reimbursement to TDOT Finance and Tennessee Division of Finance and Administration. Because the Airport Sponsor has already submitted local funding share following grant approval, project invoice reimbursement will be 100 percent of the invoice cost. Airport Sponsors are required to establish Electronics Funds Transfer (EFT) with the State of Tennessee for invoice payment. Airport Sponsors can typically expect invoice reimbursement within 45 days of invoice submission to TDOT Aeronautics Division.

Grant Local Share Requirement Completion Timeline. If a sponsor/grantee local share is required under the terms and conditions of the grant contract, the local share must be submitted to the state within 15 days of receiving the completed grant contract from TDOT Aeronautics Division. Local share checks must be submitted via certified mail to TDOT Finance Division:

TDOT Finance Division
Attn: Accounts Receivable
505 Deaderick Street
Suite 800, James K. Polk Building
Nashville, TN 37243-0329

Participation Contract. A Participation Contract requires the Airport Sponsor to submit proof of payment for allowable goods or services received to TDOT Aeronautics Division. TDOT Aeronautics Division will review the proof of payment and supporting documentation for reimbursement eligibility. Because the Participation Contract does require a local share, the cost reimbursement will be at the percentage specified in the contract. The Airport Sponsor must submit invoices received from project contractor(s) and, if correct, submit the invoice and supporting documentation to TDOT Aeronautics Division for processing. Airport Sponsors can typically expect invoice reimbursement within 45 days of invoice submission to TDOT Aeronautics Division.

General Grant Information

Project Grant Agreements. The Governmental Grant Agreement is the primary contract mechanism used to fund aviation related projects through TDOT Aeronautics Division. Governmental Grant Agreements are a contract between TDOT Aeronautics Division and Airport Sponsors where TDOT Aeronautics Division agrees to participate in funding eligible aviation related project costs. TDOT Aeronautics Division Governmental Grant Agreements are processed in accordance with applicable Tennessee Department of Finance and Administration Statewide Accounting Policies.

Sponsors/Grantee Grant Completion Timeline. Grant contracts must be completed in entirety, signed, and returned to TDOT Aeronautics Division in a timely manner for the TDOT Commissioner to sign prior to the grant effective date. If the grant contract and attachments

are not completed and returned within reason, a new grant must be issued with a new effective date, delaying project start.

The complete grant, including grant attachments, must be scanned to a PDF file in color with a minimum resolution of 300 DPI. Completed grant contracts PDF files must be returned via email to aero.grants@tn.gov with the subject line "Sponsor Signed Unexecuted" with appropriate TDOT Aeronautics Division Project Number. Do not return the completed grant contract through the system of record.

Excess Grant Funding. Grant funding is project specific and the state/local contract will be written for the amount of the qualified bid. Any difference in funding amount between the Airport Sponsor's original funding request and the state/local contract will be immediately reclaimed by the Division for use on other airport projects statewide. The local share difference will be refunded to the Airport Sponsor when the project is closed.

Grant Amendment. If during construction, unforeseen circumstances require additional funding for completion, the Airport Sponsor will be required to request a Grant Amendment. The Grant Amendment then follows the same review/approval process as the original funding request. The Grant Amendment should be requested before additional project work is initiated to ensure the project amendment is eligible and additional funding is available. Please see the [Change Order and Supplemental Agreements Guide](#) for additional information.

Project Closure Requirements. In order to close a project, a grantee must confirm with project contractors and/or consultants that the project is complete, and all project invoices have been submitted to TDOT Aeronautics Division for payment.

Following confirmation that the project is complete, and all invoices related to the project have been submitted, grantees are required to provide a Project Closeout Letter to TDOT Aeronautics Division Project Managers and Program Monitors responsible for the project. In order to minimize errors that may result in a returned Project Closeout Letter Grantees are encouraged to consult with TDOT Aeronautics Division Project Managers and Program Monitors during letter development. If a project invoice is submitted following submission of the Project Closeout Letter, the invoice will be rejected. Any remaining project local share will be returned to the grantee within 45 days of Project Closeout Letter receipt.

Transportation Equity Fund Grant Time Limit Restrictions. After a project has been approved, the funds must be utilized during the time specified in the grant contract term. A project must be initiated and completed within the grant term or state funding allocated for the project will revert to the Transportation Equity Fund and will be made available for other state aviation approved projects.

Project Retainage Not Permitted. In accordance with the Tennessee Prompt Pay Act (T.C.A. § 66-34-101, et. seq.) and Tennessee Department of Transportation standard grant terms and conditions, the Grantee may not withhold retainage on progress payments from the prime contractor and the prime contractor may not withhold retainage from their subcontractors.

Federal Award Identification Worksheet. Federally funded projects require the Federal Award Identification Worksheet to be completed and updated every six (6) months until the project is completed. The document is required to be uploaded into the Documents Tab in GEMS system.

Airport Maintenance Grants Reimbursement Restrictions. No reimbursement will be made under the Airport Maintenance Grants for mowing by city, county or airport employees.

General Invoicing Information

Invoicing Time Period. Grantees are required to submit invoices periodically to demonstrate a consistent drawdown of available project funds and progress on the project, it is important to submit regular project invoices to TDOT Aeronautics Division.

Grantee Invoice Documentation Requirements. TDOT and the Department of Finance and Administration require the following documents and document preparation for project invoice voucher submission and payment:

- Invoice Submittal Cover Letter with correct municipality letterhead, signed by sponsor/grantee, contain the proper remittance address, correct service dates, and invoice reimbursement request amount.
- Project Manager Payform with correct figures represented on appropriate lines, have available budget for the line items.
- All pertinent backup documentation must be within contract dates, contain proper expenses against the project, and contain signatures on all available signature blocks. Dates of service must not cross State Fiscal Years (July 1st – June 30th.)

- Redact all Personal Identifiable Information (PII) from documents.

Invoices will not be paid if a contract is not in compliance or if there are documents missing from the invoice.

Grant Invoicing Process

Airport project invoices must be submitted into the Aeronautics system of record and uploaded to the specific project. The invoice submittal process is described step-by-step in the online Help Guide.

Airport Sponsors without access can submit their invoices and required documentation via email to aero.pymts@tn.gov for payment.

Grant Assurances

Grant Assurances are specific terms and conditions used to ensure that grants and property conveyances are in the public interest and serve to invest in civil aviation. Grant Assurances are not intended to permit the FAA or state to control or direct the operation of the Sponsor's airport but are intended to protect taxpayers' investment in civil aviation in the form of aviation grant funding. Grant Assurances provide a basis for operating rules to meet the Airport Sponsor's state and federal obligations. Grant Assurances are only required for NPIAS Airports that receive federal grants.

Grant acceptance is conveyed with the signature of the Airport Sponsor. Additionally, the Airport Sponsor must sign the Federal Grant Assurance acknowledgement form. Acceptance constitutes a binding contractual agreement obligating the Sponsor and the funding organization in accordance with the terms and conditions of the grant document, Grant Assurances, and associated FAA Advisory Circulars.

Grant Assurance Durations. Grant Assurances are applicable for varying durations:

1. 20 years after acceptance of the grant
2. The useful life of the facility (if less than 20 years)
3. In perpetuity for exclusive rights, airport revenue, civil rights, or real property acquisition

Failure to maintain and operate the airport in compliance with FAA grant assurances and state terms and conditions compromises an airport's eligibility for future funding. Additional information may be found on the FAA's website for Grant Assurances ([link](#)).

CHAPTER 6: AIRPORT CAPITAL IMPROVEMENT AND DEVELOPMENT

I) ACIP OVERVIEW

The Airport Improvement Program (AIP) is a federal grant program that represents a major source of funding for airport development and planning. The Airport Capital Improvement Plan (ACIP) is the state component of the Federal AIP program. The ACIP component of the AIP is administered by TDOT Aeronautics Division.

ACIP project funding is referred to as permissive funding meaning that for a project to be eligible under the AIP program, federal statutes must explicitly permit project development. ACIP and AIP eligible projects include those improvements related to developing airport safety, capacity, security, airport infrastructure preservation, and improving compliance with FAA standards and environmental requirements. Typical ineligible improvements include airport operational costs such as normal maintenance services, airport employee salaries, as well as exclusive use or near exclusive use facilities and areas.

II) AIRPORT PROJECT PRIORITIZATION AND EXECUTION PROCESS

The demand for federal and state ACIP funding almost always exceeds the funding available for requested projects. In order to appropriately distribute funding, the state and FAA allocate funds based on current national and state priorities and objectives. The state and FAA will provide higher consideration to those projects with a high ACIP priority than those projects with lower priority ranking. The highest priority for Federal AIP funds is provided to, in order, safety, security, reconstruction and maintenance, capacity, and standards projects. The state follows similar funding prioritization with the highest consideration provided, in order, to safety, security, pavement maintenance and preservation, infrastructure preservation, compliance with FAA standards, airport planning, increased capacity, airport equipment, landside improvements, and revenue producing projects.

TDOT – Aeronautics Division Aviation Planning Process



Top Down Airport Planning

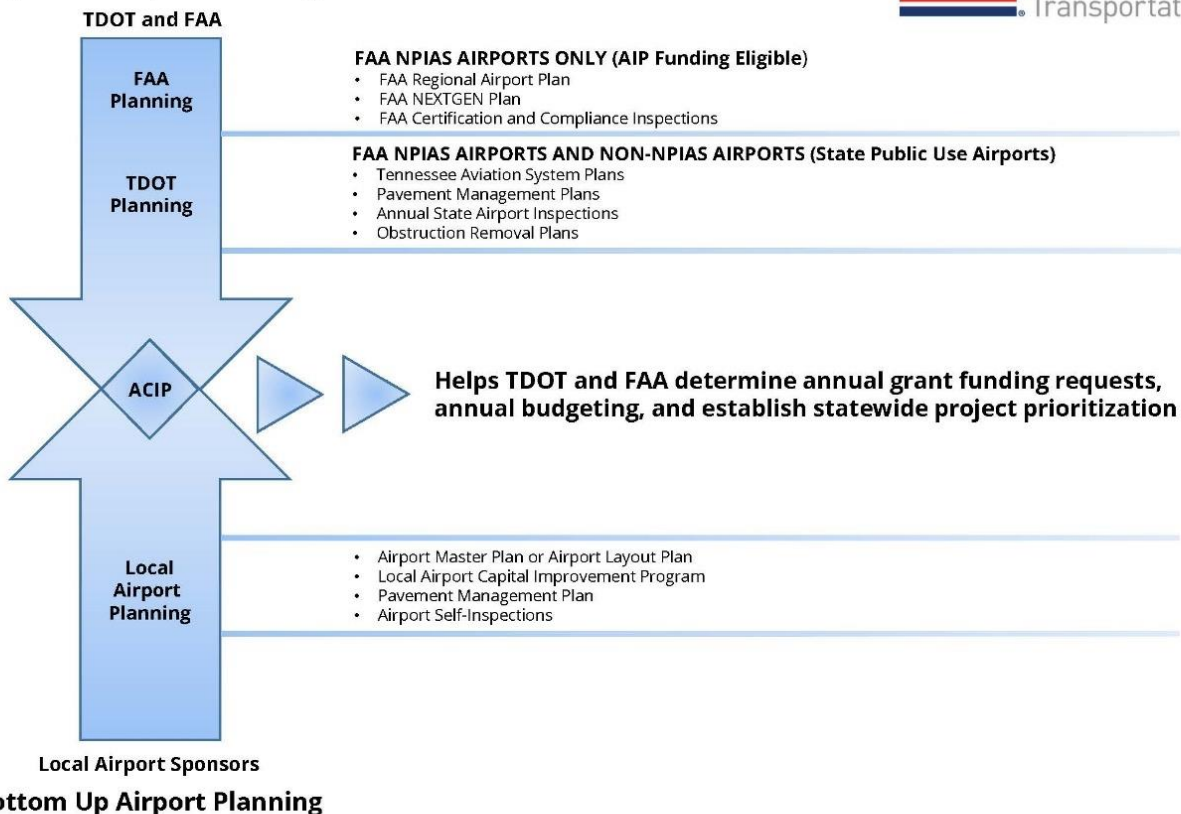


Figure 3 outlines the overall TDOT Aeronautics Division ACIP Planning Process within which the airport development project phases and steps are contained.

TDOT Aeronautics Division has developed a basic outline of the process and associated phases necessary for a typical airport development project. The process is divided into phases that are further subdivided into steps that address initial planning steps through project completion. The TDOT Aeronautics Division ACIP project development phases are divided into four major phases with associated key deliverables and outcomes:

1) Planning Phase

- a. ALP Update
- b. Exhibit A Update
- c. Project Studies

2) Land Phase

- a. Land Studies
- b. Land Acquisition

3) Design Phase

- a. Preliminary Study
- b. Design
- c. Bidding/Negotiation

4) Construction

- a. Construction
- b. Closeout

The ACIP project development major phase sub steps within the project development process are outline below.

STEP 1: PLAN AIRPORT DEVELOPMENT AND PROJECTS (PLANNING PHASE)

The first step in the project development process is to conduct airport development project planning. There are several stages in the first step of project planning including preliminary planning coordination with airport stakeholders, planning consultant selection and consultation, Exhibit A development, ALP or Master Plan updates, data collection (airport inventory, historical activity, airport operations data, etc.), scoping meetings, initiating environmental reviews, and aviation project studies. The stages contained in this step are covered in detail in Chapter 4: Airport Planning.

STEP 2: STUDY, EVALUATE AND PRIORITIZE PROJECTS (PLANNING PHASE)

Step Two in the project development process is to conduct additional project studies, evaluate, and prioritize projects. Continue data collection analysis, Aviation Forecasts, Facility Requirements, Development and Evaluation of Alternatives, and Preferred Development Plan adoption and Financial Plan.

Key Project Studies, Evaluations and Prioritization sub-steps contained in Step 2 include:

- Project Scope Definition
- Preliminary Project Cost Estimate
- Identify and verify project funding sources

- Project cost-benefit analysis
- Project environmental clearance validation
- Detailed ACIP project data sheet developed
- Coordination with TDOT Aeronautics Division for project funding availability
- Confirm project Airport Property Rights and identify any associated requirements
- Identify any potential impacts to existing or proposed approach procedures of FAA equipment if applicable
- Identify any competing safety and/or maintenance project requirements

STEP 3: STUDY AND ACQUIRE LAND (LAND PHASE)

Whenever feasible, TDOT Aeronautics Division encourages the Airport Sponsor to use existing airport land for airport construction and facilities expansion. In the advent additional land is necessary to facilitate projects, private property may be acquired. Land acquisition may be necessary to facilitate Airport Capital Improvement Projects, enable additional airport development or comply with FAA design, noise mitigation or local zoning requirements.

A proposed airport development project requiring land acquisition cannot commence if the Airport Sponsor does not hold adequate property rights. Due to the variables associated with land acquisition, Airport Sponsors must accomplish land acquisition prior to and separately from the grant for the capital improvement project. A proposed development project requiring land acquisition cannot commence if the Airport Sponsor does not hold adequate property rights.

In addition to land acquisition for the purposes of airport construction and facilities development projects, TDOT Aeronautics Division and the FAA require that the Airport Sponsor hold enough interest in the Runway Protection Zone (RPZ) to protect the zone from both obstructions to flight and incompatible land use. The RPZ is a two-dimensional trapezoidal area at the end of the runway extending into the approach. The RPZ is required to enhance the safety and protection of people and property on the ground. When practical, TDOT Aeronautics Division recommends that airports own the property within the limits of the RPZ and clear all above-ground objects. There are three primary methods to attain enough interest in protecting the RPZ: purchase the approach areas in fee, purchase an easement, rely on adequate local zoning ordinances, or a combination thereof.

FAA guidance for land acquisition is contained in AC 150/5100-17, *Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects* can be found at this [\[link\]](#).

FAA guidance for Runway Protection Zones is contained in AC 150/5300-13A, *Airport Design*, and FAA Memorandum dated, 27 September 2012, *Interim Guidance on Land Uses Within a Runway Protection Zone* [\[link\]](#).

The Uniform Relocation and Real Property Acquisition Act, known as the Uniform Act, is a Federal Law passed in 1970 that provides minimum real property acquisition policies for Federally assisted projects. The Uniform Act requires the equitable treatment of persons displaced as a result of a project utilizing federal funds and is intended to ensure fair compensation and assistance for those whose property was acquired for public use under eminent domain.

Key Land Acquisition Study Phase requirements, actions and outcomes are:

- Funding Request Letter
- Summary of Land Acquisition Study Project Costs
- Schedule of Land Acquisition Study Project
- Property Survey and Description
- Environmental Site Assessment (ESA)
- Appraisal and Review Appraisal
- Negotiations (Land Costs)

Key Land Acquisition Phase requirements, actions and outcomes are:

- Funding Request Letter
- Summary of Land Acquisition Project Costs
- Schedule of Land Acquisition Project
- Land Transactions
- Legal and Closing Fees
- Evidence of Good Title
- Relocation Assistance (as required/applicable)
- Exhibit A Property Map Update

TDOT Aeronautics Division has created a Property Acquisition and Easement Procedural Checklist to guide Airport Sponsors through the property acquisition process. The checklist is not authoritative, and each project may present differing requirements. The major steps in the land acquisition process are outlined below.

Land Acquisition Steps

1) Land Acquisition Prerequisites

- a. **ALP Inclusion.** Ensure that the land acquisition is clearly outlined in the ALP and that the proposed land parcels are identified.
- b. **Exhibit A Property Map.** Develop an Exhibit A Property Map in conjunction with the ACIP plan to clearly outline the land acquisition.
- c. **Real Property Identification/Rights.** Prepare surveys and plats for proposed property acquisition to include legal description and/or tract map. Conduct preliminary title search to confirm ownership and identify any encumbrances on property title.
- d. **ACIP Plan Inclusion.** Ensure that the land acquisition is clearly delineated on the 5-year ACIP plan.
- e. **Coordination with TDOT Aeronautics Division.** Airport Sponsors are required to submit a signed Notice of Proposed Acquisition and Right of Entry Form.
- f. **National Environmental Policy Act (NEPA) Requirements.** In accordance with FAA Order 1050.1, Airport Sponsors are required to follow NEPA requirements and complete environmental documentation.
- g. **Environmental Site Assessment – Phase I.** TDOT Aeronautics Division strongly suggests that Airport Sponsors conduct an Environmental Site Assessment (ESA) to ensure that no unacceptable hazards exist on the property. Additionally, the ESA will conduct an inquiry into previous land ownership and property uses to provide further background on the property under consideration for acquisition.

2) Appraisal

- a. **Appraiser Selection.** To ensure that fair market value is paid, the Airport Sponsor should arrange for a property appraisal through a competent, independent real property appraiser who is familiar with local property values. The property owner should be permitted to accompany the appraiser during the property inspection.

- b. **Review of Appraisal.** In some cases, an appraisal review may be required for some property acquisitions. An appraisal review can be a technical review, desk review or a field review by an experienced, competent and qualified review appraiser. The review appraiser is an objective third-party appraiser who will ensure that the estimate of market value outlined in the formal appraisal report is reasonably supported with an acceptable appraisal from both the buyer and seller's appraiser.
- c. **Environmental Site Assessment – Phase II.** The ESA Phase II confirms whether the property under consideration has contamination as indicated by the findings in ESA Phase I. The review may include soil sampling, ground water sampling, indoor air quality testing, asbestos testing, etc.

3) Real Property Negotiations

- a. **Initial Negotiations.** Following the appraisal, the appraiser will submit an opinion of the property fair market value in a formal appraisal report. The formal appraisal report will be reviewed by the appraiser reviewer who will ensure that the appraisal meet the standards set forth by TDOT and the FAA. If the appraisal report is approved, the appraisal will serve as the basis for the Airport Sponsor's written offer to purchase the property from the property owner.
- b. **Negotiating with the Property Owner.** Following the determination of just compensation for property fair market value, the Airport Sponsor's representative will contact the property owner to discuss the basis of the offer to negotiate the property purchase. The offer will be for no less than the amount of the approved appraisal. The property owner can retain their own appraiser and the appraisal will be paid for by the Airport Sponsor. The negotiator will also provide the property owner a general notice of the property owner's rights and entitlements upon initiation of negotiations. The notice will include an explanation of relocation assistance and payment entitlements and relocation eligibility to displaced persons (if applicable.)

- c. **Settlement.** Following submission of written offer of just compensation, property owners are provided enough time to consider the offer. When an agreement on the property sale price is reached, a sales contract is prepared. Upon contract execution by the Airport Sponsor, the contract becomes a binding agreement.

- d. **Condemnation.** The power to acquire private property for public use is known as the power of eminent domain. Most Airport Sponsors possess the power, which is a power of local government municipalities and counties derived from its sovereignty, as well as an implied power under the Tenth Amendment of the U.S. Constitution.

In accordance with Tennessee Code Annotated Title 29, Chapter 17, the Airport Sponsor should make every attempt to settle all acquisitions of property through fair negotiations and equitable procedures established by law. When an agreement cannot be reached between a property owner and the Airport Sponsor for sale of property, a parcel may be acquired through eminent domain proceedings provided the acquisition is intended solely for public use.

The Airport Sponsor's municipality legal counsel will work with the landowners and their legal representatives to reach a settlement outside of court. If a settlement cannot be reached a jury of citizens will hear testimony prepared by both the property owner and the state. After deliberation, the jury determines just compensation due the property owner. The amount set by the court is binding to both parties, unless it can be shown that some part of the proceeding was in error.

- e. **Possession of Property.** Upon closing or court award, title conveyance, and schedule possession of acquired property, payment is made to the property owner within a reasonable time, usually within 60 days after agreement is reached. The 60-day period provides the property owner with funds to purchase new property or adjust his or her remaining property.

Airport Sponsors can take only a part of a property parcel. If the acquisition of a portion of property leaves an uneconomic remnant, the Uniform Act requires

that the Airport Sponsor offer to acquire the remnant at the parcel's fair market value.

4) Relocation Assistance

- a. **Sponsor Obligations.** An occupant, either owner or tenant, who will be displaced by the airport land acquisition project will be personally contacted by an agent for the Airport Sponsor who will explain the assistance and payments available under a relocation assistance program. Occupants will also be furnished information on benefits guaranteed to them under the Uniform Act for which they may be eligible. Ample notice and time for removal will be given at onset of negotiations.

- b. **Types of Relocation Assistance.** A relocation assistance program is to ensure to the maximum extent possible the prompt and equitable relocation of persons displaced as a result of airport development projects in order that such persons shall not suffer disproportionate harm as a result of programs designed to benefit the public.

There are two types of relocation assistance, Residential and Non-Residential Relocation Assistance. Residential relocation assistance is intended to assist any person (individual or family) who moves from real property as the result of a property acquisition. Non-residential relocation assistance is intended for any business, farm, non-profit or miscellaneous move (corporation, partnership or association) who moves from real property or moves personal property as the result of property acquisition.

- 5) Property Management and Sponsor Certification.** Upon taking possession of the property, the Airport Sponsor must prepare and clear the property for project use and apply for an Exhibit A update project. Additionally, the Airport Sponsor must provide TDOT Aeronautics Division with copies of the documents listed in the a Property Acquisition and Easement Procedural Checklist to include a land acquisition cost breakdown sheet, Certification of Environmental Site Assessment, Certificate of Title, and Sponsor Certification for Real Property to initiate the next step of the airport development process.

STEP 4: NEGOTIATE PROJECT DESIGN SCOPE AND PRELIMINARY STUDY (DESIGN PHASE)

The Design Phase follows the Land Phase in the ACIP project development process. Step Four in the project development process and the first step in the Design Phase is Negotiate Project Design Scope. In this step the Airport Sponsor will work closely with the airport's planning and engineering consultant to define the scope of work to be completed during the subsequent steps in the Design Phase of the project development process.

Key project requirements, outcomes, and deliverables contained in Step 4 Project Design Scope include:

- Coordination with TDOT Aeronautics Division for project funding forecasting
- Definition and codification of project design scope of work

Prior to establishing a design services agreement, the Airport Sponsor and airport engineering consultant should confer with TDOT Aeronautics Division regarding the scope of approved ACIP work, funding limitations, design alternatives, and phasing requirements. Project design scope and fees developed in this step must be submitted to TDOT Aeronautics Division for initial review, evaluation and endorsement prior to Step Five in the project development process.

Key project requirements, outcomes, and deliverables contained in Step 4 Preliminary Study include:

- Funding Request Letter
- Man-Hour Estimate and Fee Proposal for Preliminary Study Project
- Fee estimate for project design, permitting, and/or environmental documentation
- Preliminary design project schedule
- Geotechnical report
- Environmental clearance/review document
- Itemized opinion of probable construction cost (+30% to -20%)
- Summary of allowances for other items included in the Total Project Cost
- Preliminary Plans and Specifications
- Preliminary Report

STEP 5: WRITE/EXECUTE PROJECT DESIGN GRANTS (DESIGN PHASE)

Following initial project scope and fee review and approval through TDOT Aeronautics Division, the Airport Sponsor will work with their Aeronautics Division Project Manager and Program

Monitor to develop a project grant request package. If the design project total cost exceeds \$100,000, the project will require submission and approval through Tennessee Aeronautics Commission (TAC). See Chapter 5: Funding for Airport Improvement Projects, Section VII Grant Funding Process for additional information on the project funding process.

Upon project grant approval and receipt of all required grant contract documents outlined in Chapter 5, TDOT Aeronautics Division will issue a notice to proceed. The Airport Sponsor and airport engineering consultant may not begin project work until a notice to proceed has been issued by TDOT Aeronautics Division.

STEP 6: PROJECT DESIGN (DESIGN PHASE)

Upon issuance of a notice to proceed, the Airport Sponsor's airport engineering consultant will design the project in accordance with the scope and fee structure approved by TDOT Aeronautics Division. The airport engineering consultant will work closely with the Airport Sponsor and TDOT Aeronautics Division to ensure that the design is developed in accordance with the Airport Sponsor's intent. The Airport Sponsor will submit invoices on behalf of the airport engineering consultant as required. Invoicing and payment are based on design work completed by the airport engineering consultant to date. TDOT Aeronautics Division Project Managers and Program Monitors will review all invoices and design work completed on the project prior to payment approval.

Key project requirements, outcomes, and deliverables contained in Step 6 Project Design include:

- Funding Request Letter
- Itemized Opinion of Probable Construction Cost
- Man-Hour Estimate and fee proposal for design and bidding/negotiation services
- Scope and fee relationship to construction cost (%)
- Design Project Schedule
- Final Design to include:
 - Engineer's Report
 - Plans and Specifications
 - Construction Schedule
 - Cost Estimate
 - Construction Safety and Phasing Plan (CSPP)
 - Bid Book and Contract Specifications

- Special Studies

STEP 7: BID PROJECT (DESIGN PHASE)

Upon completion of all planning, environmental studies, engineering design, land acquisition and assurance of federal, state and local funding the Airport Sponsor must coordinate with TDOT Aeronautics Division for approval to solicit project bids.

Upon receiving approval to solicit bids the Airport Sponsor must publicly advertise for project bids. Airport Sponsors should advertise bids for at least 21 days to provide bidders adequate time to prepare bids and respond. We recommend 28 days. The bid advertisement time is an important facet of Step Seven required to solicit an adequate number of prospective project bidders and create a competitive bidding environment.

Upon bid advertisement closing, project bids must be opened by the Airport Sponsor publicly to identify the low bidder. A review and analysis of the bid documents is completed following the initial bid opening to evaluate the apparent low bid for errors, irregularities, and responsiveness. If only one bid is received, Airport Sponsors are encouraged to consult with TDOT Aeronautics Division.

Following bid opening and initial bid evaluation, the Airport Sponsor and airport engineering consultant will evaluate bids and any Disadvantaged Business Enterprise (DBE) bid submissions to determine if the advertised goal was met in the bid package and if the apparent low bidder has provided a good faith effort on why they failed to meet the advertised goal. Additionally, the Airport Sponsor must evaluate the apparent low bidder submissions for certification that they will meet Buy American preferences or submit a waiver from the requirement and update component cost calculations.

Key project requirements, outcomes, and deliverables contained in Step 7 Bid Project include:

- Project advertisement
- Record of plans holders and prospective bidders
- Addenda, if necessary
- Bid tabulations
- Letter of Recommendation to Award

TDOT Aeronautics Division recommends that Airport Sponsors establish the following timeframes for holding bids within the bid package.

- State and federal entitlement funded projects hold for 90 days
- Federal discretionary funding projects hold for 120 days

STEP 8: NEGOTIATE SCOPE AND NEGOTIATE FEES (CONSTRUCTION PHASE)

Following Bid Evaluation, if the Airport Sponsor and airport engineering consultant determine that the work can be completed within the project funding limits and within the requirements outlined in the bid solicitation, the contract is awarded to the low bidder. Like Step 4, Negotiate Project Design Scope, the Airport Sponsor and airport engineering consultant will prepare a grant application package for TDOT Aeronautics Division and Tennessee Aeronautics Commission for approval. The Airport Sponsor must submit a written recommendation to TDOT Aeronautics outlining:

- A written recommendation of award of contract
- Copy of bid abstract
- Contractor's proposed DBE participation
- Copy of Buy American certificate (or waiver if applicable)

Key project requirements, outcomes, and deliverables contained in Step 8 Negotiate Scope and Negotiate Fees include:

- Award letter
- Draft Construction contract
- Letter for Funding Request
- Man-Hour Estimate and fee proposal for Construction Services
- Scope and fee relationship to construction cost (%)
- Construction Project Schedule

STEP 9: WRITE/EXECUTE GRANT (CONSTRUCTION PHASE)

TDOT Aeronautics Division in conjunction with the Tennessee Aeronautics Division will review the recommendation of contract award documentation and grant funding application to determine project funding eligibility. If recommended for funding approval, the project will move into Step 10 Construct Project of project development.

Key project requirements, outcomes, and deliverables contained in Step 9 Write/Execute Grant include:

- Complete Project Funding Grant Application
- Airport Sponsor Certifications
- Grant Offer and Execution
- Executed Grant Agreement

STEP 10: CONSTRUCT PROJECT (CONSTRUCTION PHASE)

Following grant execution, the Airport Sponsor and airport engineering consultant award the contract to the selected construction contractor and consultant/engineer to initiate construction of the project. TDOT Aeronautics Division and the Airport Sponsor will issue the selected construction contractor a notice-to-proceed following:

- Properly executed grant agreement
- Properly executed project contract agreement
- TDOT Aeronautics Division approval of notice-to-proceed, plans issued for construction

The Airport Sponsor maintains overall responsibility for providing and maintaining competent technical supervision at the project site throughout the duration of the project to include proper implementation of the plans. Additionally, the Airport Sponsor is required to establish and maintain Notice-to Airmen (NOTAMS) prior to and during all construction work activities.

Project Execution and Progress Updates. Airport Sponsor and airport engineering consultant are ultimately responsible for ensuring that the project is executed in accordance with FAA and TDOT Aeronautics Division approved plans, specifications and project schedule. Airport Sponsors and their airport contractor are also responsible for submitting quarterly project progress reports to ensure that the project is progressing appropriately in accordance with the codified base line project schedule.

Project Change Orders. All project change orders must be coordinated with and approved by TDOT Aeronautics Division prior to implementing the change to ensure funding eligibility and appropriate cost. TDOT Aeronautics Division requires an engineer's estimate for those change order requests that do not have an established unit price. The engineer's estimate must be completed prior to entering negotiations with the project contractor. TDOT Aeronautics Division requires copies of the change order or supplemental agreement, engineer's estimate, and record of negotiations for change order approval. Drawdowns on costs associated with the change order are not permitted until the order is approved.

Project Invoicing and Payments. TDOT Aeronautics Division recommends the Airport Sponsor submit invoices for completed and accepted project work reimbursement on a monthly basis. Airport Sponsors may not seek reimbursement for project costs that the TDOT Aeronautics Division Project Manager has not approved. Additional information on project invoicing is found in Chapter 5: Funding for Airport Improvement Projects, Section VII Grant Funding Process, General Invoicing Information.

Final Acceptance. Upon contractor substantial completion of project work, the Airport Sponsor and airport engineering consultant are required to conduct a pre-final (or final) inspection of the work to ensure that it has been completed in satisfactory manner consistent with the project contract specifications. The Airport Sponsor and airport engineering consultant will prepare a document that records the date of the inspection, those present during the inspection, and any punch list work items that failed to conform to contract specifications or that are incomplete at time of inspection.

TDOT Aeronautics Division Oversight and Inspections. TDOT Aeronautics Division makes every effort to ensure that the state's investment is protected, and the public benefits are realized. TDOT Aeronautics Division works to maximize the return on investment for all airport and aviation related projects and ensure that projects are delivered in accordance with TDOT, state, and federal regulations. TDOT Aeronautics Division routinely reviews and inspects projects to ensure accountability and performance objectives are met. TDOT Aeronautics Division Project Managers and Program Monitors may attend pre-construction and project status meetings with the Airport Sponsor, airport engineering consultant, and project contractor team. Additionally, TDOT Aeronautics Division staff will make regular visits to project sites to verify:

- State grant funding terms and conditions are being met
- Project progress is being reported accurately
- The work being performed is consistent with the scope of work in the contract terms and conditions

TDOT Aeronautics Division staff will conduct coordination with Airport Sponsors and project contractors prior to project site visits to ensure that the reviews are safe, productive, and timely.

Grant Amendments. Grant amendments are permissible if the sponsor incurs an overrun on approved eligible project costs or grant time limits. TDOT requires Sponsors to submit grant amendment requests for TDOT review prior to execution. This allows time for the Sponsor to assess consequences of TDOT Aeronautics' eligibility determination. Airport Sponsors may not request amendments for work not included in the original grant scope of work.

Airport Sponsors may request a grant amendment to TDOT Aeronautics Division via a formal written request that provides an explanation and justification for the overrun in eligible costs or grant term limit. TDOT Aeronautics Division does not guarantee funding will be available for grant amendments. Additionally, the project grant amendment is subject to the same project grant funding process outlined in Chapter 5: Funding for Airport Improvement Projects, Section VII Grant Funding Process. The process to amend a grant may take a significant amount of time depending on the amendment funding amount requested.

Key project requirements, outcomes, and deliverables contained in Step 10 Construct Project include:

- Preconstruction Meeting
- Notice-to-Proceed (NTP)
- Construction Safety and Phasing Plan (CSPP)
- Notice-to-Airmen (NOTAMS)
- Project Invoices
- Change Order Requests (if applicable)
- Project Progress Updates
- Project Inspections
- Final Project Acceptance

STEP 11: CLOSE PROJECT

The final step in the project development process is Step 11 Close Project. In this step, the Airport Sponsor and airport engineering consultant will conduct final inspections, accept the project deliverable, and prepare project closeout documentation. The Close Project step requires a significant number of administrative and documentation requirements to bring the project to full completion. The Close Project requirements and documents are outlined below:

Final Outlay and Financial Report. The Final Outlay Report is a financial report that outlines and identifies all the final project costs. The Airport Sponsor is responsible for preparing, signing and submitting this report.

Final Construction Report. The Final Construction Report provides a brief narrative of the project, listing of project milestone dates, explanation of the contract time, statement of substantial compliance with approved plans and specifications, explanation of overruns and underruns, summary of acceptance testing results and photographs of completed work.

As-Built Updated Airport Layout Plan. An As-Built Updated ALP is required when the project alters the existing airport or airfield geometric configurations. The ACIP eligible costs for the ALP update are limited to those revisions required to reflect the new configuration and not updates for future development.

As-Constructed Field Survey. The As-Constructed Field Survey is required for projects that impact the existing runway threshold. This survey does not take the place of an AGIS submission.

5010 Airport Master Record Updates. If the project results to changes to the current 5010, the Airport Manager and/or Airport Sponsor are responsible for submitting 5010 updates to TDOT Aeronautics Division for publication.

Final Project Budget Summary. Airport Sponsors are required to prepare and submit a Final Project Budget Summary that provides a detailed project cost summary to include all claimed costs and expenses.

Final Expense Documentation. Airport Sponsors are required to provide copies of all final invoices, billing statements and progress estimates to support claimed costs.

Sponsor Certification of Final Acceptance. Airport Sponsors are required to execute and submit Sponsor Certification of Final Acceptance to TDOT Aeronautics Division to close the project.

Compliance with FAA Grant Assurances. If Airport Sponsors utilize federal funding for a project, they are required to accept and comply with certain assurances and conditions beyond completion of the project. An overview of the FAA Grant Assurances is contained in Chapter

Five: Funding for Airport Improvement Projects, Section VII Grant Funding Process, Grant Assurances.

Pavement Maintenance Program. In addition to abiding by FAA Grant Assurances, Airport Sponsors are required to implement an effective pavement maintenance management program if federal funds are used on pavement related projects. TDOT Aeronautics Division maintains a state-wide Airport Pavement Management Program that fulfills the federal requirement for maintaining a pavement management program to fulfill this obligation at the state level. Additional information regarding the state-wide Airport Pavement Management Program is contained in Chapter Three: TDOT Aeronautics Division Airport Programs, Section VII Airport Pavement Maintenance Program.

Records Keeping Requirements. TDOT Aeronautics Division and the FAA require Airport Sponsors to maintain project records for twenty years if federal funds are used on the project, ten years if only state funds are used, and indefinitely for all land acquisitions, land files and plat files. Sponsors are required to retain the following:

- **As-Built Project Drawings.** The Airport Sponsor must maintain a copy of the record drawings for the completed project for the life of the airport. TDOT Aeronautics Division does not require submission of a copy of the As-Built Drawings unless specifically requested by the Project Manager.
- **Project Financial Records.** Airport Sponsors are required to retain project financial records readily available for a minimum of three years for auditing purposes. TDOT Aeronautics Division and the FAA require project record retention and archival for twenty and ten years for federally and state funding supported projects respectively. Airport Sponsors are advised to maintain adequate records and documentation within an acceptable accounting system or archival system to facilitate an audit.
- **Financial Single Audit.** Airport Sponsors who receive over \$500,000 in federal funds within a year are required to conduct a single audit that complies with federal OMB guidelines.

All other grant related documentation. Refer to table 5-37 of FAA Order 5100.38D.

CHAPTER 7: AIRPORT FINANCE

I) GENERAL FINANCE

Airport business and financial planning in conjunction with Airport Master Planning are both essential to planning the future of an airport. Sound business and financial planning will provide Airport Managers and Airport Sponsors the tools to make informed, prudent, and cogent business decisions relating to the development, operation and management of the airport. Many General Aviation Airports in the state are minimally staffed and possess tight budgets to maintain and operate the airport. The focus of the Airport Manager is, by necessity, usually on the day-to-day operations and less on the vision and future of the airport or on strategic and business planning. The Airport Sponsor is typically responsible for the strategic and business planning aspect of airport development; however, both the Airport Sponsor and Manager must understand airport finance to develop and implement an airport business and financial plan that maximizes airport financial self-sufficiency. A well-developed business and financial plan will permit an airport to:

- generate more revenue,
- reduce or eliminate expenses,
- secure more capital funding,
- rely less on subsidies, and
- create more jobs.

A General Aviation Airport that accomplishes the items outlined above will likely provide a greater economic impact on the local community and provide a stronger platform for aviation development in the area. Additionally, under Airport Sponsor Assurance 24, the FAA requires that any obligated airport be as financially self-sustaining as possible given the circumstances that exist at the airport. Finally, residents in local municipalities and throughout the state expect that a General Aviation Airport will be owned and managed as a public enterprise and demonstrate good stewardship of taxpayer funds and public assets.

AIRPORT BUDGET DEVELOPMENT

An essential function of airport management is the successfully develop and implement an airport budget. Proper planning and allocation of financial resources for both short-term and long-term needs is an important part of the financial management of the airport. Budgets essentially plan the funding amounts required to operate and maintain the facility for defined periods of time. Every airport, as any business operation, must develop both an operating

budget to cover the short term, as well as a capital expenditure outlay to determine capital expenditures required for long-term requirements such as runway construction, land acquisition, or major equipment purchases.

Airport Income Sources

Airport operations budgets are normally prepared for a one-year fiscal period. The operations budget shows basic operating expenses and revenues of the airport and includes financial estimates on personnel costs, operating expenses, supply expenses, and other planned services. The goal of airport operations budgets is not to create a profit, but to ensure that financial resources are available to safely and efficiently operate the facility as a component of public infrastructure. Balancing the operating budget should be the goal of most small General Aviation Airports throughout the state. Local government tax subsidy is often required to offset the gap between budgeted revenues and expenses, however innovative Airport Managers and Sponsors have developed programs to generate airport revenues through both traditional and non-traditional means. Income sources vary widely between airports, however traditional airport income sources for small General Aviation Airports include:

- Commercial land leases and rents,
- T-hangar lease agreements,
- Private hanger land lease,
- Agriculture land lease,
- Terminal concession rents,
- Fuel flowage fees, and
- Landing and ramp fees.

The goal of revenue generation should be to provide for an economically self-sustaining airport operation. Most general aviation airports do, however, require some form of tax subsidy to operate. In preparing an airport operating budget it is usually easier to anticipate airport revenues as opposed to airport expenses. Revenues are generally tied to certain operating or rental agreements and are therefore more clearly defined. The next section will discuss the expenditure component of the airport operating budget.

Airport Expenses

Determining small General Aviation Airport expenses depends on many factors. The structure of an airport operation within a local municipality varies, and many actual expenses are difficult to measure. For example, equipment operators or trade personnel labor costs at the airport

may be hidden within another municipality department budget. Therefore, the actual labor costs of the organization may not be reflected in the airport operations budget. Typically, the Airport Manager will organize and prepare a budget within the accepted budgeting methods for the municipality and in consultation with the Airport Sponsor. This budgeting normally involves anticipating expenses for both operating and non-operating expenses.

Operating expenses are all those costs associated with the actual operation of the airport. These costs may include labor, supplies, utility, and maintenance costs that are incurred on a day-to-day basis. These costs will vary considerably according to geographic region of the state and the structure of the airport.

The accounting of non-operational expenses also depends on the position of the airport within a local municipality. The airport manager must consider these costs, which may include equipment depreciation and debt service on existing airport financial obligations.

MEASURING AIRPORT ECONOMIC IMPACT

Most airports throughout the state must justify their improvement projects to their local municipality governing bodies. Economic impacts are measured by the economic activity, earnings, and jobs generated by airport activity or because the airport exists. Economic impact generated by a local airport can be either direct or indirect. In addition, an airport may generate multiplier impacts, which include money spent at or for the airport that flows through the regional economy.

Examples of potential direct economic impacts are:

- Air carrier service (if applicable),
- Air cargo carriers (if applicable),
- Air taxis or charters,
- Aircraft services,
- Airport management and operations,
- Car rental agencies,
- Corporate or executive flight operations,
- Fixed-base operators (FBOs),
- Government projects based at airports, or
- Airport tenants.

Indirect economic impacts are those financial outcomes generated by airport users from regional expenditures at local businesses as a result of airport use or travel. Examples of indirect economic impacts are:

- Food and beverage sales,
- Lodging,
- Entertainment,
- Retail sales,
- Travel agencies, and
- Ground transportation.

To calculate the overall economic impact of aviation, direct and indirect impacts must be measured, along with an assessment of the multiplier effect. Economic impacts are measured and calculated in many ways making definition of economic impact challenging. The most common method of calculating economic impact is defined as the result of expenditures or sales transactions between businesses or other entities that can be directly traced to the presence of a facility, activity, or related service.

Some of the input variables used for determining the economic impact of an airport are:

- Public ownership
- Fixed-base operator and other aviation businesses
- Commercial scheduled air service (if applicable)
- Retail businesses located at the airport—Number of employees maintained by the business.
- Overnight use by general aviation pilots and other visitors
- Businesses that ship freight (if applicable)
- Businesses that own hangars and do their own aircraft maintenance
- Nonprofit or government entities

Most detailed economic impact studies are performed by consultants for specific airports and are typically incorporated into feasibility studies, ALP updates or Master Plan Updates. Additionally, the American Association of Airport Executives offers a service through its website to produce General Aviation Economic Impact Statements for a fee. The TDOT Aeronautics Division Planning Office can assist small General Aviation Airport Managers and Sponsors with initial economic impact reviews as well.

FAA POLICY REGARDING USE OF AIRPORT REVENUE

By accepting Federal financial grants (FAA administered) or property transfers, the airport agrees to abide by certain binding contractual obligations (i.e., signing a contract with Federal Government where the government provides the funding and the recipient agrees to follow certain rules). One of those rules specifies that all airport-generated revenues should be spent at the airport.

Violating any of the FAA grant assurances (including the revenue retention provision) can result in losing the privilege to receive grants in the future and can also lead to lawsuits and civil penalties. Congress permits the Secretary of Transportation to withhold transit and rail funds from any local government that violates the airport revenue retention restriction. Additionally, the state can also withhold state funding if an airport is in violation of contract terms and conditions.

In short, it can be too expensive for the grant recipient to violate the terms of the contract with the State or Federal Government. If that happens, the Airport Sponsor can be required to repay the grant, suffer hefty financial penalties, and lose eligibility for receiving grants in the future. In addition, the local municipality and/or the state can also lose federal general (non-aviation) transportation dollars.

The main rationale for the revenue retention provision is the intent of government to ensure an effective, efficient and safe aviation system. Federal contributions to this goal can only be maximized when local aviation-related funds are solely used to achieve the same purpose.

Accepting federal grants usually puts certain restrictions on the use of airport revenue.

In general, any revenue received by the Airport Sponsor for an airport activity is defined as airport revenue. The following types of fees, charges, and payments received by the Airport Sponsor are airport revenue:

- Revenue from Air Carriers (if applicable), Tenants, Transferees, and Other Parties
- Revenue from Airport Sponsor Activities

AIRPORT REVENUE GENERATION

Given increasing construction costs, decreasing available funding, and periodic economic downturns affecting the aviation industry, airport operators must continually search for additional or alternative revenue sources to fund projects and sustain operations. Typical

revenue sources are fuel sales, hangar leases, agricultural leases, and grants, but there are other ways to bring funding into an airport. Innovative revenue producing methods include:

- Advertising programs. Some airports can create airport income from advertising revenue. Modern airport advertising programs specialize in the sales and maintenance of advertising sites at airports by using technology, sponsorship opportunities, and nontraditional advertising locations.
- Commercial development and land use. Airport operators have generated revenue from a variety of revenue-producing leases from non-airline operations including manufacturing, warehousing, freight forwarding, and farming on airport land. Commercial development and land use have been accomplished through coordinated planning efforts that are mindful of FAA restrictions on land development.
- Late fees on leases. Some airports charge late fees on leases and can produce additional lease revenue from late payments.
- Innovative pavement use. Airports are charging for the use of closed runways, aprons and other pavement for driver training and motorcycle safety courses. Several airports rent out their airport for use in filming commercials. All non-aeronautical activity on the airport must be following FAA guidelines and restrictions.
- Industrial park land leases. Many airports building industrial parks and warehouse space on airport land adjacent to the airfield.
- Donations and fundraisers. Several airports hold fundraisers and solicit large donations from airport supporters.
- Other Leases. Some airports are able lease space on the beacon tower for a cell phone antenna. Any cell phone antennas must be consistent with local airport zoning laws and FAA regulations.

II) LEASING AND USE AGREEMENTS

There are several airport leasing and use agreements in use at General Aviation airports that an Airport Manager and Sponsor must be familiar with. Airport lease agreements are considered commercial use agreements or non-commercial use agreements. In addition to these two basic types of agreements, a variety of additional leases types may be in use at airports and are tailored to suit the specific airport operation, such as agricultural operations or other non-aviation type uses.

It is particularly important that Airport Managers and Sponsor strive to maintain consistency in the application and enforcement of lease administration and policy. The consistency in grant application and enforcement is important to maintain compliance with FAA Grant Assurances that require that Airport operators not grant exclusive rights to any entity using the airport.

MINIMUM STANDARDS

Public-use Airport Sponsors regularly permit private businesses to conduct commercial operations and other aeronautical activities from the airport. Commercial operators typically enter into a lease agreement or contractual arrangement with the Airport Sponsor allowing for the commercial operation or operations intended by the Airport Sponsor. It is essential that an airport manager develop reasonable criteria for the accommodation of commercial aeronautical services on an airport in the form of minimum standards.

FAA AC 150/5190-7, *Minimum Standards for Commercial Aeronautical Activities* [\[link\]](#), provides basic information about the FAA's recommendations on commercial minimum standards and related policies. Although minimum standards are optional, the FAA highly recommends their use and implementation to minimize the potential for violations of federal obligations at federally obligated airports.

Minimum standards are also implemented to ensure that each like operator is meeting the same basic standards and that no one operator is given an advantage over others by the airport. Airports that have accepted federal funds agree to allow commercial entities the opportunity to engage in commercial aeronautical activities subject to meeting reasonable minimum standards established by the airport. Every airport is unique and in developing minimum standards the airport manager must attempt to draft a set of standards tailored to that airport. Careful consideration must be given to the specific conditions at an airport.

Appendix D contains the TDOT Aeronautics Division Airport Minimum Standards Template.

RULES AND REGULATIONS

The FAA highly recommends that the Airport Sponsor establish rules and regulations for the safe, orderly, and efficient operation of the airport. Rules and regulations are often referenced in airport lease agreements but are developed to apply to all persons using the airport for any reason. Like minimum standards, rules and regulations should be tailored for specific airports with public safety, preservation of facilities, and protection of the public in mind.

Rules and regulations typically cover the general use of the airport for such issues as:

- Aircraft rules,
- Personal conduct,
- Animals,
- Smoking,
- Waste containers and disposal,
- Storage,
- Pedestrians,
- Vehicle operations,
- Fueling safety,
- On-airport traffic rules,
- Environmental restrictions,
- Airport residences,
- Hangar construction, and
- Fire safety.

Airport managers should periodically review established airport rules and regulations and provide recommendations to the Airport Sponsor for any additions or adjustments. Airport Sponsors of federally obligated airports are required by Grant Assurances to establish and enforce fair, equal, and not unjustly discriminatory airport rules and regulations. It is incumbent on the Airport Sponsor and Manager to ensure that their Airport Rules and Regulations are consistent with FAA Grant Assurances. TDOT Aeronautics Division can assist Airport Sponsors and Managers with the development, review and implementation of airport specific Rules and Regulations.

EXCLUSIVE RIGHTS

When formulating airport leases, use agreements, and minimum standards, airport management must ensure that policy does not have the effect of excluding others, either intentionally or unintentionally, from participating in an on-airport aeronautical activity. Language contained within both the airport minimum standards and operating leases should expressly provide for nonexclusive rights.

An airport obligated by Federal Grant Assurances must be available to the public and accessible to those wanting to conduct aeronautical activities on the airport. An airport sponsor should ensure that an exclusive rights violation does not occur by any means. A monopoly on

aeronautical services cannot be created by express agreement or by any other method, including requiring unreasonable minimum standards. There are exceptions to the general rule when there are what appear to be Exclusive Rights are granted, but they do not constitute an exclusive rights violation. Airport Sponsors and Managers are encouraged to review FAA AC 150/5190-7, *Minimum Standards for Commercial Aeronautical Activities*, at this [\[link\]](#) for Exclusive Rights exceptions.

RATES AND CHARGES

Central to the preparation of all airport lease agreements is the incorporation of rentals and fees for the use of airport property, equipment, facilities, services, and buildings. Airport managers must establish rates and charges that help offset the cost of operating the airport facility. There are no set guidelines or standards on what individual airports should charge tenants. A Public-Use Airport in and of itself is not necessarily a commercial entity, but rather, a publicly funded facility. Therefore, rates should be established to reflect the cost of providing the facility, maintaining and administrating the facility, recovering capital expenditures, and any other costs associated with the airport operation.

There are two common methods of establishing airport rates and charges. The first is by researching what other neighboring airports are charging for like services and facilities. When surveying other airports to determine a market basis for setting airport rates, the surveyed airports should be as comparable as possible. The second method is based on cost recovery for actual costs of facilities and services.

In most cases airport owners will utilize a mix of both market-based pricing and cost-recovery pricing in determining rates and charges. The way that fees are determined also depends largely on the structure of airport leases. Short-term agreements allow management the ability to adjust rates more frequently as required. Long-term contracts and airport lease agreements may not allow for these types of adjustments. It is common to establish rate escalators in longer-term lease arrangements. The FAA recommends that all leases with a term exceeding five years provide for periodic review of the rates and charges for the purpose of adjustments to reflect the then-current values. This process also establishes parity of rates between new operators coming on to the airport and long-term tenants.

TERMS AND CONDITIONS

The Airport Sponsor and Manager should establish a lease policy allowing for standardization among tenants engaged in similar activities. The contract between a public entity and private

business normally involves the right to occupy and use designated premises in the form of a lease, and special consideration must be applied to determining the terms and conditions to be incorporated into the airport lease agreement. Basic airport lease conditions should be consistent between like tenants on the airport. Additionally, federal sponsor requirements should be made part of the airport lease agreements. These would include language pertaining to nonexclusive rights, use of airport, non-discrimination, and airport commitments to Federal or State of Tennessee agencies.

The Airport Sponsor and Manager must negotiate a term consistent with other airport leases, goals, and objectives with the understanding that the commercial tenant may be contemplating a significant investment at the airport. The lease of land or premises should consider a term long enough to reimburse the investment to which the tenant will be committed. The terms of the lease must, however, be consistent with the Master Plan and ALP for phased airport development and land use.

Airport lease agreements should also specify permitted uses and premises to be leased, establish rental rates and payments, and spell out the responsibilities of each party. Other conditions of the lease should contain provisions for required insurance, sub-leasing, and termination. It is also important that the agreement cite the applicable operating standards, local codes, municipality ordinances, or policies of the airport.

See **Appendix E** for the TDOT Aeronautics Division Hangar Lease Agreement Templates and **Appendix F** TDOT Aeronautics Division Airport Lease Agreement Guide.

III) LIABILITY AND INSURANCE

Airports and their respective tenants have the same general type and degree of liability exposure as the owners and operators of most public premises, and accordingly, Airport Sponsors should ensure that the airport is protected with adequate airport liability insurance coverage. The areas of greatest liability with the most frequent claims are aircraft operations, premises operations, and the sale of airport products.

There are three basic types of insurance coverage and two additional type of insurance as required by specific circumstances. The three basic coverage types are:

- Basic Airport Premises Liability. This coverage type covers Airport Sponsors and Managers from losses arising out of liability for activities conducted on the airport and is purchased by the Airport Sponsors.
- Products Liability/Completed Operation Liability. This insurance coverage covers Airport owners and operators from losses arising from claims related to the sale of products or completed services. This insurance is typically purchased by airport service operators.
- Hangar Keepers Coverage. This type of insurance coverage provides coverage for individual hangar or aircraft owners to limit losses stemming from aircraft damage while in the care, custody, or control for storage or safekeeping.

Additional insurance types that an Airport Sponsor may consider are liability insurance purchased for airport events or personal and advertising injury liability.

Additionally, Airport managers should review lease insurance requirements periodically with their insurance providers, risk managers, and attorneys to ensure that satisfactory insurance requirements are contained within various lease agreements at the airport. In addition, worker's compensation provisions are an important consideration during the preparation of leases. Finally, TDOT Aeronautics Division recommends that Airport Sponsors and Managers adopt airport lease policies that require Airport Owners be named as additionally insured in insurance policies adopted by airport operators and tenants.

IV) CONSULTANT SELECTION

It is the Airport Sponsor's responsibility to ensure qualified technical resources are used for airport architectural, engineering, and planning services. For most capital projects and studies, consultants are typically utilized due to the technical nature of the work and the fact that most General Aviation Airports in Tennessee lack sufficient in-house resources to conduct the work. The design and planning of airports require specialized experience and qualifications. Consultants are normally contracted for planning studies, preparation of environmental reviews, project design, and construction administration.

The cost of consultant services is an allowable cost under the FAA Airport Improvement Program (AIP) funding and State TEF funding; provided the costs are associated with an eligible planning, development, or equipment project, and the consultant services are procured in accordance with FAA and state mandated procurement regulations and requirements. For AIP and most state programs, selection of architectural and engineering services must be

qualification-based, with fees for services negotiated after selection is made in accordance with the Brooks Act outlined below. Selections based on cost proposals are not permitted if AIP participation in the cost of consultant services is desired.

The Brooks Act (Public Law 92-582 / 40 USC §§1101–1104), also known as Qualifications Based Selection (QBS), which was enacted by Congress in the 1970s, establishes the procurement process by which architects and engineers (A/Es) are selected for design contracts with federally-funded design and construction agencies. The Brooks Act establishes a qualifications-based selection process, in which contracts for A/Es are negotiated based on demonstrated competence and qualification for the type of professional services required at a fair and reasonable price. Under QBS procurement procedures, price quotations are not a consideration in the selection process.

There are seven basic steps involved in pursuing federally funded design work under QBS:

1. Public solicitation for architectural and engineering services
2. Submission of an annual statement of qualifications and supplemental statements of ability to design specific projects for which public announcements were made
3. Evaluation of both the annual and project-specific statements
4. Development of a short-list of at least three submitting firms in order to conduct interview with them
5. Interviews with the firms
6. Ranking of at least three of the most qualified firms
7. Negotiation with the top ranked firm.

FAA AC 150/5100-14, Architectural, Engineering and Planning Consultant Services for Airport Grant Projects [\[link\]](#), provides important guidance for the selection of a consultant. Use of this document is recommended to ensure appropriate steps are taken to procure the services of a qualified consultant to assist with planning, design, and construction projects. Federal regulations require a quality-based selection process for selecting consultants for projects funded with FAA AIP funds. This requirement includes consultant selection and procurement by Airport Sponsors, TDOT Aeronautics Division, as well as the FAA Airports Division itself. Airport Sponsors are encouraged to become familiar with the requirements of this AC and use the following guidelines:

- Advertise early enough to give consultants at least three weeks to respond,

- Properly identify the scope of work, required services, project schedule, project details, and selection criteria in all requests for qualifications (RFQs),
- Select a committee to establish a well-defined scoring system and rate the statements of qualifications (SOQs),
- Do not include requests for cost information, including hours or hourly rates, in the RFQ or anywhere in the selection process,
- Use interviews when a clear decision cannot be made on the submitted SOQs,
- Limit the interview short list to no more than three to five firms,
- Notify the consultants at least two weeks in advance of an interview and identify the interview format and expectations,
- Notify all parties of the final selection in a timely fashion,
- Request that the selected consultant develop a detailed work scope and corresponding fee estimate for negotiations,
- Include applicable federal provisions in all consultant contracts,
- Avoid any broad-form indemnity language in contracts, and
- Ensure that key project personnel identified during the consultant selection process are stipulated in the contract.

This process provides for the Airport Sponsor to select a qualified consultant and work to negotiate an appropriate fee for the individual needs for each project. Although they may disapprove of the selected consultant, scope of work, cost, or contract, the role of FAA and TDOT Aeronautics Division personnel in the sponsor's consultant selection process is advisory only.

CHAPTER 8: AIRPORT OPERATIONS

One of the critical tasks of the Airport Sponsor and Manager is to maintain a safe and efficient operating environment for all airport users, customers and businesses associated with the airport. Airport operators must be familiar with the roles and responsibilities associated with airport operations to include:

- Maintaining oversight of airport operations,
- Hazard mitigation,
- Risk management,
- Airport safety planning and inspections,
- Maintenance planning and operations, and
- Emergency preparedness.

The guidance contained in this chapter is intended to provide Tennessee General Aviation Sponsors and Managers recommendations that address General Aviation airport operations to include:

- Safety,
- Maintenance,
- Emergency preparedness, and
- Security concepts, methodologies, and enhancements.

The chapter provides a set of airport operations best practices, as well as determining when and where additional operations related improvements might be appropriate.

I) SAFETY

This document does not contain regulatory language nor is it intended to suggest that any recommendations or guidelines should be considered mandatory. These recommendations and guidelines are not intended to suggest any specific or general criteria to be met in order to qualify for federal funding. While not all-inclusive, the guidebook consolidates and supplements many state and federal safety references and requirements that pertain to safe operation of an airport. However, it is imperative that Airport Sponsors and Managers be familiar with *FAA AC 150/5200-37 Introduction to Safety Management Systems for Airport Operators*. Which you can find at this [\[link\]](#).

These guidelines offer an extensive list of options, ideas, and suggestions for airport owners, operators, sponsors, and other entities charged with oversight of Tennessee General Aviation airports, including tenants and/or users to choose from when considering safety and accident mitigation measures for General Aviation facilities. This guidance can enhance consistency across the state regarding safety at General Aviation facilities.

These guidelines also provide a method to determine safety and risk control measure requirements at different airports. Using a risk-based safety control approach, an airport operator can assess an airport's safety characteristics and identify hazards and risks, to determine which safety enhancements or controls would be most appropriate. The intent of this document is to provide a tool to enable Tennessee General Aviation airport managers to assess hazards and tailor appropriate safety measures to their operating environment.

TDOT Aeronautics Division in accordance with FAA guidelines recommends Airport Sponsors and Managers adopt a Safety Management System (SMS) to assist airport operators with detecting and correcting safety issues before they result in aircraft accidents or incidents.

SMS is an internal management system utilized to integrate safety activities into normal day-to-day business practices. SMS is a formal, systematic approach to identify hazards and control risks. SMS includes four components – safety policy, safety risk management, safety assurance, and safety promotion. SMS helps enhance safety by facilitating the development of an organization-wide safety policy and implementing methods to proactively identify and mitigate hazards.

Public Safety Protection

It is the Airport Sponsor's responsibility to undertake every effort to protect the public from hazards that may exist in the airport operating environment. The general public visiting or using airport facilities must be reminded of the hazards that exist in the airport operating environment and not given access to the active portion of the airfield unless under Airport Operator supervision. Safeguards to prevent inadvertent entry to the active portions of the airfield and protection from aircraft operating areas/jet blast areas can be provided via fencing, signage, public announcements, and proactive maintenance measures. Special emphasis should be placed in areas of common use such as parking lots, sidewalks, terminals, and FBO facilities. Routine maintenance tasks, construction, and weather are factors that may lead to additional hazards.

Airport Sponsors and Airport Managers must be aware that there are lawful expectations of managing a public use airport in Tennessee. There are two types of risk associated with operating a public use airport: Risk of a potential accident and risk of legal liability stemming from a potential accident. Both federal and state regulations and guidelines define safety standards for operating a public use airport.

It is important to note that airports have been held liable for safety failures including, but not limited to, failing to maintain lighting systems, failing to publish appropriate NOTAMs for known airport hazards, and failing to remove weather hazards from the runway or sidewalks. The key to minimizing risk and associated liability is to take the appropriate measures reasonably expected to protect the general public from airport hazards and provide a safe flight environment.

Tenant and Contractor Safety Protection / Minimum Standards

In addition to the general public, airport tenants, contractors, and frequent users of the airport's facilities also require safety awareness and protection. Generally, safety is addressed when establishing a lease or contract with airport tenants or businesses. Airport minimum standards codified in the lease or contract agreement should specifically state each party's responsibilities concerning the safe operation, including airport familiarization, specific airfield access points, and authorized operations areas. Additionally, any airport specific hazards or unique aspects that require tenant or contractor awareness must be addressed during the term of the contract or lease. Finally, the Airport Sponsor and Airport Manager must ensure an appropriate level of training is provided to all individuals participating in contract airport operations.

Employee Protection

Maintaining adequate employee training and safety programs will ensure the efficient and safe operation of the airport. Airport Sponsors and Airport Managers should establish recurrent training for every airport employee that includes, at minimum:

- Airport operations,
- Maintenance operations,
- Administrative procedures,
- Emergency and security procedures, and
- General airport safety.

The airport training program should be codified in written form and available to all airport employees. The training program need not be complex, however initial and recurrent training records should be documented and retained for each employee for liability purposes.

Common additional airport employee safety and health training topics include:

- Back and lifting safety,
- Electrical and/or Lockout Tagout safety,
- Heat and cold stress,
- Fall and slip protection,
- Fire extinguisher use,
- Fire prevention and evacuation,
- Forklift, ladder and/or aerial lift safety,
- Hazard communication,
- Hearing conservation,
- Vehicle and confined space safety,
- Office and ergonomic safety,
- Personal protective equipment, and
- Respiratory protection.

An employee safety and training program should also define personal protective equipment (PPE) and require employee use. Common airport employee PPE includes hand, foot, eye and head protection, visibility vests, and proper clothing. This equipment is crucial to protecting employees operating in airport environments as well as meeting Occupational Safety and Health Administration (OSHA) requirements. The airport specific equipment requirements as well as additional resources for establishing employee and public safety guidelines and procedures can be found on www.osha.gov.

Aircraft Fueling and Fuel Storage

Aircraft fueling operations may be conducted under the purview of an Airport Manager or a Fixed Base Operator (FBO). Regardless of who owns and operates the fueling operation, the Airport Sponsor is responsible for fuel system maintenance and safety on the airport. The two primary hazards posed by aircraft fueling operations are: storage and handling of hazardous materials and fire safety. The two primary sources of guidance for establishing proper aircraft fueling operations are the National Fire Protection Association (NFPA) 407, *Standard for Aircraft Fuel Servicing*, available at the NFPA website at www.nfpa.org/catalog and FAA AC 150/5230-4B, *Aircraft Fuel Storage, Handling and Dispensing on Airports* [[link](#)].

It is imperative that the Airport Manager under the Airport Sponsor's direction and supervision establish a fueling employee training program that provides initial and recurrent training. Only FAR Part 139 airports are required to utilize FAA approved training agencies for fuel safety training; however, the approved agencies are useful resources for establishing a professional training program at General Aviation Airports throughout Tennessee. General Aviation fuel safety programs should at a minimum cover the following topics:

- Fire safety training,
- Aircraft towing,
- Fuel product recognition,
- Aircraft familiarization,
- Proper fuel storage, and
- Fuel system bonding, testing, and inspections.

In addition, providing fire safety training is a large component of fueling operations. Initial and recurrent training should cover awareness, static control, extinguishing agents, and emergency procedures. Because local fire codes may vary throughout the state, fire safety training and inspections should involve the local fire jurisdiction's personnel.

A routine fuel equipment inspection program must be established in conjunction with a fuel safety training program to ensure safe and efficient fueling operations at the airport. Fuel systems typically encompass not only the fuel dispenser, but also the associated fuel farms and fueling trucks.

Self-serve fueling systems are common at many General Aviation facilities throughout the state. The self-serve fueling systems are convenient and efficient for airport customers; however, they require routine preventative maintenance checks and servicing. Routine and proper inspections along with clear user instructions will reduce Airport Sponsor liability from any accidents. The formulation of a fuel system checklist with routine daily, monthly, quarterly, and annual inspections and maintenance tasks can prevent any potential hazards resulting from self-serve fueling equipment serviceability. Airport Managers should document fuel system inspections and maintenance and maintain records of those actions.

Notice to Airmen (NOTAM)

The Notice to Airmen (NOTAM) system provides information to aircraft operators and pilots to describe conditions that may impact aircraft operations in vicinity of airports. A typical NOTAM is issued by the Airport Manager or Airport Sponsor, although the FAA can also issue and cancel NOTAMs. The FAA will typically issue NOTAMs when the information is related to FAA-owned navigation aids and temporary flight restrictions. NOTAMs are issued by the local flight service station (FSS) and contain information identifying the airport affected, person issuing the NOTAM, and information establishing the NOTAM. The NOTAM is disseminated by the FSS until cancelled by the person or organization issuing the notification.

It is important that Airport Sponsors and Airport Managers have systems in place to convey relevant NOTAM information to airport tenants and coordinate updates as conditions change. Additionally, the Airport Manager should maintain a log containing NOTAM information, issuing date and time, initials of the individual issuing or cancelling the NOTAM. The NOTAM log should be retained for incident documentation and liability purposes. Additional information is contained in FAA AC 150/5200-28F, *Notices to Airmen (NOTAMs) for Airport Operators* at this [\[link\]](#).

Airfield Driving Programs

Airport Managers should establish an airfield driving program to maintain access control procedures and safe operations. The airfield driving program training should be tailored to specific group types using the airfield. Tenants and contractors will be limited to those areas necessary to perform their driving operations. Typically, these areas are only ramps, hangar access areas, and areas closed to normal aircraft operations. FAA AC 150/5210-20, *Ground Vehicle Operations on Airports*, provides guidance for developing airport ground vehicle operation training programs and can be found at this [\[link\]](#).

Wildlife Hazard Mitigation

One of the most frequent and significant hazards posed to the flying public's safety is wildlife hazards. Regardless of airport location in the state, wildlife hazards are a consistent danger to aviation public safety. It is important that Airport Sponsors and Airport Managers assess an airport's wildlife hazard condition to determine the hazard level. It is incumbent on Airport Managers to document any visible wildlife including time, location, and methods used to remove the wildlife hazard during routine airport inspections. The wildlife documentation can be used to assess the threat, develop a hazard mitigation program, and record proactive mitigation efforts. The documentation can be used to build a mitigation plan as well as demonstrate proactive mitigation efforts to limit Airport Sponsor and Airport Manager liability.

Although the FAA does not require Wildlife Hazard Site Visits or Plans for non-Part 139 airports *FAA AC 150/5200-38, Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments, and Wildlife Management Plans*, can assist Tennessee General Aviation airport operators with development of Wildlife Hazard Site Visits, Assessments and Plans; and can be found at this [\[link\]](#). The airport operator should contact the TWRA Regional Office in which the airport is located, and a Wildlife Officer will be assigned to contact the Airport Sponsor and/or Airport Manager. Additionally, airport operators may contract with TWRA licensed Animal Damage Control (ADC) operators to complete wildlife hazard reduction operations at airports. Additional information is available on the TWRA website: <https://www.tn.gov/content/tn/twra/law-enforcement/wildlife-damage-control.html>

Maintenance Equipment

In order to appropriately support airport facility maintenance operations, the Airport Sponsor and Airport Manager must maintain an inventory of current maintenance equipment and projected maintenance equipment needs. To quickly and expediently obtain required maintenance equipment, the equipment requirement must be identified on budgeting outlays.

The high cost of some airport maintenance equipment will require early planning and a financial plan. A revolving equipment service life schedule, which is an inventory of equipment listed by year and projected replacement schedule based on age and use can assist with the maintenance equipment replacement planning process.

Airports can use either the Annual State Maintenance Grant or Maintenance Equipment Grant to procure maintenance equipment. Airport Sponsors and Airport Managers are encouraged to contact TDOT Aeronautics Division for grant constraints, requirements and reimbursement specifics.

Airfield (Airside) Maintenance

The foundation of airside airport maintenance is the airport inspection program outlined in the Inspection and Monitoring section of this chapter. The airport inspection program must prioritize airside maintenance inspections due to the critical nature of airside facility infrastructure.

Airport Sponsors and Airport Managers should at a minimum, establish inspections of all aircraft movement areas, runway safety areas, runway and taxiway lighting, and NAVAIDs.

Other special areas of emphasis on the Airside are construction areas, wildlife hazards, and any other area deemed hazardous to the flying public. The inspection of airside facilities must be routine and standardized to ensure that the operating area is safe and free of hazards.

Additionally, routine and standardized inspections of the airside infrastructure will limit airport operator liability in the advent of an aviation accident.

An area of emphasis within airside maintenance is airport pavement maintenance. Due to the critical nature of runways to airport operations as well as associated high costs of runway pavement replacement; runway surfaces must be inspected daily. Expedient repair of any runway pavement deficiencies identified during inspection can potentially save the airport significant time and funding if addressed at earliest opportunity. Additionally, if an airport has any chance of experiencing snow or ice, a winter weather control plan should be established. FAA AC 150/5200-30, *Airport Winter Safety and Operations* [\[link\]](#), provides guidance on the establishment of a winter weather control plan.

Three additional areas that require routine inspection are airfield lighting, airfield signage and markings, and vegetation obstruction. Airport lighting is a critical component of safe airport operations during periods of low visibility. Airport Managers should inspect airside lighting and NAVAIDs daily to ensure all lighting units are working appropriately. Early identification of airport lighting or NAVAID deficiencies will permit expedient replacement of the lighting unit preventing any impact to airport operations during periods of low visibility.

Airside signage and pavement markings are another area that requires daily inspection. Signage is critical for airside safety to provide guidance for pilots unfamiliar with the airport facility. Airport Managers should ensure that airport signs have working lights and/or reflective panels and remain clear of any obstructions that would preclude simple interpretation and comprehension. Additionally, an Airport Manager should periodically inspect airport markings with a disinterested party to identify any fading or erosion of airport markings. Using an individual outside of the airport organization may assist with identification of marking erosion that is not noticeable or readily apparent to the daily inspector or Airport Manager.

A final aspect of routine airside inspections are vegetation obstruction and erosion control. Much like airport markings, these maintenance issues emerge gradually and can easily escape notice by the daily inspector. Additional attention should be given to these inspectable items during special inspections because of the difficulty associated with measuring and detecting the

issues. Additionally, obstructions to an airport approach surface should be inspected on an annual basis to ensure a safe operating environment. If any obstructions are identified, the objects causing the obstruction should be removed and a vegetation or obstruction management plan implemented to preclude future obstructions. Additionally, many airports in Tennessee are in areas prone to sinkhole or karst formation. Erosion identification and control measures are particularly pertinent to those airports and special emphasis must be placed on identifying any erosion that may impact aircraft movement areas and/or public safety.

Landside Maintenance

Although the primary focus of airport maintenance is airside, the airport operators must include landside considerations. Routine landside facility maintenance inspections should cover public areas such as parking lots, buildings, roadways, and sidewalks. Special consideration should be given to safety-related items, particularly during construction and inclement weather conditions. Routine inspections maintain general facility preservation and save airport funding as part of an effective overall airport maintenance program. For air travelers, the airport provides the first impression to individuals visiting the community and it is incumbent upon the Airport Sponsor and Airport Manager to maintain the community image. An airport facility, properly maintained through routine inspections, will provide an excellent impression of the community to visitors.

Record Keeping

The importance of establishing written forms, logs, and/or checklists, documenting efforts, and maintaining organized files cannot be overemphasized. Record keeping should encompass inspections, training and maintenance efforts. Additionally, special conditions such as accidents or incidents involving aircraft, vehicles, and people on airport property as well as significant weather events should be recorded in an airport log. Detailed and extensive record keeping can provide confirmation and documentation that airport management is proactive in airport oversight/management programs and limit any potential legal liability.

III) EMERGENCY PREPAREDNESS

It is the Airport Sponsor and Airport Manager's responsibility to ensure that airport personnel are prepared to respond to an airport emergency. An airport emergency is any unexpected event that may cause injury to personnel or damage to airport facilities, equipment or infrastructure. Airport employees, tenants or aviators may be first responders to an airport emergency and all parties should understand the airport emergency response plan and how to react to an emergency on the airport. This section provides an overview of emergency

preparedness measures to include an Airport Emergency Plan (AEP), Operational Planning Procedures, Emergency Training and Airport Orientation as well as emergency response best practices and recommendations. It is not intended to be all-inclusive, but rather an outline of ideas for consideration in developing your own airport plan.

Airport Emergency Plan

The purpose of an AEP is to establish specific duties and responsibilities during incidents requiring an emergency response. Additionally, the AEP can be used to coordinate response efforts between responding agencies during emergency operations. The scope and configuration of the AEP will vary depending on airport size, type of operations, and emergency response agencies; however, a comprehensive AEP will cover all potential emergency incidents and appropriate responses. When developing the AEP, it is particularly important that the Airport Manager coordinate closely with local emergency response agencies as well as airport tenants to create shared understanding of roles and responsibilities expected of participants in an airport incident. FAA AC 150/5200-31C, *Airport Emergency Plan*, provides guidance on the development of a comprehensive AEP and can be found at this [\[link\]](#).

Emergency Training and Airport Orientation

A critical facet of emergency planning is AEP training and emergency exercises. TDOT Aeronautics Division recommends an annual review of the AEP and at minimum a training exercise with local emergency response agencies every three years. Through early coordination and communication with local emergency response agencies, the Airport Manager can organize and execute a training exercise that fulfills both the airport training requirement as well as the local emergency response agencies. Additionally, the airport training exercise provides local emergency response agencies the opportunity to conduct an orientation and familiarization with the airport and facility access control procedures. Finally, the emergency response training event also provides the Airport Manager the opportunity to provide emergency responders an update on any operational changes such as construction, procedural changes or seasonal operations at the airport that may impact their ability to respond to an event at the airport.

Aircraft Accidents and Incidents

Aircraft accidents are defined as any occurrence associated with the operation of an aircraft that takes place between the time a person boards an aircraft with the intention of flight and when that person disembarks in which an individual suffers death or serious injury, or in which the aircraft receives substantial damage. An aircraft incident is any occurrence other than an

accident associated with the operation of an aircraft which affects, or could affect, the safety of aviation operations.

Most aircraft accidents occur on landing and take-off and therefore are typically located on airport property; however, aircraft accidents are unpredictable, and the accident variables will dictate the airport response to incident. Due to the unpredictable nature of aircraft accidents it is important to coordinate with local agencies to address and respond to various airport emergencies regardless of size or complexity. Regardless of the specific accident variables, many of the fundamental emergency responses and post-accident measures will remain the same.

IV) SECURITY

The security requirements of each airport will vary considerably throughout the state. Every airport is unique and will require a specific security assessment to determine the vulnerability and security measures that may be appropriate or required at the airport based on a variety of factors including location, airport size, number of based aircraft, operations at the airport, and security posture of the surrounding area. This guide covers various security enhancement recommendations that include not only physical and equipment improvements, but also airport personnel training, facility surveillance programs, and reporting procedures.

Safety and Security Guidelines

Airport security involves the protection of airport users and airport assets from both criminal acts and from accidental incursions into airport active surfaces by people or wildlife.

Accordingly, airport security provides the dual purpose of protecting the general and flying community from inadvertent or deliberate entry of individuals or wildlife into airport facilities thereby preventing or deterring vandalism, theft, potential terrorist activity, and wildlife hazards. Due to the importance of safety and security projects to public protection, these projects retain high state priority rankings for ACIP funding consideration.

The *TSA Security Guidelines for General Aviation Airport Operators and Users, Version 2* publication provides general aviation airport sponsors and managers recommendations to address general aviation security concepts, technology, and facility enhancements. The TSA derived guidance and recommendations can enhance consistency across the state with regard to security at general aviation facilities.

Development of an Airport Security Program

The guidelines outlined in the TSA publication offer an extensive list of options, ideas, and suggestions for airport owners, operators, sponsors, and other entities charged with oversight of general aviation airports, including tenants and/or users to choose from when considering security enhancements for general aviation facilities. The guide provides a set of security best practices and a method that airport operators can use to determine when and where security improvements may be appropriate. Chief among the recommendations outlined by the TSA is formulation of an Airport Security Plan (ASP).

Regardless of airport size, operations and location, every airport operator should develop an Airport Security Plan (ASP) as well as initiate an airport security assessment to determine the airport security posture and potential security requirements. The TSA Security Guidelines for General Aviation Airport Operators and Users is contained in Appendix T

TDOT Aeronautics Division Contact Information

Mailing Address

Physical and Mailing Address:

Tennessee Department of Transportation
Aeronautics Division
7335 Centennial Boulevard
Nashville, TN 37209
(615) 741-3208

Grantee Local Share:

TDOT Finance Division
Attn: Lacey Bryant
505 Deaderick Street
Suite 800, James K Polk Building
Nashville, TN 37243-0329

Website

<https://www.tn.gov/tdot/aeronautics.html>

Email Addresses

Flight Services Office: flight.services@tn.gov

Program Monitoring Office Unexecuted Grants: aero.grants@tn.gov

Program Monitoring Office Invoices: aero.pymts@tn.gov

Unmanned Aerial System (UAS) Office: tdot.uas@tn.gov

DEFINITIONS

When used in this guide, the following words or terms possess the meaning provided below unless otherwise indicated:

Air Carrier/Commercial Service Airport: An air carrier/commercial service airport is an airport providing scheduled air carrier and/or commuter service for surrounding communities with domestic and, in some cases, international destinations; recommended to meet a minimum of FAA Category C design criteria; providing a precision instrument approach if feasible from technical and financial perspectives.

Airport Layout Plan: An airport layout plan is a scaled drawing of the existing and planned land and facilities supporting the development and operation of an airport.

Airport Real Property: Airport real property is property consisting of land, buildings, or other resources attached to or within the land and improvements or fixtures permanently attached to the land or a structure on an airport.

Airport Sponsor or Sponsor: An airport sponsor or sponsor is an entity that is legally, financially, and otherwise able to assume and carry out the certifications, representations, warranties, assurances, covenants, and other obligations required in this document and in the accepted master and grant agreements.

Air Traffic Control (ATC): A service operated by appropriate authority to promote the safe, orderly and expeditious flow of air traffic.

Allocation: An allocation is the authorization to expend a specific amount of state funds for an eligible project approved by the Tennessee Aeronautics Division and/or Tennessee Department of Transportation – Aeronautics Division, awarded under a written notification from Tennessee Department of Transportation. The state *Master Agreement on Terms and Conditions for Accepting State Aviation Funding Resources* provides the general terms and conditions under which a sponsor accepts an allocation.

Approach Lights: An airport lighting facility which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended centerline of the runway on final approach for landing.

Apron: A defined area on an airport or heliport intended to accommodate aircraft for purposes of loading and unloading passengers or cargo, refueling, parking or maintenance.

Automated Surface Observation System (ASOS): A primary surface weather observing system designed to provide continuous minute-by-minute observations and weather forecast activities. (Federal Only)

Automated Weather Observation System (AWOS): System consisting of various sensors, a processor, a computer-generated voice and a transmitter to broadcast local, minute-by-minute weather data directly to the pilot.

Common Traffic Advisory Frequency (CTAF): Pilots use the common frequency to coordinate their arrivals and departures safely, giving position reports and acknowledging other aircraft in the airfield traffic pattern.

Contractor: A contractor is a private entity, including consultants and subcontractors, engaged by a sponsor or Tennessee Department of Transportation to perform work.

Distance Measuring Equipment (DME): Equipment (airborne and ground) used to measure, in nautical miles, the slant range of an aircraft from the DME navigational aid.

Equipment: Equipment is all fixed assets other than airport real property of an airport environs to include, but not limited to, maintenance equipment, navigational aid equipment, and security equipment.

Exclusive-Use Facilities: Exclusive-use facilities are facilities that not all airport users may utilize due to the nature of the activities taking place in or from the facilities. Examples of exclusive-use facilities are hangars for maintenance shops, charter services, and agricultural spraying operations; areas leased to airlines and federal agencies; concession areas; and administrative offices in terminal buildings.

Federally Funded Project: A federally funded project is a project that is funded with monetary participation by one or more federal agencies, the State of Tennessee, and the sponsor.

Fiscal Year: A fiscal year is a period of 12 consecutive months an organization uses for accounting and budgeting purposes. In this guide, the use of the term fiscal year indicates the state fiscal year that runs from July 1 to June 30, and the use of federal fiscal year indicates the federal fiscal year that runs from October 1 to September 30.

General Aviation Community Airport: A general aviation community airport is an airport providing general aviation facilities and services to a smaller market segment than a General Aviation Regional Airport, with services including fuel sales, aircraft rental, and pilot training; recommended to meet a minimum of FAA Category B design criteria when feasible; providing a non-precision instrument approach if feasible from technical and financial perspectives and if justified by the level of operations.

General Aviation Regional Airport: A general aviation regional airport is an airport serving a large market area and accommodating general aviation activity by offering a full range of services and facilities including jet fuel, full-service fixed based operators, hangars, and a general aviation terminal building; recommended to meet a minimum of FAA Category C design criteria when feasible; providing instrument approach capabilities including a precision instrument approach if feasible from technical and financial perspectives and if justified by the level of operations.

Glide Slope: A component of the Instrument Landing System (ILS) that provides vertical guidance for aircraft during approach and landing.

Global Positioning System (GPS): A space-based radio positioning navigation and time-transfer system. The system provides highly accurate position and velocity information and precise time on a continuous global basis to an unlimited number of properly equipped users. The system is unaffected by weather and provides a worldwide common grid reference system.

Grant Contract: A grant contract is the agreement created upon the sponsor's acceptance of the terms and conditions set forth in the current fiscal year *TDOT Aeronautics Division Grant Agreement, Terms and Conditions* and the grant offer, as evidenced by the sponsor's execution of the grant offer.

Grant Amendment: A grant amendment is the modification of the terms and conditions of a grant agreement, the acceptance of which is evidenced by the sponsor's execution of the grant amendment.

Grant Obligation Term: The grant obligation term is the time period specified in the grant contract during which the terms, conditions and assurances of the grant obligation term, including the current fiscal year *TDOT Aeronautics Division Grant Agreement, Terms and Conditions*, remain in effect. The grant obligation term shall begin upon the date the final payment under the grant agreement is made by the state.

Grant Offer: The terms and conditions upon which Tennessee Department of Transportation is willing to provide funds to a sponsor for an identified project, as specified in Part C – Payment Terms and Conditions, Part D – Standard Terms and Conditions, and Part E – Special Terms and Conditions.

Grant Term of Contract: The grant term of contract is the time period within which the State of Tennessee will accept requests for reimbursement from the sponsor pursuant to the grant contract. The expiration date for such grant term will be specified in the grant contract.

Ground Communications Outlet (GCO): The GCO is used at non-towered airports employing a telephone line and a radio frequency to provide pilots with convenient access from their aircraft to Flight Services for efficient clearance delivery and flight plan closure.

High, Medium or Low Intensity Runway Lighting (HIRL, MIRL, LIRL): A system of lights that outline the edges of the runway during periods of darkness or restricted visibility conditions.

High, Medium or Low Intensity Taxiway Lighting (HITL, MITL, LITL): A system of lights that outline the edges of the taxiways during periods of darkness or restricted visibility conditions.

Instrument Landing System (ILS): A precision approach system designed to provide an approach path for exact alignment and descent of an aircraft on final approach to a runway.

Instrument Flight Rules (IFR): A set of rules governing the conduct of flight under instrument meteorological conditions.

Local Service Airport: A local service airport is an airport providing limited facilities, often facing constraints for expansion capability; recommended to meet FAA Category A or B design criteria.

Localizer: A component of the ILS which provides course guidance to the runway.

Middle Marker: A component of the ILS which defines a point along the glide slope at or near the point of decision height.

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

Next Generation Automated Weather Observation Station (NEXWOS): An advanced version of an automated weather observation station.

Non-Directional Beacon (NDB): A radio beacon transmitting non-directional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine bearing to or from the radio beacon and “home” on the track to or from the station.

NOTAM: A Notice to Airmen containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

Obstacle Free Zone (OFZ): A three-dimensional volume of airspace protecting the transition of aircraft to and from the runway.

Object Free Area (OFA): An area that is required to be free of any object penetrations except for frangible visual navigational aids that are required to be located in this area because of their function. The OFA has a pre-determined length and width that is centered on the runway centerline.

Omnidirectional Approach Lighting System (ODALS): Lighting system consisting of seven omnidirectional flashing lights located in the approach area of a non-precision runway.

Operating Costs: Operating costs are direct expenses associated with the operation of an airport, including, but not limited to, recurring maintenance, utility expenses, and salary and wage expenses.

Outer Marker: A component of the ILS system at or near the glide slope intercept altitude, normally located four to seven miles from the runway threshold on the extended centerline of the runway.

Precision Approach Path Indicator (PAPI): A visual glide slope indicator installed in a single row of either two or four light units.

Preliminary Design: Preliminary Design is the work to be done as part of a design project or design and construction project such as surveys and geotechnical analysis, to determine the final needs, tasks, and costs associated with the project.

Reimbursement: A reimbursement is the refunding of eligible costs incurred or expenses paid.

Reliever Airport: A reliever airport is general aviation airport located near or in larger metropolitan areas that is intended to reduce congestion at a commercial service airport, providing comparable general aviation facilities and services typically found at a commercial service airport; recommended to meet a minimum of FAA Category C design criteria to accommodate the full range of general aviation aircraft; providing a precision instrument approach if feasible from technical and financial perspectives and if justified by the level of operations.

Remote Communications Outlet (RCO): An unmanned communications facility remotely controlled by air traffic personnel.

Revenue-Producing Airport Facility: A revenue-producing airport facility is an airside or landside airport facility that generates income, including, but not limited to, hangars, leased space, and paid vehicle parking lots and decks, and excluding runways and taxiways.

Rotating Beacon: A visual NAVAID alternating white and green flashes indicating the location of an airport.

Runway End Indicator Lights (REIL): Two synchronized flashing lights, one to each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.

Runway Protection Zone (RPZ): A trapezoidal-shape area centered about the extended runway centerline that is used to enhance the protection of people and property on the ground.

Runway Safety Area (RSA): A defined surface surrounding the runway suitable, for reducing the risk of damage to airplanes in the event of an undershoot, overshoot or excursion from the runway.

Scope of Work: A scope of work is a document that describes the tasks, schedule, deliverables, man-hours, costs, and responsible parties for a project and is to be approved by the sponsor, TDOT, TDOT Aeronautics Division, FAA and/or applicable state or federal agencies as appropriate.

Segmented Circle: A system of visual indicators designed to provide traffic pattern information to pilots at airports without operating control towers.

State-Funded Project: A state-funded project is a project that is funded with monetary participation by the State of Tennessee and the sponsor.

Tactical Air Navigation (TACAN): An ultra-high frequency electronic air navigation aid which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN station.

TDOT Aeronautics Division Grant Agreement, Terms and Conditions: The *TDOT Aeronautics Division Grant Terms and Conditions*, is the contract that contains the terms and conditions of accepting state aviation funding from the State of Tennessee.

Tentative Allocation: A tentative allocation is the reservation of funds for a project by the Tennessee Department of Transportation Aeronautics Division that must be followed by the

grant agreement process for the appropriate funding program. A tentative allocation does not guarantee funding of a project or a time frame for funding a project.

Unicom: A non-government communication facility.

Usable Unit of Work: A usable unit of work is a deliverable that allows the next phase of a project to begin or results in a facility or airport infrastructure that can be utilized for its intended purpose.

Visual Approach Slope Indicator (VASI): A lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing.

Visual Flight Rules (VFR): Rules that govern the procedures for conducting flight under visual conditions.

VHF Omnidirectional Range (VOR): A ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the National Airspace System. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature.

VHF Omnidirectional Range Tactical Air Navigation (VORTAC): A navigation aid providing VOR azimuth, TACAN azimuth and TACAN distance measuring equipment (DME) at one site.

APPENDICES

- [Appendix A: General Aviation Development Plan Checklist](#)
- [Appendix B: Eligible and Ineligible NPE Projects](#)
- [Appendix C: Project Restrictions by Federal Fund Type](#)
- [Appendix D: Aeronautics Division ACIP Flyer](#)
- [Appendix E: TDOT Aeronautics Division Hangar Lease Agreement Templates](#)
- [Appendix F: TDOT Aeronautics Division Airport Lease Agreement Guide](#)
- [Appendix G: Example TDOT Aeronautics Division Airport Development Standards](#)
- [Appendix H: Minimum Standards for Agricultural Aviation Operators](#)
- [Appendix I: Minimum Standards for Fixed Base Operators](#)
- [Appendix J: Airport Hangar Lease](#)
- [Appendix K: TDOT Aeronautics Division Template Hangar Lease](#)
- [Appendix L: Airport Lease Agreements and Land Release Procedures Guide](#)
- [Appendix M: Tennessee General Aviation Airport Inspection Guide](#)
- [Appendix N: TSA Security Guidelines for General Aviation Airport Operators and Users](#)

ACKNOWLEDGEMENTS

Michigan Department of Transportation

Missouri Department of Transportation

North Carolina Department of Transportation

Pennsylvania Department of Transportation

Texas Department of Transportation

Washington Department of Transportation

Wisconsin Department of Transportation

Virginia Department of Transportation

National Association of State Airport Officials (NASAO)

University of Minnesota Aviation Technical Assistance Program (U of M – AirTAP)

Aircraft Owners and Pilots Association (AOPA)

Transportation Research Board - Airport Cooperative Research Program (TRB – ACRP)

Federal Aviation Administration (FAA)

Transportation Security Administration (TSA)