Airport Layout Plan (ALP) Project Standard Operating Procedure (SOP) for NPIAS Airports

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Contact Information

Please direct any questions or comments regarding this SOP to one of the Planning and Environmental staff members listed below.

- **Evan Lester** - Transportation Program Supervisor
  - 615-361-8016
  - Evan.Lester@tn.gov.

- **Kabrina Webb** – Transportation Program Monitor 2
  - 615-532-4640
  - Kabrina.Webb@tn.gov

- **Stephanie Saloom** – Transportation Program Monitor 2
  - 615-741-0851
  - Stephanie.Saloom@tn.gov

- **Erin Burkle** – Transportation Program Monitor 2
  - 615-532-8717
  - Erin.Burkle@tn.gov

- **Xavier Gliesman** – Transportation Program Monitor 1
  - 615-532-6275
  - Xavier.Gliesman@tn.gov

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Acronyms

- AAC – Aircraft Approach Category
- AC – Advisory Circular
- ACIP – Airport Capital Improvement Plan
- ADG – Airplane Design Group
- ADIP - Airport Data and Information Portal
- ADO – Airports District Office
- AGIS – Airports Geographic Information System
- ALD – Airport Layout Drawing
- ALP – Airport Layout Plan
- APO-110 – Office of Aviation Policy and Plans
- ARC – Airport Reference Code
- ARFF – Aircraft Rescue and Fire Fighting
- ARP – Office of Airports
- COVID – Coronavirus
- FAA – Federal Aviation Administration
- FBO – Fixed-Based Operator
- GA – General Aviation
- IFE – Independent Fee Estimate
- IFR – Instrument Flight Rules
- MOS – Modification of Standards
- NPE – Non-Primary Entitlement
- NPIAS – National Plan of Integrated Airport Systems
- NRA – Non-Rulemaking Airport
- PFC – Passenger Facility Charge
- PSR – Project Staff Review
- RDC – Runway Design Code
- ROFA – Runway Object Free Area
- RPZ – Runway Protection Zone
- RSA – Runway Safety Area
- RSAD – Runway Safety Area Determination
- RSAI – Runway Safety Area Inventory
- SBGP – State Block Grant Program
- SOP – Standard Operating Procedure
- TAC – Tennessee Aeronautics Commission
- TAF – Terminal Area Forecast
- TDG – Taxiway Design Group
- TDOT – Tennessee Department of Transportation
- TFMSC – Traffic Flow Management System Counts
- TSS – Threshold Siting Surface
- VFR – Visual Flight Rules
- WA – Work Authorization

Introduction

The Tennessee Department of Transportation (TDOT) Airport Layout Plan (ALP) Standard Operating Procedure (SOP) is intended to guide National Plan of Integrated Airport Systems (NPIAS) airports, airport sponsors, and their consultants in the preparation and submittal of an ALP project to the TDOT Aeronautics Division and Federal Aviation Administration (FAA) Memphis Airports District Office (ADO) for review and conditional approval.

The SOP is intended to provide guidance and information on the TDOT Aeronautics Division and FAA ALP project process and requirements. This SOP does not replace or change any of the requirements of federal and/or state laws or regulations. The most current version of all FAA Advisory Circulars (AC), FAA Orders, state licensing requirements, and other applicable federal and state rules, regulations, policies, and requirements must be used in preparation of an ALP project. These rules, regulations, policies, and requirements were used in the development of this SOP and are provided in the References section of this guide.

Purpose

The purpose of this SOP is to provide consistency across all ALPs prepared by NPIAS airports, airport sponsors, and their consultants throughout the State of Tennessee and to provide transparency on the TDOT Aeronautics Division and FAA requirements throughout ALP projects.

Frequency of ALP Updates for NPIAS Airports

For NPIAS airports and airport sponsors, FAA Airport Sponsor Grant Assurance #29 *Airport Layout Plan* states that airport sponsors will keep their ALPs up to date at all times. An ALP update should be completed at least every eight to ten years. It is recommended to begin ALP update projects when the current, approved ALP is eight years old so the projects can be completed by or before the current, approved ALP is ten years old.

The completion of an ALP update is required before this eight to ten-year period when there are significant proposed changes to the airport that are not shown on the current, approved ALP or when the airport has completed all projects identified on the current, approved ALP.

Minor changes may only require a formal airspace review and pen-and-ink change to the current, approved ALP.

Airports should contact the TDOT Aeronautics Division to determine whether an ALP update or pen-and-ink change to a current, approved ALP is required.

Importance of ALPs in Relation to Funding

Per FAA Order 5100.38D *Airport Improvement Program Handbook* and TDOT Policy Number 170-02 *Direction of the Tennessee Aeronautics Commission*, all proposed airport improvement projects must be shown on a current, approved ALP to receive federal and state funding.

Per 49 USC 47101(a)(16) and FAA Order 5100.38D *Airport Improvement Program Handbook*, the airport sponsor shall not make or permit any changes or alterations to the airport or any of its facilities that are not in conformity with the ALP, as approved by the FAA and TDOT Aeronautics Division, which might adversely affect the safety, utility, or efficiency of the airport.

If an airport sponsor is proposing a project that is not on the current, approved ALP, an ALP update or pen-and-ink change will be required. Please contact the TDOT Aeronautics Division to assist in making this determination.

Special Timing Considerations for ALP Projects

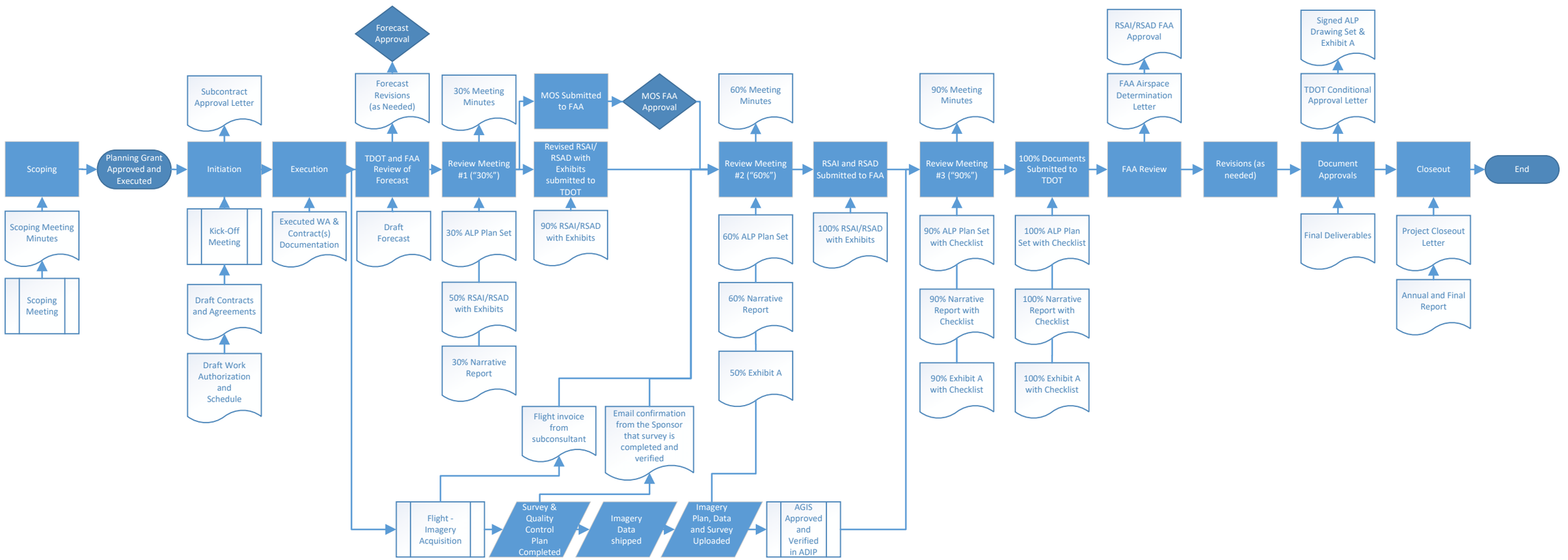
Typically, the TDOT Aeronautics Division only approves ALP project funding requests between February and August each calendar year. This timeframe allows the TDOT Aeronautics Division to approve and execute an ALP project grant and for the consultant to complete the AGIS survey while leaves are still on the trees. The AGIS survey must be conducted during leaf-on conditions to obtain the required accuracy for the obstruction analyses.

However, the TDOT Aeronautics Division can approve an ALP project funding request at its discretion any time of the year based on special circumstances, such as the need to complete additional planning studies and the need to complete the collection of operations counts with a data counter system.

ALP Project Process Flowchart

The ALP Project Process Flowchart below shows the major steps that must be completed throughout the ALP project. The following sections of the SOP provide detailed information on how to complete each of these steps.

ALP Project Process



Step 1 – Collection of Airport Operations Data

1.1 - Introduction

Collecting airport operations data (including aircraft make and model) over the most recent 12-month period leading up to an ALP project is one of the most critical steps in the project process. Operations data is used to determine the existing critical aircraft and forecast the ultimate critical aircraft.

FAA Advisory Circular (AC) 150/5000-17 *Critical Aircraft and Regular Use Determination* defines the critical aircraft as "the most demanding aircraft type, or grouping of aircraft with similar characteristics, that make regular use of the airport. Regular use is 500 annual operations, including both itinerant and local operations but excluding touch-and-go operations. An operation is either a takeoff or landing." The existing and ultimate critical aircraft ultimately determine the design standards that will be used for the airport during the ALP project, such as the Runway Object Free Area (ROFA), Runway Protection Zone (RPZ), and Runway Safety Area (RSA).

Because accurate and reliable data is needed to make the important critical aircraft determination, the TDOT Aeronautics Division is requiring all airports with an ALP project programmed on the ACIP to purchase an operations data counter system through the Aeronautics Division's grant program and utilize it to collect 12 months of operations data. This data will be used during the development of the aviation forecast that includes the critical aircraft determination as part of the ALP project. The TDOT Aeronautics Division has also identified other various FAA-approved resources to supplement the data collected from the operations data counter systems.

1.2 – Operations Data Counter Systems: Grant Program, Requirements, and Eligibility

The TDOT Aeronautics Division has developed an operations data counter grant program to assist airports in purchasing an operations data counter system and capturing more reliable and accurate operations counts. This, in turn, will help with the development of a more accurate critical aircraft determination and aviation forecast.

Airports with an ALP project programmed on the ACIP are required to purchase and utilize an operations data counter system to collect 12 months of operations data for the aviation forecast and critical aircraft determination. The grant for the purchase and use of an approved operations data counter system for a 12-month period will be a 95% State and 5% Local grant from the TDOT Aeronautics Division. As part of accepting the grant, the airport is required to share the operations data collected by the system with the TDOT Aeronautics Division and the airport's consultant.

Some factors that will determine the approval of the data counter system are the following:

- The system must capture both VFR and IFR operations with high accuracy and reliability
- The system must capture the make and model of the aircraft operating at the airport
- The system must be able to differentiate whether an aircraft is conducting a takeoff, landing, or touch-and-go operation as touch-and-go operations are not permitted to be counted toward the existing critical aircraft determination per FAA AC 150/5000-17 *Critical Aircraft and Regular Use Determination*

The TDOT Aeronautics Division will contact the airports with an ALP project programmed on the ACIP in sufficient time to allow the airports to receive a grant for the purchase of an operations data counter

system and to collect 12-months of operations data. Since the most recent 12 months of operations data must be used to determine an airport's existing critical aircraft, the TDOT Aeronautics Division recommends airports submit a funding request for an operations data counter system at least 9 months in advance of a funding request for an ALP project. This will allow sufficient time to approve and execute the operations data counter system grant, purchase and install the system, and collect 12 months of operations counts prior to beginning the ALP project.

Further information on this program can be found on the Planning webpage of the TDOT Aeronautics Division's website - Planning (tn.gov). Please direct any questions about the operations data counter grant program to the Program Lead, Kabrina Webb, at Kabrina.Webb@tn.gov or 615-532-4640.

1.3 - Traffic Flow Management System Counts (TFMSC)

The FAA's Traffic Flow Management System Counts (TFMSC) can be used to supplement the operations counts from the operations data counter systems to document the airport's latest 12 months of operations. However, there are pros and cons of using TFMSC.

The operations data provided by TFMSC is limited to Instrument Flight Rules (IFR) operations and do not include any Visual Flight Rules (VFR) operations or flights where the IFR flight plan is cancelled in flight. Since Tennessee public-use general aviation (GA) airports see mostly VFR operations, TFMSC will only provide a small fraction of the total number of operations conducted at these airports. Therefore, TFMSC does not provide a 100% accurate depiction of the total number of operations at a GA airport in the state.

In contrast, TFMSC counts of jet and turboprop operations, once normalized, are considered representative of the total operations of these aircraft types, which nearly always operate on IFR flight plans. This is useful for critical aircraft determinations because jets and turboprops can often be the most demanding aircraft types operating at a GA airport.

1.4 - Other Approved Sources

According to FAA AC 150/5000-17 *Critical Aircraft and Regular Use Determination*, other approved sources that can be used to supplement the operations data from the operations data counter systems over a 12-month period at an airport include the following:

- Aircraft landing fee reports (showing aircraft make and model) as provided by the airport sponsor
- Flight tracking system data
- Reliable aircraft logs (such as fuel sales records) kept by the airport sponsor, aircraft operators, or fixed base operators (FBO). To be useful, these logs would need to record the aircraft make and model. Alternatively, the logs could record the aircraft registration number, which can be cross-referenced with the FAA aircraft registry database to determine aircraft make and model
- Observed activity (either in-person or via recorded media) that logs aircraft make and model. Observed activity can be annualized using a valid statistical sampling methodology (e.g., two weeks of observations in each of the four seasons), as outlined in FAA Report FAA-APO-85-7, Statistical Sampling of Aircraft Operations at Non-Towered Airports. Acoustical activity counters can be used if attached to visual systems that also capture aircraft registration numbers to provide sufficient information on aircraft make and model

- Aircraft operator (e.g., airline or charter operator) letters, or written survey results, that document existing levels of use by aircraft type
- System plan studies, if operations by aircraft make and model are documented. Alternatively, the studies could document the aircraft registration number from which to determine aircraft make and model

For further information on FAA-approved sources of aircraft operations counts, please reference the FAA's AC 150/5000-17 *Critical Aircraft and Regular Use Determination*, Chapter 1 and 2.

Step 2 – Back-Dating Grants, Scoping Meeting, Work Authorization and Fee Proposal, and Review Process

2.1 - Introduction

The following subsections outline the development, review, and approval process of the TDOT grant, ALP Work Authorization (WA), and ALP fee proposal. Please note, the ALP project must be programmed on the ACIP during the fiscal year in which it is being requested.

2.2 - Back-Dating Grants for Scoping Meeting Costs

As of February 2022, the TDOT Aeronautics Division is back-dating grants, including ALP project grants, to allow scoping meetings to occur prior to submitting a project funding request. This gives the TDOT Aeronautics Division the ability to set the begin date of a grant as the date when scoping activities begin, which, in turn, makes any fees associated with the scoping meeting and any scoping work after the meeting eligible for reimbursement once the grant has been approved and executed.

2.3 - Draft Work Authorization/Scope of Work Requirements Prior to Scoping Meeting

The airport's consultant should send a draft Work Authorization or scope of work along with any draft subconsultant agreement or scope of work (i.e., AGIS) to the TDOT ALP project manager two weeks prior to the scoping meeting. This allows the TDOT Aeronautics Division time to review the information and provide initial comments that set the foundation for a productive and thorough scoping meeting. Our goal with this process is to reduce the workload and increase efficiency for consultants, airports, and TDOT Aeronautics Division staff during the funding request process.

The following main project tasks must be included in the draft Work Authorization or scope of work as outlined in the TDOT Aeronautics Division's ALP Pay Provisions:

- Aviation Forecast
- Airport Layout Plan
- Exhibit "A" Airport Property Inventory Map
- AGIS Survey
- Narrative Report
- Runway Safety Area Inventory and Runway Safety Area Determination Forms with Exhibits

The draft Work Authorization or scope of work must also include a total of five meetings in the Airport Layout Plan task. These five meetings are the Scoping Meeting, Kickoff Meeting, 30% ALP Progress Review Meeting, 60% ALP Progress Review Meeting, and 90% ALP Progress Review Meeting.

The draft AGIS subconsultant agreement or scope of work must include the following types of surveys and obstruction analyses for all runways:

- Threshold Siting Surface (runway types to be determined in coordination with the TDOT Aeronautics Division)
- Departure Surface, if applicable (to be determined in coordination with the TDOT Aeronautics Division)
- Part 77 Approach Surface (category to be determined in coordination with the TDOT Aeronautics Division)

- State Licensing Approach Surface

Any additional work components, such as sponsor-consultant meetings, coordination with the airport or subconsultant, administration of the project or grant, shipping, invoice development and submission, project funding request development, review and incorporation of TDOT and/or FAA comments, and printing is recommended to be included in one of the above main project tasks and not as a separate project task.

At the discretion and approval of the TDOT Aeronautics Division, additional tasks that could be included in the project based on the needs of the airport include the following:

- Modification of Standards
- Runway Length Justification Analysis (additional analysis to justify a runway project in the next 3-5 years)
- Runway Width Justification Analysis (additional analysis, including a life cycle cost analysis, to justify the funding for the existing excess, FAA-standard runway width for a runway project in the next 3-5 years)
- Cost – Benefit Analysis
- Runway Protection Zone (RPZ) Analysis
- Airfield Capacity Analysis

No fees associated with these draft documents are required to be submitted for TDOT Aeronautics Division review before the scoping meeting.

2.4 - Scoping Meeting

The ALP project scoping meeting should occur two (2) weeks before a project funding request submittal deadline to allow for scope and fee development, review, and approval by the TDOT Aeronautics Division following the meeting. During the scoping meeting, the airport, airport sponsor, consultant, and TDOT Aeronautics Division will discuss and agree upon all tasks to be completed through the ALP project.

The discussion should include, but is not limited to, the following:

- Source of the airport operations counts to be used for the forecast and critical aircraft determination
- ALP
- Exhibit “A” Airport Property Inventory Map
- Aviation Forecast, AGIS, and required approach surveys
- Runway Safety Area Inventory and Determination forms with Exhibits
- Narrative Report
- Review Checklists
- Project schedule
- Any additional project tasks required by the FAA and/or TDOT Aeronautics Division.

2.5 - Scoping Meeting Minutes

The airport’s consultant will provide scoping meeting minutes to all parties for review. The TDOT ALP project manager will review and provide comments, as needed, within five (5) business days of when

the meeting minutes were received. The TDOT ALP project manager will approve the meeting minutes once any corrections are made to the minutes or if no corrections are needed.

2.6 - Draft Work Authorization & Fee Development

After the scoping meeting, the airport's consultant will submit the draft Work Authorization and fee proposal based on the project tasks discussed during the scoping meeting to the TDOT ALP project manager for review. Any subconsultant agreements or scopes of work and fee proposals for the project must be included as an attachment to the airport consultant's Work Authorization. The draft Work Authorization and all subconsultant agreements must also include the Required State Contract Provisions, which can be found on the TDOT Aeronautics Division's Engineering webpage - Engineering and Development (tn.gov)

2.7 - TDOT Review and Approval of the Work Authorization and Fee Proposal

The TDOT ALP project manager and Planning and Environmental Supervisor will review the draft Work Authorization and fee proposal and provide comments to the airport and airport's consultant, if any, to address and/or revise. Once the comments have been addressed and/or revised, the Planning and Environmental Supervisor will issue approval of the draft Work Authorization and fee proposal. If there are no additional corrections to make to the draft Work Authorization and/or fee proposal, the Planning and Environmental Supervisor will issue approval.

Then, the ALP project manager will notify the airport and its consultant that they can submit the ALP project funding request documentation in the TDOT Aeronautics Division's grant management system (currently BlackCat Aviation) as discussed in Step 3.

Note: Per FAA Advisory Circular 150/5100-14E Architectural, Engineering, and Planning Consultant Services for Airport Grant Projects, Airport sponsors have an obligation to obtain a fair and reasonable fee in all cases. Therefore, as a State Block Grant Program (SBGP), the TDOT Aeronautics Division reviews all fee proposals for ALP projects to ensure they are fair, reasonable, and justified.

The TDOT Aeronautics Division may conduct an Independent Fee Estimate (IFE) to ensure the proposed fees for an ALP project are fair, reasonable, and justified. The TDOT Aeronautics Division retains the right to disallow negotiated fees that the Division determines to be unreasonable, and thus ineligible for reimbursement under the ALP project grant.

Step 3 – Submitting an Airport Layout Plan Project Funding Request to TDOT Aeronautics Division

3.1 - ALP Project Funding Request Approval Policy

Per the Tennessee Aeronautics Commission's (TAC) Policy, ALP project funding requests can be approved at Project Staff Review (PSR) regardless of the ALP project cost being requested.

3.2 - Funding Request Submission Deadline

The airport must submit an ALP project funding request application through BlackCat Aviation by the funding request submittal deadline for the desired corresponding PSR date, which can be found on the TDOT Aeronautics Division website - Planning (tn.gov).

3.3 - Submission of Funding Request Application and Documents into BlackCat Aviation

Before submitting the funding request application and documents in BlackCat Aviation, the airport and its consultant must identify the funding sources to be used for the project (i.e., NPE, State, etc.). The airport and its consultant can identify the funding sources to be used for the project by reviewing the airport's ACIP report that shows the funding that the TDOT Aeronautics Division programmed for the project.

If federal funding (i.e., NPE) is programmed for the project, the airport and its consultant must use the "Federal – Planning" application in BlackCat Aviation.

If no federal funding (i.e., State and Local funding only) is programmed for the project, the airport and its consultant must use the "State" application in BlackCat Aviation.

Once the correct application type is selected, the following completed documents must be uploaded in the project funding request application in BlackCat Aviation by the funding request submittal deadline in order for the project funding request to be considered for approval at the PSR:

- Application for Federal Assistance SF-424 – Only to be completed and submitted if using Non-Primary Entitlement (NPE) or other federal funding for the ALP project
- FAA Form 5100-101 Application for Federal Assistance (Planning) – Only to be completed and submitted if using NPE or other federal funding for the ALP project
- Application for State Assistance – Only to be completed and submitted if using State and Local funding (no federal funding) for the ALP project
- Schedule of Major Milestones
- Man-hour Estimate and Fee Proposal

The Application for Federal Assistance SF-424, FAA Form 5100-101, and Application for State Assistance can be found on the TDOT Aeronautics Division's Engineering webpage. These forms must be completed in their entirety and uploaded to their respective sections in the project funding request application in BlackCat Aviation.

The airport or its consultant must complete and submit an ALP project schedule based on the most current version of the TDOT Aeronautics Division's ALP Project Pay Provisions. Once the schedule is developed, the schedule must be uploaded to the Schedule of Major Milestones section of the project funding request application in BlackCat Aviation.

The ALP Work Authorization that incorporates the State Required Contract Provisions, fee proposal, AGIS scope of work, and any additional subconsultant's scope of work and fee proposal must be uploaded to the Man-hour Estimate and Fee Proposal section of the project funding request application in BlackCat Aviation.

Once the applicable documents have been completed and uploaded, the airport will press the "Submit for Verification/Scoring" button to place the project into the "Pending Verification" status. By doing so, the TDOT Aeronautics Division will place the project funding request on the agenda for the Project Staff Review (PSR). The PSR is held every month except for December, and the dates for each PSR can be found on the Planning webpage of the TDOT Aeronautics Division: Planning (tn.gov). If this button is not pressed, the project funding request may not be included in the PSR.

The TDOT ALP project manager will notify the airport and its consultant if there are any corrections to make on the submitted documentation. If there are any corrections to be made, they must be completed within two weeks of the project funding request submittal deadline. If not completed within this timeframe, the project funding request may be deferred to the next PSR.

Step 4 – Grant Execution

After the ALP project funding request is approved at PSR, the TDOT grant will be written and sent to the airport sponsor for signatures. The airport sponsor must return the signed grant in order for the TDOT Aeronautics Division to send it to TDOT Legal, TDOT Finance, and the TDOT Commissioner's office for execution. The airport will be notified when the grant has been executed.

Important Reminder*: The ALP Work Authorization and any subcontract or subconsultant agreement cannot be signed by any party until after the ALP Project Kickoff Meeting (Step 5) has been held **AND** the TDOT Aeronautics Division ALP project manager has issued the signed Letter of Subcontract Approval by the State. Signing the ALP Work Authorization and any subcontract or subconsultant agreement prior to the Kickoff Meeting and receiving the letter from the ALP project manager would violate the provisions in the grant agreement between the airport sponsor and TDOT.*

Step 5 – ALP Project Kickoff Meeting, Meeting Minutes, and Invoicing

5.1 - ALP Project Kickoff Meeting

Within 30 days of receiving the executed ALP grant, the TDOT ALP project manager will schedule the Kickoff Meeting with the airport and its consultant. The Kickoff Meeting is an opportunity for the airport, airport's consultant, and TDOT Aeronautics Division to discuss the upcoming ALP project's scope of work, schedule, deliverables, invoicing, and any final considerations.

The airport's consultant will lead the meeting. Any questions, comments, or concerns regarding the project should be resolved during the meeting.

5.2 - Final TDOT Approval and Letter of Subcontract Approval by the State

After the Kickoff Meeting, the airport or its consultant will submit the following finalized documentation to the TDOT ALP project manager for a final review:

- ALP Work Authorization that includes the Required State Contract Provisions and Schedule
- Fee proposal
- AGIS subcontract/subconsultant agreement that includes the Required State Contract Provisions and fee proposal
- Any additional subcontract or subconsultant agreement that includes the Required State Contract Provisions and fee proposal

The TDOT ALP project manager will review, request corrections (if any), and approve these finalized documents. Once approved, the TDOT ALP project manager will provide a signed Letter of Subcontract Approval by the State to the airport and its consultant.

When the airport and its consultant receive this letter, all parties can move forward with signing the ALP Work Authorization, AGIS subcontract, and any other approved subcontract or subconsultant agreement. The airport or its consultant will send these signed documents to the TDOT ALP project manager for TDOT Aeronautics Division's records. Once the signed documents are received, work towards the ALP development can begin.

5.3 - Kickoff Meeting Minutes

The airport's consultant will provide meeting minutes from the Kickoff Meeting to all parties to review. As necessary, the TDOT ALP project manager will provide comments on the meeting minutes within five (5) business days. The TDOT ALP project manager will approve the meeting minutes once any corrections are made or if no corrections are needed.

5.4 - Invoicing

The TDOT Aeronautics Division will review, return (for corrections), or approve invoices for work completed for the Scoping Meeting, Scoping Meeting Minutes, Kickoff Meeting, and Kickoff Meeting Minutes in accordance with the most current version of the TDOT ALP Project Pay Provisions found on the TDOT Aeronautics Division's Planning webpage - Planning (tn.gov).

Please contact the TDOT ALP project manager to resolve any issues with invoices.

Step 6 - Aviation Forecast

6.1 - Introduction

Following the executed Work Authorization and any subcontract or subconsultant agreement, one of the first ALP project tasks to develop is the Aviation Forecast. The TDOT Aeronautics Division and FAA Memphis ADO require the development and approval of the Aviation Forecast before any work on the ALP, Exhibit "A" Airport Property Inventory Map, Narrative Report, and Runway Safety Area Inventory and Determination forms with Exhibits tasks can begin. The purpose of this requirement is to establish existing and ultimate design standards early in the ALP development and to prevent any rework.

PLEASE NOTE, ANY WORK THAT BEGINS ON THE ALP, EXHIBIT "A" AIRPORT PROPERTY INVENTORY MAP, NARRATIVE REPORT, AND RUNWAY SAFETY AREA INVENTORY AND DETERMINATION FORMS WITH EXHIBITS BEFORE THE FORECAST IS APPROVED IS NOT ELIGIBLE FOR PAYMENT PER THE TDOT ALP PROJECT PAY PROVISIONS. THE ONLY PROJECT TASK THAT CAN BEGIN AT THE SAME TIME AS THE FORECAST IS THE AGIS TASK, WHICH WILL BE DISCUSSED FURTHER IN STEP 7.

6.2 - Purpose of Forecasting

Per FAA AC 150/5070-6B *Airport Master Plans*, "forecasts of future levels of aviation activity are the basis for effective decisions in airport planning. These projections are used to determine the need for new or expanded facilities. In general, forecasts should be realistic, based upon the latest available data, be supported by information in the study, and provide an adequate justification for airport planning and development. Any activity that could potentially create a facility need should be included in the forecast. Planners should prepare a reliable activity baseline, select an appropriate forecast methodology, develop a forecast, and compare it to other forecasts for reasonableness."

6.3 - Level of Forecast Effort

Per FAA AC 150/5070-6B *Airport Master Plans*, "the level of effort required to produce a planning forecast will vary significantly from airport to airport. Considerable effort, including the use of elaborate forecasting tools and techniques, may be warranted in the case of more complex projects. Planners should determine the appropriate level of forecasting effort in the course of pre-planning and scoping the study."

To standardize the level of forecast effort for all NPIAS airports, the forecast requirements are described in detail in *Section 6.4 Required Forecast Components*.

6.4 - Required Forecast Components

The TDOT Aeronautics Division and FAA Memphis ADO will review the aviation forecast in accordance with the TDOT ALP Review Checklist and FAA guidance, including, but not limited to, FAA AC 150/5070-6B *Airport Master Plans*, FAA's Office of Aviation Policy and Plans (APO-110) *Forecasting Aviation Activity by Airport,* and FAA Order 5090.5 *Formulation of the NPIAS and ACIP*, Table 4-1 Alternative Methods for Estimating Aircraft Operations. Based on State and FAA guidance, the following components, in no particular order, must be included in all aviation forecasts:

- Introduction section that provides the purpose of the forecast
- Discussion of the airport's current based aircraft by fleet mix (i.e., single-engine, jet, etc.) and most recent 12 months of operations by type (i.e., general aviation, military, etc.). The operations information is to be provided from an operations data counter system and can be

supplemented with additional data from FAA-approved sources. The data must be shown in tables or graphics.

- Discussion of the relevant factors affecting the airport and its local community. The factors to consider including in the forecast can found in the Factors Affecting Aviation Activity to Consider in the Development of the Forecast subsection
- The historical, current, and projected data for any factor (i.e., income or population) being used to develop the forecast must be discussed and displayed in a table or graph
- Discussion of national general aviation trends (i.e., FAA Aerospace Forecast)
- Discussion of the airport's Terminal Area Forecast (TAF) for historical, current, and future operations and based aircraft. The data must be displayed in a table or graph.
- Discussion of the data to be used for forecasting and a graphical or table depiction of the data. See the Common Forecast Methodologies and Available Data Sources subsection for the most common data sources used for aviation forecasts.
- Development of the forecast for each element defined in the Forecast Elements subsection over the 20-year planning period (0-5, 6-10, and 11–20-year periods). The forecast data for each element must be shown in tables or graphs.
- Discussion of the forecast methodology used for each forecast element. See the Common Forecast Methodologies and Available Data Sources subsection for the most common forecast methodologies used in aviation forecasts.
- Discussion of any assumptions used in the forecast methodology for any forecast element
- Discussion of the preferred forecast for both operations and based aircraft
- COVID-19 forecast adjustment or brief statement. See COVID – 19 Forecast Adjustment subsection for further information and for applicability.
- Determination of the existing critical aircraft. The existing critical aircraft must have 500 or more operations documented within the 12-month period. Acceptable sources for documenting operations can be found in Step 1 – Collection of Airport Operations Data. Further information about determining the existing critical aircraft can be found in the Existing and Ultimate Critical Aircraft Determination subsection.
- Forecast and determination of the ultimate critical aircraft. The ultimate critical aircraft must have 500 or more forecasted operations in a future 12-month period but within the 20-year planning period. Further information about determining the ultimate critical aircraft can be found in the Existing and Ultimate Critical Aircraft Determination subsection.
- Comparison of the preferred based aircraft and operations forecasts to the airport's based aircraft and operations forecast in the TAF (to include percentage differences for the 0-5 year and 6–10-year forecast periods). The preferred based aircraft and operations forecasts are considered consistent with the TAF if they differ by less than 10 percent in the 0–5-year forecast period and 15 percent in the 6–10-year forecast period.
- Appendices to the forecast must include, but are not limited to, the following:
    - 12 months of operations data obtained from the operations data counter system
    - Redacted hangar waiting list
    - Current 5010 Airport Master Record
    - Screenshot of the validated based aircraft by type from www.basedaircraft.com

6.4.1 - Forecast Elements

The following aviation demand elements must be forecasted for each airport over the 0–5-year, 6-10 year, and 11–20-year periods based on the FAA AC 150/5070-6B *Airport Master Plans* and the TDOT ALP Review Checklist:

- Based aircraft and based aircraft fleet mix (single-engine, multi-engine, jet, helicopter, ultralight/sport, and military)
- Total annual operations broken down into annual itinerant operations and local operations by operation type (air carrier, air taxi and commuter, general aviation, and military)
- Annual itinerant operations by the existing and ultimate critical aircraft
- Annual instrument approaches if the airport currently has or will be showing in the future an instrument approach to one or more runway ends
- (Commercial Service Airports Only) annual passenger enplanements

6.4.2 - Factors Affecting Aviation Activity to Consider in the Development of the Forecast

In developing the forecast, the following factors should be considered as they may have an influence on the airport's aviation activity:

- Economic characteristics of a community (i.e., industries in an airport's service area using the airport)
- Demographic characteristics (i.e., income)
- Geographic considerations surrounding the airport (i.e., distance from the airport to the population center)
- Aviation-related factors (i.e., new aircraft types, change in airport fees or fuel prices, investment into aviation facilities at the airport)

6.4.3 - Common Forecast Methodologies and Available Data Sources

The most common methodologies used for aviation forecasts include regression analysis, trend analysis and extrapolation, and market share analysis.

Some available data sources that can be used to develop the forecast include the following:

- Terminal Area Forecast (TAF)
- National Forecast (i.e., FAA Aerospace Forecast and FAA Long-Range Aerospace Forecast)
- Airport fuel sales records
- Operations recorded by an airport operations data counter system
- State Airport System Plan
- Socioeconomic Data
- FAA Form 5010 – Airport Master Record
- Based Aircraft Counts from www.basedaircraft.com
- FAA Order 5090.5 *Formulation of the NPIAS and ACIP*, Table 4-1 Alternative Methods for Estimating Aircraft Operations

6.4.4 - COVID – 19 Forecast Adjustment

The global Coronavirus (COVID-19) pandemic made a tremendous impact on the aviation industry, including airports. The airports across Tennessee may have seen decreases in operations, based aircraft, and enplanements, especially in the first year of the pandemic.

The FAA Memphis ADO now requires the following about COVID-19 information in aviation forecasts:

- If an airport experienced a significant decline in enplanements, based aircraft, or operations that can be contributed to the COVID-19 pandemic and at least one of these aviation activities have not rebounded back to pre-COVID-19 pandemic levels, the airport must include a discussion of the COVID-19 pandemic impacts to these aviation activities and adjust the preferred forecast to show when the airport believes these activities will rebound back to pre-COVID-19 pandemic levels.
- If an airport has experienced significant declines in enplanements, based aircraft, or operations that can be contributed to the COVID-19 pandemic and these aviation activities have already rebounded to pre-COVID-19 pandemic levels, then the airport does not need to include a discussion on the COVID-19 impacts or an adjustment to the preferred forecast. Only a brief statement describing the rebound is needed in the forecast (i.e., one or two sentences).
- If an airport did not experience significant declines in enplanements, based aircraft, and operations during the COVID-19 pandemic, then the airport does not need to include a discussion on the COVID-19 impacts or an adjustment to the preferred forecast. Only a brief statement describing that the COVID-19 pandemic had no impacts on the airport's enplanements, based aircraft, and operations is needed (i.e., one or two sentences).

There are several sources that can be used to justify any adjustments to the preferred forecast to predict when aviation activities will return to pre-COVID-19 pandemic levels. These sources include, but are not limited to, the following:

- Fuel sales records (i.e., gallons sold)
- Operations data from an approved source (See Step 1 – Collection of Airport Operations Data)
- Historical based aircraft data
- Hangar waiting list

The FAA currently does not have any publicly available guidance or examples through an Order, Memorandum, or Advisory Circular regarding COVID-19 forecast adjustments. If an adjustment is needed to the preferred forecast due to impacts on aviation activities, please contact the TDOT ALP project manager who can provide an FAA-approved example from a Tennessee general aviation airport. A meeting with the TDOT Aeronautics Division and FAA Memphis ADO Community Planner can be scheduled to discuss this information.

6.4.5 - Existing and Ultimate Critical Aircraft Determination

6.4.5.1 - Purpose and Importance

According to FAA AC150/5000-17 *Critical Aircraft and Regular Use Determination*, "the Critical Aircraft determination is an important aspect of airport planning and design for federally-obligated airports. It sets dimensional requirements on an airport, such as the separation distance between taxiways and runways, and the size of certain areas protecting the safety of aircraft operations and passengers. An

accurate Critical Aircraft determination helps to ensure the proper development of airport facilities and appropriate federal investments in airport facilities. An accurate Critical Aircraft determination matches aircraft operational area dimensions to the most demanding aircraft that regularly use the runways, taxiways, and apron areas."

A periodic review of the existing critical aircraft determination is necessary as activity can change at an airport. A revision to the critical aircraft determination can be initiated by the airport sponsor. The TDOT Aeronautics Division, Office of Airports (ARP), Airports District Offices (ADO), Regional Offices, or Headquarters may also require review or revision of the critical aircraft determination when needed to support:

- Issuance of an AIP Grant or Passenger Facility Charge (PFC) decision;
- Initiation of a master plan, master plan update, or similar infrastructure planning efforts; and
- New or updated ALP, except for minor revisions (e.g., as-built updates and minor "pen and ink" changes)

6.4.5.2 - Definition of Critical Aircraft

The definition of critical aircraft and regular use as defined in FAA AC 150/5000-17 *Critical Aircraft and Regular Use Determination* is "the most demanding aircraft type, or grouping of aircraft with similar characteristics, that make regular use of the airport. Regular use is 500 annual operations, including both itinerant and local operations but excluding touch-and-go operations. An operation is either a takeoff or landing."

6.4.5.3 - Existing Critical Aircraft Determination

FAA AC 150/5000-17 *Critical Aircraft and Regular Use Determination* states, "The existing Critical Aircraft determination requires documenting regular use of airport facilities. Aircraft operations must be counted with enough detail to determine the most demanding aircraft or grouping of aircraft with similar characteristics that regularly use the airport. To accomplish this, an operations count by aircraft make and model is required for the most recent 12-month period of activity that is available. While longer periods of data can be used to assess trends at an airport, the most recent 12-month period of activity that is available should be used to determine existing regular use unless there are extenuating circumstances. Breaks from prior trends must be assessed objectively, as they could be temporary or reflect the emergence of a new long-term operational trend."

The approved data sources that can be used to document the most recent 12-month period of operations at an airport include operations data counter systems (primary source) and TFMSC (supplemental source). Please refer to Step 1 – Collection of Airport Operations Data for more information.

Please refer to the TDOT Aeronautics Division and FAA Memphis ADO Review and Approval of the Critical Aircraft Determination and Forecast subsection for the review and approval process of the aviation forecast and critical aircraft determination.

6.4.5.4 - Ultimate Critical Aircraft Determination

According to FAA AC 150/5000-17 *Critical Aircraft and Regular Use Determination*, the forecast must include a projection of the number of annual operations by the ultimate critical aircraft for the planning horizon year (i.e., typically not more than 20 years from the base year). Proper diligence and awareness

of aircraft fleet trends is needed when establishing the ultimate critical aircraft, particularly in cases where the future Runway Design Code (RDC) may change due to an aircraft type with greater requirements (i.e., runway or airfield geometry). Caution is warranted when a change in the critical aircraft is identified in the long-term forecast (years 11-20) given the uncertainty inherent to this forecast range. The long-term change to the critical aircraft must be supported by a reasonable forecast.

Please refer to the TDOT Aeronautics Division and FAA Memphis ADO Review and Approval of the Critical Aircraft Determination and Forecast subsection for the review and approval process of the aviation forecast and critical aircraft determination.

6.4.5.5 - Examples of Critical Aircraft Determinations

Please refer to Appendix B in the FAA AC 150/5000-17 *Critical Aircraft and Regular Use Determination* for specific examples of how the critical aircraft is determined.

6.4.5.6 - Other Special Considerations Regarding the Critical Aircraft Determination

- The Airport Reference Code (ARC), existing critical aircraft, and ultimate critical aircraft may differ from the last approved ALP.
- Different critical aircraft can define separate elements of airport design, such as runway length and taxiway design group (TDG)
- A separate existing and future critical aircraft determination must be made for each runway at an airport.
- The largest based aircraft at an airport does not necessarily define the existing critical aircraft for the airport. The largest based aircraft at an airport must still conduct 500 annual operations at the airport over the latest 12-month period to be considered the existing critical aircraft.
- A pavement strength design should not rely upon the existing or ultimate critical aircraft determination.

6.4.5.7 - Additional Questions About the Application of the Critical Aircraft Determination

Please refer to Chapter 3 of FAA AC 150/5000-17 *Critical Aircraft and Regular Use Determination* for additional information on how the critical aircraft determination is applied throughout the ALP project.

This chapter addresses the common questions received during the development, review, and approval of the forecast. These common questions are the following:

- What Should Be Done if the Existing Critical Aircraft Exceeds the Existing Airport Standards at a Geometrically Constrained Facility?
- Can an Airport Sponsor Pursue Development of Facilities in Excess of the Design Standards Needed by the Critical Aircraft?
- What Should Be Done if an Aircraft Operating under the General Operating and Flight Rules, or an Unscheduled Revenue Aircraft, Exceeds the Design Standards of an Airport but Does Not Meet the Threshold of Regular Use?

6.4.5.8 - TDOT Aeronautics Division and FAA Memphis ADO Review and Approval of the Critical Aircraft Determination and Forecast

The TDOT Aeronautics Division and the FAA Memphis ADO have decided to both review and approve forecasts, including the critical aircraft determinations, prior to work beginning on any other ALP project tasks besides the AGIS task.

The TDOT Aeronautics Division will review, provide comments on, and/or approve the forecast, including the critical aircraft determination, based on all applicable State and FAA guidance, procedures, and orders. Then, the TDOT Aeronautics Division will send the forecast or revised forecast to the FAA Memphis ADO with a recommendation for approval. The FAA Memphis ADO will review, request revisions as needed, and approve the forecast, including the critical aircraft determination. The FAA Memphis ADO will document the FAA's approval of the forecast and critical aircraft determination in a forecast approval letter.

If the approved preferred forecasts of based aircraft and/or operations exceed the allowable percentage differences from the TAF, the FAA Memphis ADO will send the approved forecasts to FAA Headquarters to update the TAF.

Once approved by the TDOT Aeronautics Division and FAA Memphis ADO, the aviation forecast must be incorporated into the 100% Narrative Report before the TDOT Aeronautics Division submits the 100% planning documents into OE/AAA for FAA review.

As a reminder, the aviation forecast must be approved before any other ALP project task can proceed (except for the AGIS project task).

6.4.6 - Invoicing

The TDOT Aeronautics Division will review, return (for corrections), or approve invoices for work completed on the Aviation Forecast in accordance with the most current version of the TDOT ALP Project Pay Provisions found on the TDOT Aeronautics Division's Planning webpage - Planning (tn.gov)

Please contact the TDOT ALP project manager to resolve any issues with the invoices.

Step 7 - Airports Geographic Information System (AGIS)

7.1 - Introduction

Following the executed Work Authorization and any subcontract or subconsultant agreement, the AGIS scope of work can begin. The AGIS data and requirements must be submitted into the FAA's Airport Data and Information Portal (ADIP) website and verified/approved by the FAA prior to scheduling a 90% ALP Progress Review Meeting.

7.2 - Invoicing

The TDOT Aeronautics Division will review, return (for corrections), or approve invoices for work completed on the AGIS scope of work according to the most current version of the TDOT ALP Project Pay Provisions found on the TDOT Aeronautics Division's Planning webpage - Planning (tn.gov).

Please contact the TDOT ALP project manager to resolve any issues with the invoices.

7.3 - Special Invoicing Requirements

- The AGIS Statement of Work must be uploaded to the FAA's ADIP website and approved by the FAA before the AGIS flight, data acquisition, and imagery acquisition can begin. Please contact the TDOT ALP project manager if the FAA has not approved the Statement of Work within 10 business days of submission.
- The airport manager or airport sponsor will be asked by the TDOT ALP project manager to verify in an email that the AGIS subconsultant visited the airport to complete the AGIS Survey and Quality Control Plan.
- The airport, airport's consultant, and/or AGIS subconsultant will enter the shipping information and tracking number into the Project Activity notes section of the ADIP project once the AGIS imagery data is shipped to the FAA.

Step 8 – 30% ALP Progress Review Meeting

8.1 - Introduction

Once the Aviation Forecast is approved by the FAA Memphis ADO and the TDOT Aeronautics Division, work can begin toward the 30% ALP Progress Review Meeting.

For the 30% ALP Progress Review Meeting to be held, the 30% ALP set, 30% Narrative Report, and 50% Runway Safety Area Inventory and Determination Forms with Exhibits must be completed and submitted to the TDOT ALP project manager no later than three weeks prior to the scheduled 30% ALP Progress Review Meeting.

The following sections describe what must be included in each of these documents.

IF THE DOCUMENTS DO NOT CONTAIN THE BELOW INFORMATION, THE DOCUMENTS WILL BE RETURNED FOR REVISIONS, AND THE 30% ALP PROGRESS REVIEW MEETING MAY HAVE TO BE RESCHEDULED.

8.2 - 30% Airport Layout Plan

The 30% ALP set must show the existing conditions of the airport, including the design standards based on the existing critical aircraft determined in the approved aviation forecast.

The 30% ALP set must contain the following sheets and information:

8.2.1 - Title Sheet

- Must show the following items found in the Title Sheet section of the TDOT ALP Review Checklist:
  - Items A through E

- While not shown on the TDOT ALP Review Checklist, the Title Sheet must also include the following:
  - List of State officials, TDOT officials, and TDOT Aeronautics Division staff
  - List of airport, airport sponsor, and local government officials
  - TDOT Aeronautics Division project number
  - FAA standard paragraph regarding funding of the ALP project

8.2.2 - Airport Data Sheet (if a separate sheet)

- Must show the following items found on the Airport Data Sheet section of the TDOT ALP Review Checklist *for existing conditions only*:
  - Item A
  - Item B #1 – 4 based on the approved existing critical aircraft only
  - Item C # 1, 2, 4, and 6 – 10 based on existing airport data and existing critical aircraft only
  - Item D # 1 – 9, 11 - 20, 21 (only listing the TSS surface(s) that apply and not identifying any penetrating objects to the surface(s) at this time), and 22 – 28 based on existing airport data and existing critical aircraft only
  - Item E – Provide the table and only provide the information for any existing, approved Modification to Standards
  - Item F #1 – 4 – Only need to show the existing declared distances

        - Note: Item G (Legend) is only needed on the Airport Layout Drawing and not on the Airport Data Sheet

    - While currently not shown on the TDOT ALP Review Checklist, the following additional items must be shown *for existing conditions only*:
        - State RSA dimensions only for runways classified as A-I, B-I, B-I(s), or A-I(s)
        - State Licensing Approach Surface dimensions

8.2.3 - Airport Layout Drawing (to include the Airport Data Sheet information if a separate Airport Data Sheet is not provided)

    - Must show the following items found on the Airport Layout Plan Drawing section of the TDOT ALP Review Checklist *for existing conditions only*:
        - Item A
        - Item B – No FAA Approval Stamp is needed on the Airport Layout Drawing. Instead of the FAA approval stamp, the space should be labeled for TDOT Aeronautics Division Approval. The TDOT Aeronautics Division ALP project manager will provide the information to use in this space as the Division will conditionally approve and sign the ALP electronically.
        - Item C
            - #1
            - #3
            - #5g (only provide a Buildings / Facilities table that provides a unique alphanumeric character as shown in the Airport Layout Plan Drawing and description of each building/facility. No elevation information is needed at this time.)
            - #5h
            - #6a, b, d-n, o (only show the displaced threshold without coordinates and elevation at this time), and p
            - #7a -d to be included in a Taxiway / Taxilane table
            - #8
            - #9a-c
            - #10
            - #11 – all items shown on the Airport Layout Drawing must be shown exactly in the Legend
            - #12 a-d
            - #14 (as applicable)

    - While currently not shown on the TDOT ALP Review Checklist, the following additional items must be shown *for existing conditions only*:
        - State RSA dimensions only for runways classified as A-I, B-I, B-I(s), or A-I(s)
        - State Licensing Approach Surface dimensions (no obstruction data must be shown at this time)

8.2.4 - Terminal Area Drawing

- Must show the following items found on the Terminal Area Drawing section of the TDOT ALP Review Checklist *for existing conditions only*:
  - Item A, B (#1 and 3 only), D, E (commercial service airports only), F, G, H, I (# 1 and 2), and J through P

8.2.5 - Land Use Drawing

- Must show the following items found on the Land Use Drawing section of the TDOT ALP Review Checklist *for existing conditions only*:
  - Item A, B, C (#1 and 2), D through G, H (if available), I through K, M, and B (Preliminary Identification of Environmental Features - #19-22)

8.2.6 – TDOT Comments for 30% Airport Layout Plan

The TDOT ALP project manager will review the 30% ALP set and document his or her comments. The TDOT ALP project manager will submit one set of comments to the airport and airport's consultant. Any revisions needed to the 30% ALP set based on the comments provided do not need to be submitted by the airport's consultant in between the 30% and 60% ALP Progress Review Meetings. The airport's consultant will need to incorporate these comments into the ALP set and/or respond to these comments when submitting the 60% documents three weeks prior to the 60% ALP Progress Review Meeting.

8.3 - 30% Narrative Report

The 30% Narrative Report submission only includes the Inventory of Existing Conditions chapter with the current version or publication of the airport's 5010, redacted hangar waiting list, based aircraft report from www.basedaircraft.com (NPIAS airports only), any existing Modification of Standards (MOS), and zoning included as attachments.

8.3.1 - Inventory of Existing Conditions Chapter

The information in the Inventory of Existing Conditions chapter must include, but is not limited to, the following:

- Background and History of the Airport – This section must describe the history of the airport, its role in the NPIAS and Tennessee Aviation System Plan, economic benefits of the airport, major milestone events in the history of the airport (timeline), and role in the community's infrastructure.
- Inventory and Description of Existing Facilities: This section must identify the existing airfield facilities (i.e., runways, visual approach aids, and historical weather data), general aviation facilities (i.e., hangars, parking apron areas, tie downs, etc.), support facilities (i.e., ARFF stations, airport maintenance hangars, etc.), landside facilities (i.e., terminal buildings), access roads and parking (i.e., parking capacity at the airport), and other non-aeronautical land uses on airport property.

  The discussion on these facilities should include their associated description and condition. The facilities and land uses discussed in this chapter should be carried into the remaining chapters to evaluate and develop the airport's facility requirements, alternatives for airport development, and ACIP projects and their associated costs.

This chapter must also include a discussion on the development projects that were completed since the last ALP update, existing declared distances (if applicable), and any existing Modification of Standards (MOS).

- Regional Setting and Land Use: This section must describe the regional setting of the airport and land uses surrounding the airport by identifying the land uses that will be exposed to airport operations, that may affect the safe operation of the airport, that are hazardous to aircraft operations, and that may influence the ability to expand the airport. This section must also discuss the existing zoning that is applicable to the airport, such as height or land use zoning.

- Environmental Overview: This section must document the environmental conditions or categories that should be considered in the identification and analysis of the airport development alternatives. The environmental impact categories to discuss are found in FAA Order 1050.1F, Chapter 4, Paragraph 4-1. The discussion should be based on current, available online data. No field studies should be performed to provide the overview of the environmental impact categories present in or immediately surrounding the airport.

8.3.2 – TDOT Comments for 30% Narrative Report

The TDOT ALP project manager will review the 30% Narrative Report and document his or her comments. The TDOT ALP project manager will submit one set of comments to the airport and airport's consultant. Any revisions needed to the 30% Narrative Report based on the comments provided do not need to be submitted by the airport's consultant in between the 30% and 60% ALP Progress Review Meetings. The airport's consultant will need to incorporate these comments into the Narrative Report and/or respond to these comments when submitting the 60% documents three weeks prior to the 60% ALP Progress Review Meeting.

8.4 - Runway Safety Area Inventory and Runway Safety Area Determination Forms with Exhibits

8.4.1 - Purpose and Importance

According to FAA ARP Standard Operating Procedure (SOP) 8.00 *Runway Safety Area Determination*, Airport Layout Plan (ALP) projects are considered triggering events that require the completion of the Runway Safety Area Inventory (RSAI) and/or Runway Safety Area Determination (RSAD) forms.

8.4.2 - Scope of Work

For a non-Part 139 certificated airport conducting an ALP project, the airport will complete an RSAI and RSAD form with RSA grading analysis exhibits for each runway.

For a 14 CFR Part 139 certificated airport conducting an ALP or Master Plan project, the airport will complete only the RSAD form with RSA grading analysis exhibits for each runway.

The RSAI and RSAD forms can be found in the FAA ARP SOP 8.00 *Runway Safety Area Determination* Appendix A and Appendix B, respectively.

8.4.3 - Submission, Review, Comment, and Approval Process of the RSAI and RSAD Forms with Exhibits

Based on the type of airport described above (Part 139 or non-Part 139 certificated), the RSAI and/or RSAD forms with RSA grading analysis exhibits must be completed and submitted to the TDOT Aeronautics Division for review 3 weeks prior to the scheduled 30% ALP Progress Review Meeting. This will be the First Submission according to the TDOT ALP Project Pay Provisions.

The TDOT Aeronautics Division will review the forms and exhibits in accordance with FAA ARP SOP 8.00 *Runway Safety Area Determination*. The TDOT Aeronautics Division may have comments that should be incorporated into the forms and exhibits before submitting them to the FAA Memphis ADO for review and approval.

The revised RSAI and/or RSAD forms with exhibits must be submitted to the TDOT Aeronautics Division within six (6) weeks from the date of the 30% ALP Progress Review meeting and before scheduling a 60% ALP Progress Review Meeting. This will be the Second Submission according to the TDOT ALP Project Pay Provisions.

When all comments have been addressed or there were no comments to address, the TDOT Aeronautics Division will submit the forms and exhibits to the FAA Memphis ADO for review and approval. These forms and exhibits must be sent to the FAA Memphis ADO for review and approval before scheduling a 90% ALP Progress Review Meeting. The FAA Memphis ADO may request additional revisions before providing approval. Once the RSAI and/or RSAD forms with exhibits are approved by the FAA Memphis ADO, they must be incorporated into the Narrative Report (i.e., as an Appendix).

8.5 - 30% ALP Progress Review Meeting Minutes

The airport's consultant will document and provide meeting minutes from the 30% ALP Progress Review Meeting to all parties for review. The TDOT ALP project manager will review and provide comments, as needed, within five (5) business days of when the meeting minutes were received. The TDOT ALP project manager will approve the meeting minutes once any corrections are made to the minutes or if no corrections are needed.

8.6 - Invoicing

The TDOT Aeronautics Division will review, return (for corrections), or approve invoices for work completed on the ALP, Narrative Report, and RSAI and RSAD forms with exhibits in accordance with the most current version of the TDOT ALP Project Pay Provisions found on the TDOT Aeronautics Division's Planning webpage - Planning (tn.gov).

Please contact the TDOT Aeronautics Division ALP project manager to resolve any issues with ALP project invoices.

Step 9 – 60% ALP Progress Review Meeting

9.1 - Introduction

For the 60% ALP Progress Review Meeting to be held, the 60% Airport Layout Plan (ALP) set, 60% Narrative Report, and 50% Exhibit "A" Airport Property Inventory Map must be completed and submitted to the TDOT ALP project manager no later than three weeks prior to the scheduled 60% ALP Progress Review Meeting.

The following sections describe what must be included in each of these documents.

IF THE DOCUMENTS DO NOT CONTAIN THE BELOW INFORMATION, THE DOCUMENTS WILL BE RETURNED FOR REVISIONS, AND THE 60% ALP PROGRESS REVIEW MEETING MAY HAVE TO BE RESCHEDULED.

9.2 - 60% Airport Layout Plan

The 60% ALP set must show the existing and ultimate conditions of the airport, including the design standards based on the existing and ultimate critical aircraft determined in the approved aviation forecast.

The 60% ALP set must contain the following sheets and information:

9.2.1 - Title Sheet

- Must show the following items found in the Title Sheet section of the TDOT ALP Review Checklist:
  - Items A through E

- While not shown on the TDOT ALP Review Checklist, the Title Sheet must also include the following:
  - List of State officials, TDOT officials, and TDOT Aeronautics Division staff
  - List of airport, airport sponsor, and local government officials
  - TDOT Aeronautics Division project number
  - FAA standard paragraph regarding funding of the ALP project

- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 30% ALP review

9.2.2 - Airport Data Sheet (if a separate sheet)

- Must show the following items found in the Airport Data Sheet section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A, B (#1-4), C (#1-10), D (#1-28), E (if applicable), and F (#1-4)
  - Note: Item G (Legend) is only needed on the Airport Layout Drawing sheet and not on the Airport Data Sheet

- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 30% ALP review

9.2.3 - Airport Layout Drawing (to include the Airport Data Sheet information if a separate Airport Data Sheet is not provided)

- Must show the following items found in the Airport Layout Plan Drawing section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A
  - Item B – No FAA Approval Stamp is needed on the Airport Layout Drawing. Instead of the FAA approval stamp, the space should be labeled for TDOT Aeronautics Division Approval. The TDOT Aeronautics Division ALP project manager will provide the information to use in this space as the Division will conditionally approve and sign the ALP electronically.
  - Item C #1-16

- While currently not shown on the TDOT ALP Review Checklist, the following additional items must be shown *for both existing and ultimate conditions*:
  - State RSA dimensions only for runways classified as A-I, B-I, B-I(s), or A-I(s)
  - State Licensing Approach Surface dimensions and obstruction data

- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 30% ALP review

9.2.4 - Airport Airspace Drawing

- Must show the following items found in the Airport Airspace Drawing section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A, B (#1-7), C (#1-4), and D (#1-7)
- Note: If the airport's consultant would like to receive TDOT concurrence on the airport sponsor's preferred alternative before completing the airport airspace drawing and obstruction analysis, the airport's consultant will need to send the preferred alternative diagrams and information to the TDOT ALP Project Manager for review, comments, and concurrence.

9.2.5 - Inner Portion of the Approach Surface Drawing (for each runway end)

- Must show the following items found in the Inner Portion of the Approach Surface Drawing section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A, B (#1-10), C (#1-8), and D (#1-11)
  - Item E #1-3 (Note: The runway centerline profile with the line of sight can be shown on a different sheet or on a separate sheet in the ALP set)
- Note: If the airport's consultant would like to receive TDOT concurrence on the airport sponsor's preferred alternative before completing the inner portion of the approach surface drawing for each runway end and obstruction analysis, the airport's consultant will need to send the preferred alternative diagrams and information to the TDOT ALP Project Manager for review, comments, and concurrence.

9.2.6 - Runway Departure Surface Drawing (as applicable)

- Must show the following items found in the Runway Departure Surface Drawing section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A, B (#1-6), C (#1-4), and D (#1-6)
- Note: If the airport's consultant would like to receive TDOT concurrence on the airport sponsor's preferred alternative before completing the runway departure surface drawing for each applicable runway end and obstruction analysis, the airport's consultant will need to send the preferred alternative diagrams and information to the TDOT ALP Project Manager for review, comments, and concurrence.

9.2.7 - Terminal Area Drawing

- Must show the following items found in the Terminal Area Drawing section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A, B (#1-3), C, D, E (commercial service airports only), F, G, H, I (#1-2), and J through P
- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 30% ALP review

9.2.8 - Land Use Drawing

- Must show the following items found in the Land Use Drawing section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A, B, C (#1-2), D through K, M, and B (Preliminary Identification of Environmental Features - #19-22)
- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 30% ALP review

Note: If there are comments provided by the TDOT ALP project manager during the 30% ALP review that the airport and/or consultant disagree with and did not incorporate into the ALP set, the airport and/or consultant should provide justification on why the comments were not incorporated.

The TDOT ALP project manager will review the justification and provide a determination on whether the comments should still be incorporated into the ALP set or if the justification resolves the comments without making any additional edits to the ALP set. The TDOT ALP project manager will make this determination based on a variety of sources, including, but not limited to, FAA Advisory Circulars, FAA Orders, and discussions with the FAA Memphis ADO Community Planner.

9.2.9 – TDOT Comments for 60% Airport Layout Plan

The TDOT ALP project manager will review the 60% ALP set and document his or her comments. The TDOT ALP project manager will submit one set of comments to the airport and airport's consultant. Any revisions needed to the 60% ALP set based on the comments provided do not need to be submitted by the airport's consultant in between the 60% and 90% ALP Progress Review Meetings. The airport's consultant will need to incorporate these comments into the ALP set and/or respond to these comments when submitting the 90% documents three weeks prior to the 90% ALP Progress Review Meeting.

9.3 - 60% Narrative Report

The 60% Narrative Report submission must include the revised Inventory of Existing Conditions chapter, Facility Requirements chapter, and Alternatives Development and Evaluation chapter.

9.3.1 - Revised Inventory of Existing Conditions Chapter

The revised Inventory of Existing Conditions chapter must incorporate comments provided by the TDOT ALP project manager during the 30% ALP Progress Review Meeting.

Note: If there are comments provided by the TDOT ALP project manager during the 30% Narrative Report review that the airport and/or consultant disagree with and did not incorporate into the revised chapter, the airport and/or consultant should provide justification on why the comments were not incorporated into the revised chapter.

The TDOT ALP project manager will review the justification and provide a determination on whether the comments should still be incorporated into the chapter or if the justification resolves the comments without making any additional edits to the chapter. The TDOT ALP project manager will make this determination based on a variety of sources, including, but not limited to, FAA Advisory Circulars, FAA Orders, and discussions with the FAA Memphis ADO Community Planner.

9.3.2 - Facility Requirements Chapter

The information in the Facility Requirements chapter must include, but is not limited to, the following:

- An assessment of the ability of existing facilities to meet current and future demand
- Define any inability for the existing facilities to meet current and future demand and why they must be resolved
- Analysis of the airport's compliance with design and safety standards (i.e., RSA, RPZ, etc.)
- Determination of design standards for improvements to existing facilities, non-standard facilities, and for new facilities
- Review of any approved Modifications to Standards (MOS), the reasoning that led to the MOS, and a determination on whether the MOS must continue or will be eliminated by resolving the conditions in which the MOS was approved
- Identification and discussion of emerging industry trends that may influence airport capacity and facility needs, such as changes in aircraft fleet mix, new aircraft types, implementation of the NextGen initiatives, and security considerations
- Examination and discussion of the runway requirements to include the dimensional criteria, orientation, length, width, line of sight, and pavement design strength
- Examination and discussion of the taxiway, navigational aids, airspace, aircraft storage facilities, transient aircraft parking aprons, terminal facilities, airport support facilities, weather reporting, airfield lighting, auto parking, and fuel storage facility requirements
- Description of the analyses and techniques used to determine all future facility requirements

9.3.3 - Alternatives Development and Evaluation Chapter

The information in the Alternatives Development and Evaluation chapter must include, but is not limited to, the following:

- Identify alternatives to address facility requirements as determined in the Facility Requirements chapter
- Provide exhibits / diagrams showing all proposed alternatives
- Evaluation of the proposed alternatives that identify each alternative's strengths, weaknesses, implications, concerns, or unique circumstances
- Consideration of construction, environmental, and fiscal factors during the identification, evaluation, and selection of alternatives
- Discussion on why alternatives were eliminated from further consideration or implementation
- Selection of the preferred alternative and discussion on why the preferred alternative was selected

9.3.4 – TDOT Comments for 60% Narrative Report

The TDOT ALP project manager will review the 60% Narrative Report and document his or her comments. The TDOT ALP project manager will submit one set of comments to the airport and airport's consultant. Any revisions needed to the 60% Narrative Report based on the comments provided do not need to be submitted by the airport's consultant in between the 60% and 90% ALP Progress Review Meetings. The airport's consultant will need to incorporate these comments into the Narrative Report and/or respond to these comments when submitting the 90% documents three weeks prior to the 90% ALP Progress Review Meeting.

9.4 - 50% Exhibit "A" Airport Property Inventory Map

The 50% Exhibit "A" must show the following items in the TDOT Exhibit "A" Review Checklist *for only the existing airport property parcels and boundaries*:

- #1 through 5 (a-d), 6 (a, b, c, and f), 7 (a-g), 8, 9 (a-h), 10, and 12 through 15

The 50% Exhibit "A" must also utilize the Airport Layout Drawing as the base map, including all existing and ultimate airport design surfaces, facilities, and improvements.

The FAA is requiring property descriptions for each parcel making up the airport's existing property to be included with all Exhibit "A"s. The best way to provide this information is to obtain a copy of each existing airport property parcel deed and combine them into a single PDF file. The airport's consultant will need to label each deed based on how it is shown and described on the Exhibit "A." For example, if a parcel is labeled #1 on the Exhibit "A," the deed for the parcel in the separated, combined PDF file will need to be labeled as #1 at the top of the first page of the deed.

If a deed cannot be located or obtained, the airport's consultant will need to document this in the Notes section on the Exhibit "A," document this in the Narrative Report, and provide this information in the combined PDF file of all the deeds. A project will need to be requested in the future to obtain or locate the deed and update the Exhibit "A."

9.4.1 – TDOT Comments for 50% Exhibit "A"

The TDOT ALP project manager will review the 50% Exhibit "A" and document his or her comments. The TDOT ALP project manager will submit one set of comments to the airport and airport's consultant. Any revisions needed to the 50% Exhibit "A" based on the comments provided do not need to be submitted by the airport's consultant in between the 60% and 90% ALP Progress Review Meetings. The airport's consultant will need to incorporate these comments into the Exhibit "A" and/or respond to these comments when submitting the 90% documents three weeks prior to the 90% ALP Progress Review Meeting.

9.5 - 60% ALP Progress Review Meeting Minutes

The airport's consultant will document and provide meeting minutes from the 60% ALP Progress Review Meeting to all parties for review. The TDOT ALP project manager will review and provide comments, as needed, within five (5) business days of when the meeting minutes were received. The TDOT ALP project manager will approve the meeting minutes once any corrections are made to the minutes or if no corrections are needed.

9.6 - Invoicing

The TDOT Aeronautics Division will review, return (for corrections), or approve invoices for work completed on the ALP, Narrative Report, and Exhibit "A" Airport Property Inventory Map in accordance with the most current version of the TDOT ALP Project Pay Provisions found on the TDOT Aeronautics Division's Planning webpage - Planning (tn.gov).

Please contact the TDOT ALP project manager to resolve any issues with the invoices.

Step 10 – 90% ALP Progress Review Meeting

10.1 - Introduction

For the 90% ALP Progress Review Meeting to be held, the AGIS data for the ALP project must be verified and approved in ADIP. The 90% ALP set, TDOT ALP Review Checklist, 90% Narrative Report, TDOT Narrative Report Review Checklist, 90% Exhibit "A" Airport Property Inventory Map, and TDOT Exhibit "A" Review Checklist must be completed and submitted to the TDOT ALP project manager no later than six months prior to the grant end date and no later than three weeks prior to the scheduled 90% ALP Progress Review Meeting.

The following sections describe what must be included in each of these documents.

IF THE DOCUMENTS DO NOT CONTAIN THE BELOW INFORMATION, THE DOCUMENTS WILL BE RETURNED FOR REVISIONS, AND THE 90% ALP PROGRESS REVIEW MEETING MAY HAVE TO BE RESCHEDULED.

10.2 - 90% Airport Layout Plan and TDOT ALP Review Checklist

The 90% ALP set must show the existing and ultimate conditions of the airport, including the design standards based on the existing and ultimate critical aircraft determined in the approved aviation forecast. The TDOT ALP Review Checklist must also be completed and submitted with the 90% ALP set.

The 90% ALP set must contain the following sheets and information:

10.2.1 - Title Sheet

- Must show the following items found in the Title Sheet section of the TDOT ALP Review Checklist:
  - Items A through E

- While not shown on the TDOT ALP Review Checklist, the Title Sheet must also include the following:
  - List of State officials, TDOT officials, and TDOT Aeronautics Division staff
  - List of airport, airport sponsor, and local government officials
  - TDOT Aeronautics Division project number
  - FAA standard paragraph regarding funding of the ALP project

- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 60% ALP review

10.2.2 - Airport Data Sheet (if a separate sheet from the Airport Layout Drawing)

- Must show the following items found in the Airport Data Sheet section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A, B (#1-4), C (#1-10), D (#1-28), E, and F (#1-4)
  - Note: Item G (Legend) is only needed on the Airport Layout Drawing sheet and not on the Airport Data Sheet

- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 60% ALP review

10.2.3 - Airport Layout Drawing (to include the Airport Data Tables if not a separate sheet)

- Must show the following items found in the Airport Layout Plan Drawing section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A
  - Item B – No FAA Approval Stamp is needed on the Airport Layout Drawing. Instead of the FAA approval stamp, the space should be labeled for TDOT Aeronautics Division Approval. The TDOT Aeronautics Division ALP project manager will provide the information to use in this space as the Division will conditionally approve and sign the ALP electronically.
  - Item C #1-16

- While currently not shown on the TDOT ALP Review Checklist, the following additional items must be shown *for both existing and ultimate conditions*:
  - State RSA dimensions only for runways classified as A-I, B-I, B-I(s), or A-I(s)
  - State Licensing Approach Surface dimensions and obstruction data

- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 60% ALP review

10.2.4 - Airspace Drawing

- Must show the following items found in the Airport Airspace Drawing section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A, B (#1-7), C (#1-4), and D (#1-7)

- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 60% ALP review

10.2.5 - Inner Portion of the Approach Surface Drawing

- Must show the following items found in the Inner Portion of the Approach Surface Drawing section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A, B (#1-10), C (#1-8), and D (#1-11)
  - Item E #1-3 (Note: The runway centerline profile with the line of sight can be shown on a different sheet or on a separate sheet in the ALP set)

- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 60% ALP review

10.2.6 - Runway Departure Surface Drawing (as applicable)

- Must show the following items found in the Runway Departure Surface Drawing section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A, B (#1-6), C (#1-4), and D (#1-6)

- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 60% ALP review

10.2.7 - Terminal Area Drawing

- Must show the following items found in the Terminal Area Drawing section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A, B (#1-3), C, D, E (commercial service airports only), F through H, I (#1-2), and J through P

- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 60% ALP review

10.2.8 - Land Use Drawing

- Must show the following items found in the Land Use Drawing section of the TDOT ALP Review Checklist *for both existing and ultimate conditions*:
  - Item A, B, C (#1-2), D though K, M, and B (Preliminary Identification of Environmental Features - #19-22)

- Must incorporate and/or address comments provided by the TDOT Aeronautics Division during the 60% ALP review

10.2.9 - Airport Capital Improvement Plan (ACIP) Sheet

- Must show the following items found in the ACIP Sheet section of the TDOT ALP Review Checklist *for all proposed airport improvement projects*:
  - Item A (#1-3), B (#1-11), and C through F

- All proposed airport improvement projects needing Federal or State funding assistance through the TDOT Aeronautics Division must be prioritized on the ACIP sheet based on the TDOT Aeronautics Division's State Priority Ranking System for Airport Projects. Locally-funded or privately-funded projects can be shown in any year on the ACIP sheet.

- If there are any obstructions to any approach surface (i.e., Part 77, TSS, State, etc.), a project must be shown on the ACIP for the removal of the obstructions along with any associated project needed to remove the obstructions (i.e., fee-simple land acquisition, easement acquisition, etc.).

Note: If there are comments provided by the TDOT ALP project manager during the 60% ALP review that the airport and/or consultant disagree with and did not incorporate into the ALP set, the airport and/or consultant should provide justification on why the comments were not incorporated.

The TDOT ALP project manager will review the justification and provide a determination on whether the comments should still be incorporated into the ALP set or if the justification resolves the comments without making any additional edits to the ALP set. The TDOT ALP project manager will make this determination based on a variety of sources, including, but not limited to, FAA Advisory Circulars, FAA Orders, and discussions with the FAA Memphis ADO Community Planner.

10.2.10 – TDOT Comments for 90% Airport Layout Plan

The TDOT ALP project manager will review the 90% Airport Layout Plan and document his or her comments in the TDOT ALP Review Checklist. The TDOT ALP project manager will submit the checklist with his or her comments to the airport and airport's consultant. Any revisions needed to the 90%

Airport Layout Plan must be provided by the airport's consultant to the TDOT ALP project manager no later than 3 months prior to the grant end date for submission into OE/AAA.

10.3 - 90% Narrative Report and TDOT Narrative Report Review Checklist

The 90% Narrative Report must include the Executive Summary, revised Inventory of Existing Conditions chapter, revised Facility Requirements chapter, revised Alternatives Development and Evaluation chapter, and Airport Capital Improvement Plan (ACIP) chapter. The TDOT Narrative Report Review Checklist must be completed and submitted with the 90% Narrative Report.

10.3.1 - Executive Summary

The Executive Summary contains a concise summary of the findings and recommendations provided in each of the Narrative Report chapters. The Executive Summary also contains a summary of the proposed development shown on the ALP.

10.3.2 - Revised Inventory of Existing Conditions, Facility Requirements, and Alternatives Development and Evaluation Chapters

The revised Inventory of Existing Conditions, Facility Requirements, and Alternatives Development and Evaluation chapters must incorporate and/or address comments provided by the TDOT ALP project manager provided during the 60% Narrative Report review.

Note: If there are comments provided by the TDOT ALP project manager during the 60% Narrative Report review that the airport and/or consultant disagree with and did not incorporate into the revised chapters, the airport and/or consultant should provide justification on why the comments were not incorporated into the revised chapters.

The TDOT ALP project manager will review the justification and provide a determination on whether the comments should still be incorporated into the chapters or if the justification resolves the comments without making any additional edits to the chapters. The TDOT ALP project manager will make this determination based on a variety of sources, including, but not limited to, FAA Advisory Circulars, FAA Orders, and discussions with the FAA Memphis ADO Community Planner.

10.3.3 - Airport Capital Improvement Plan (ACIP) Chapter

The Airport Capital Improvement Plan (ACIP) chapter must address the airport's proposed improvement projects over the 0-5, 6-10, and 11+ year periods shown throughout the ALP set and Exhibit "A" Airport Property Inventory Map. This chapter must provide brief descriptions, brief justifications, timelines, milestones / triggering events, next steps toward accomplishing the projects, and cost estimates for each project.

In determining the proposed timeline of projects, the airport and its consultant must consider the following factors: funding sources for the proposed projects (Federal, State, Local, and/or private funding), State and FAA project priorities, airport priorities, environmental requirements, planning requirements, design requirements, and land acquisitions.

Note: All proposed airport improvement projects needing Federal or State funding assistance through the TDOT Aeronautics Division must be prioritized in the ACIP chapter based on the TDOT Aeronautics Division's State Priority Ranking System for Airport Projects. Locally-funded or privately-funded projects can be shown in any year in the ACIP chapter.

10.3.4 – TDOT Comments for 90% Narrative Report

The TDOT ALP project manager will review the 90% Narrative Report and document his or her comments in the TDOT ALP Review Checklist. The TDOT ALP project manager will submit the checklist with his or her comments to the airport and airport's consultant. Any revisions needed to the 90% Narrative Report must be provided by the airport's consultant to the TDOT ALP project manager no later than 3 months prior to the grant end date for submission into OE/AAA.

10.4 - 90% Exhibit "A" Airport Property Inventory Map and TDOT Exhibit "A" Review Checklist

The 90% Exhibit "A" must show the following items in the TDOT Exhibit "A" Review Checklist *for both the existing airport property parcels and boundaries and the proposed airport property parcels and boundaries needed for existing and future facilities, improvements, and developments*:

- Item #1 through 10 and 12 through 15

The 90% Exhibit "A" must also utilize the Airport Layout Drawing as the base map, including all existing and ultimate airport design surfaces, facilities, and improvements.

The TDOT Exhibit "A" Review Checklist must be completed and submitted with the 90% Exhibit "A" Airport Property Inventory Map.

Note: If there are comments provided by the TDOT ALP project manager during the 50% Exhibit "A" Airport Property Inventory Map review that the airport and/or consultant disagree with and did not incorporate into the Exhibit "A," the airport and/or consultant should provide justification on why the comments were not incorporated into the Exhibit "A."

The TDOT ALP project manager will review the justification and provide a determination on whether the comments should still be incorporated into the Exhibit "A" or if the justification resolves the comments without making any additional edits to the Exhibit "A." The TDOT ALP project manager will make this determination based on a variety of sources, including, but not limited to, FAA Advisory Circulars, FAA Orders, and discussions with the FAA Memphis ADO Community Planner.

10.4.1 – TDOT Comments for 90% Exhibit "A"

The TDOT ALP project manager will review the 90% Exhibit "A" and document his or her comments in the TDOT Exhibit "A" Review Checklist. The TDOT ALP project manager will submit the checklist with his or her comments to the airport and airport's consultant. Any revisions needed to the 90% Exhibit "A" must be provided by the airport's consultant to the TDOT ALP project manager no later than 3 months prior to the grant end date for submission into OE/AAA.

10.5 - 90% ALP Progress Review Meeting Minutes

The airport's consultant will document and provide meeting minutes from the 90% ALP Progress Review Meeting to all parties for review. The TDOT ALP project manager will review and provide comments, as needed, within five (5) business days of when the meeting minutes were received. The TDOT ALP project manager will approve the meeting minutes once any corrections are made to the minutes or if no corrections are needed.

10.6 - Invoicing

The TDOT Aeronautics Division will review, return (for corrections), or approve invoices for work completed on the ALP, Narrative Report, and Exhibit “A” Airport Property Inventory Map in accordance with the most current version of the TDOT ALP Project Pay Provisions found on the TDOT Aeronautics Division’s Planning webpage - Planning (tn.gov).

Please contact the TDOT ALP project manager to resolve any issues with the invoices.

Step 11 – 100% ALP, Exhibit "A", Narrative Report, and TDOT Review Checklists

Following the 90% ALP Progress Review Meeting, the airport's consultant will incorporate and/or address the comments received from the TDOT ALP project manager for the ALP, Exhibit "A" Airport Property Inventory Map, Narrative Report (including the Aviation Forecast and RSAI and RSAD forms with Exhibits), and all TDOT Review Checklists and submit the revised documents to the TDOT ALP project manager for final review.

If there are comments provided by the TDOT ALP project manager during the 90% review that the airport and/or consultant disagree with and did not incorporate into the 90% documents, the airport and/or consultant should provide justification on why the comments were not incorporated into the 90% documents.

The TDOT ALP project manager will review the justification and provide a determination on whether the comments should still be incorporated into the 90% documents or if the justification resolves the comments without making any additional edits to the 90% documents. The TDOT ALP project manager will make this determination based on a variety of sources, including, but not limited to, FAA Advisory Circulars, FAA Orders, and discussions with the FAA Memphis ADO Community Planner.

Once the TDOT ALP project manager's comments have been incorporated into the planning documents and/or comments were justified by the consultant/airport without making any additional edits, the ALP set, Exhibit "A" Airport Property Inventory Map, Narrative Report (including the Aviation Forecast and RSAI and RSAD forms with Exhibits), and all TDOT Review Checklists are considered 100% and are pending FAA and TDOT Aeronautics Division conditional approval.

The airport's consultant will provide the 100% ALP set, Exhibit "A" Airport Property Inventory Map, Narrative Report (including the Aviation Forecast and RSAI and RSAD forms with Exhibits), and all TDOT Review Checklists to the TDOT ALP project manager *no later than three months prior to the grant end date for submission into OE/AAA*.

Step 12 – Submission of 100% Documents and Review Checklists into OE/AAA for FAA Review

The TDOT ALP project manager will submit the 100% ALP set, Exhibit “A” Airport Property Inventory Map, Narrative Report (including the Aviation Forecast and RSAI and RSAD forms with Exhibits), and all TDOT Review Checklists into OE/AAA on behalf of the airport.

After submitting the 100% documents into OE/AAA, the TDOT ALP project manager will send the airport and airport’s consultant the OE/AAA case number for their records. The TDOT ALP project manager will also send the FAA Memphis ADO Community Planner the case number so he or she can review the documents and “map” the case for FAA lines of business review.

Step 13 – FAA Airspace Determination Letter and, As Applicable, FAA Requested Revisions

Once all FAA lines of business have reviewed and provided comments on the 100% documents in OE/AAA, the FAA Memphis ADO Community Planner will develop and submit the FAA Airspace Determination (NRA) Letter to the TDOT ALP project manager. The TDOT ALP project manager will provide the FAA Airspace Determination (NRA) Letter to the airport and consultant.

Please review the comments provided in the FAA Airspace Determination Letter and comments provided by the FAA lines of business in OE/AAA carefully. There may be comments in the letter or in OE/AAA that must be resolved by revising certain aspects of the ALP set, Exhibit "A" Airport Property Inventory Map, and/or Narrative Report.

If there are comments that must be resolved, the airport's consultant will update the applicable document(s) and resubmit the document(s) to the TDOT ALP project manager. The TDOT ALP project manager and FAA Memphis ADO Community Planner will review the revised document(s) concurrently. Once the TDOT ALP project manager and FAA Memphis ADO Community Planner have approved the revision(s), the ALP set, Exhibit "A" Airport Property Inventory Map, and Narrative Report (including the Aviation Forecast and RSAI and RSAD forms with Exhibits) are ready for TDOT Aeronautics Division conditional approval.

If there are no comments requiring revisions to the planning documents in the letter or in OE/AAA, then the ALP set, Exhibit "A" Airport Property Inventory Map, and Narrative Report (including the Aviation Forecast and RSAI and RSAD forms with Exhibits) are ready for TDOT Aeronautics Division conditional approval.

Step 14 – Submission of Narrative Report and Electronically-Signed ALP and Exhibit “A” to TDOT

Once the FAA Airspace Determination (NRA) Letter is received and any revisions have been approved by the TDOT Aeronautics Division and FAA Memphis ADO Community Planner, the TDOT ALP project manager will request the airport sponsor’s signatory to electronically sign and date the Airport Layout Drawing in the ALP set and the Exhibit “A” Airport Property Inventory Map.

After the airport sponsor’s signatory electronically signs and dates these documents, the airport’s consultant will submit the electronically signed ALP set, electronically signed Exhibit “A,” and Narrative Report (including the Aviation Forecast and RSAI and RSAD forms with Exhibits) to the TDOT ALP project manager. The TDOT ALP project manager will prepare the documents for the electronic conditional approval signature by the TDOT Aeronautics Division’s signatory along with the TDOT ALP conditional approval letter.

Step 15 – TDOT ALP Conditional Approval and Conditional Approval Letter

Upon receipt from the TDOT ALP project manager, the TDOT Aeronautics Division's signatory will electronically sign the Airport Layout Drawing in the ALP set. This signature will signify the TDOT conditional approval of the ALP set, Exhibit "A," and Narrative Report (including the Aviation Forecast and RSAI and RSAD forms with Exhibits).

After the conditional approval signature, the TDOT ALP project manager will create and sign the TDOT ALP Conditional Approval Letter. This letter will be sent to the airport and its consultant.

Step 16 – Final Deliverables and Process

Upon receiving the TDOT ALP Conditional Approval Letter and ALP set with the electronic TDOT conditional approval signature on the ALD, the airport's consultant will follow the final deliverables process:

- Print the electronically-signed ALP set with the Exhibit "A" Airport Property Inventory Map based on the number of printed copies scoped in the signed WA, including the one for the TDOT Aeronautics Division and the one for the FAA Memphis ADO
- Print the TDOT ALP Conditional Approval Letter and FAA Airspace Determination (NRA) Letter, place each printed letter in a separate sheet protector, and attach one of each letter to the Cover Sheet of each printed ALP Set
- Mail two copies of the ALP set with the Exhibit "A" Airport Property Inventory Map (with letters attached to the Cover Sheet) to the TDOT Aeronautics Division (attention to the TDOT ALP project manager)
- Send the CADD file for the Exhibit "A" Airport Property Inventory Map to the TDOT ALP project manager
- If not done so already, send the electronic version of the final Narrative Report to the TDOT ALP project manager
- Send any additional deliverables shown in the Work Authorization to the TDOT ALP project manager

When the TDOT ALP project manager receives the two copies of the ALP set with the Exhibit "A," the TDOT ALP project manager will store one of the copies in the TDOT Aeronautics Division's files and will mail one of the copies to the FAA Memphis ADO.

Step 17 – Final Invoice

The final invoice must be submitted no later than 60 days after the end date of the TDOT ALP grant. The TDOT Aeronautics Division will review, return (for corrections), or approve the final invoice for work completed according to the most current version of the TDOT ALP Project Pay Provisions found on the TDOT Aeronautics Division's Planning webpage - Planning (tn.gov).

Please contact the TDOT ALP project manager to resolve any issues with the final invoice or any outstanding invoices.

Step 18 – Annual and Final Report, Disbursement Reconciliation & Close Out Report, and Project Closeout Letter

Once the project deliverables have been submitted to the TDOT ALP project manager and all invoices for the ALP project have been paid, the airport must submit the following documentation:

18.1 Annual and Final Reports

All airport sponsors are required to provide annual and final reports via grant language *D.18. Annual and Final Reports*. Please see the following for D.18. language:

Annual and Final Reports. The Grantee shall submit, within three (3) months of the conclusion of each year of the Term, an annual report. For grant contracts with a term of less than one (1) year, the Grantee shall submit a final report within three (3) months of the conclusion of the Term. For grant contracts with multiyear terms, the final report will take the place of the annual report for the final year of the Term. The Grantee shall submit annual and final reports to the Grantor State Agency. At minimum, annual and final reports shall include: (a) the Grantee's name; (b) the Grant Contract's Edison identification number, Term, and total amount; (c) a narrative section that describes the program's goals, outcomes, successes and setbacks, whether the Grantee used benchmarks or indicators to determine progress, and whether any proposed activities were not completed; and (d) other relevant details requested by the Grantor State Agency. Annual and final report documents to be completed by the Grantee shall appear on the Grantor State Agency's website or as an attachment to the Grant Contract.

You can find the Annual and Final Reports template on the TDOT Aeronautics Division's website at Aeronautics Publications (tn.gov) under "TN Airport Sponsor Grant Contract Annual and Final Report".

18.2 Disbursement Reconciliation and Close Out

All sponsors also need to provide grant disbursement reconciliation report via grant *language C.7. Annual and Final Reports*. Please see the following for C.7. language:

Disbursement Reconciliation and Close Out. The Grantee shall submit any final invoice and a grant disbursement reconciliation report within sixty (60) days of the Grant Contract end date and in form and substance acceptable to the State.

Important Note: Please be aware that the final invoice and grant disbursement reconciliation reports are two different documents. Sponsors can use their final invoice to fulfill the requirements for the C.7. Disbursement Reconciliation and Close Out if the final invoice details all Grantee expenditures recorded to date.

18.3 Project Closeout Letter

A Project Closeout Letter must be submitted within 10 business days of receiving payment for the final invoice to the TDOT ALP project manager.

An example Project Closeout Letter can be found on the Engineering webpage of the TDOT Aeronautics Division's website - https://www.tn.gov/content/dam/tn/tdot/aeronautics/engineering/Example%20Project%20Closure%20Letter.docx.

Upon receipt of the Project Closeout Letter, the TDOT ALP project manager will follow internal guidelines to close the project. Once the project is closed, the TDOT ALP project manager will notify the airport and the airport's consultant.

References

Federal Aviation Administration Advisory Circular 150/5000-17 *Critical Aircraft and Regular Use Determination*

Federal Aviation Administration Advisory Circular 150/5070-6B *Airport Master Plans*

Federal Aviation Administration Advisory Circular 150/5300-13B *Airport Design*

Federal Aviation Administration Advisory Circular 150/5300-16B: *General Guidance and Specifications for Aeronautical Surveys: Establishment of Geodetic Control and Submission to the National Geodetic Survey*

Federal Aviation Administration Advisory Circular 150/5300-17C: *Standards for Using Remote Sensing Technologies in Airport Surveys*

Federal Aviation Administration Advisory Circular 150/5300-18B: *General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards*

Federal Aviation Administration Advisory Circular 150/5325-4B *Runway Length Requirements for Airport Design*

Federal Aviation Administration ARP SOP 2.00 *Standard Procedure for FAA Review and Approval of Airport Layout Plans (ALPs)*

Federal Aviation Administration ARP SOP 3.00 *Standard Operating Procedure for FAA Review of Exhibit "A" Airport Property Inventory Maps*

Federal Aviation Administration ARP SOP 8.00 *Runway Safety Area Determination*

Federal Aviation Administration Interim Guidance on Land Uses Within a Runway Protection Zone (Dated September 27, 2012)

Federal Aviation Administration Order 5090.5 *Formulation of the National Plan of Integrated Airport Systems (NPIAS) and the Airports Capital Improvement Plan (ACIP)*

Federal Aviation Administration Order 5100.38D *Airport Improvement Program Handbook*

Federal Aviation Administration Order 5300.1G *Modifications to Agency Airport Design, Construction, and Equipment Standards*

Rules of the Tennessee Department of Transportation Chapter 1680-1-2 *Licensing and Registration of Airports*

TDOT ALP Project Pay Provisions

TDOT Policy Number 170-02 *Direction of the Tennessee Aeronautics Commission*

Appendix A - Example Operations Data Counter System Schedule, Special Timing Considerations, and Requirements

Step / Milestone / Task	Special Timing Requirements and Considerations	Example Timeline/Dates
Submit Operations Data Counter System Funding Request in TDOT's Grant Management System	Must be submitted no later than 12 months prior to submitting the ALP project funding request	April 14, 2022
Operations Data Counter System Funding Request Approved at Project Staff Review (PSR)	N/A	April 28, 2022
Executed Grant Received for Operations Data Counter System	N/A	May 2022
Installation and Collection of Operations Data	Must collect 12 months of operations data and share the data with TDOT and the airport's consultant	May 2022 – May 2023
Final (or Outstanding) Invoices Submitted in TDOT's Grant Management System	Any final (or outstanding) invoices must be submitted in TDOT's Grant Management System within 60 days of the grant end date to be reimbursable.	June 2023
Project Closeout Letter Submitted by Airport Sponsor to TDOT	N/A	August 2023 (or after final invoices have been paid and all deliverables received)
Project Closed	Allow 30-60 days for the TDOT Operations Data Counter System grant to be closed.	October 2023
Grant End Date	N/A	April 13, 2024

Appendix B - Example ALP Project Schedule, Special Timing Considerations, and Requirements

Step / Milestone / Task	Special Timing Requirements and Considerations	Example Timeline/Dates
Scoping Meeting	Occurs 2 weeks prior to funding request submittal deadline. Draft scope of work must be submitted to TDOT for review at least 2 weeks prior to the Scoping Meeting.	March 8, 2023
Submit ALP Project Funding Request in TDOT's Grant Management System	N/A	March 22, 2023
ALP Project Funding Request Approved at Project Staff Review (PSR)	N/A	April 14, 2023
Executed Grant Received for ALP Project	Allow at least one month. Grant start date will be backdated to the date of the scoping meeting so work completed during and after the scoping meeting can be reimbursed.	May 14, 2023
ALP Project Kickoff Meeting	To occur within 30 days of receiving the executed grant	June 14, 2023 (or before)
Letter of Subcontract Approval by the State	The TDOT ALP Project Manager will issue the Letter of Subcontract Approval by the State upon receiving the finalized draft Work Authorization and any subconsultant contract/agreement. This can occur the same day as the ALP Project Kickoff Meeting if all revisions have been made prior to the kickoff meeting and approved by the TDOT ALP Project Manager.	June 14, 2023
Executed Work Authorization, Contracts, Agreements, etc.	Typically occurs within 1-2 weeks of receiving the Letter of Subcontract Approval by the State	June 28, 2023
AGIS Survey Completed	The AGIS survey must be completed during leaf-on conditions.	July or August 2023

Aviation Forecast Submission to TDOT	The Aviation Forecast must be submitted, reviewed, and approved by TDOT and FAA Memphis ADO before work can start on the 30% ALP set.	September 28, 2023
Aviation Forecast Comments Received from TDOT	Comments will be sent by the TDOT ALP Project Manager to the Airport and Airport's Consultant within 3 weeks of receiving the Aviation Forecast for review.	October 19, 2023
Revised Aviation Forecast Submitted to TDOT	N/A	November 9, 2023
TDOT Approval of Aviation Forecast and TDOT Submission of Aviation Forecast to FAA Memphis ADO for Approval	N/A	November 16, 2023
FAA Memphis ADO Approval of Aviation Forecast	Allow 60 to 90 days to receive FAA Memphis ADO Approval of the Aviation Forecast	February 16, 2024
30% ALP Documents Submitted to TDOT for Review	Aviation Forecast must be approved by both TDOT and FAA Memphis ADO before work can begin on the 30% ALP documents. These documents must be submitted to TDOT 3 weeks prior to the scheduled 30% ALP Progress Review Meeting.	May 16, 2024
AGIS Approved and Verified by FAA in ADIP	AGIS must be approved and verified before scheduling a 90% ALP Progress Review Meeting	May 2024
30% ALP Progress Review Meeting	N/A	June 6, 2024
Revised RSAI and RSAD Forms with Exhibits Submitted to TDOT for Review	Must be submitted within 6 weeks of the 30% ALP Progress Review Meeting and before scheduling a 60% ALP Progress Review Meeting	July 18, 2024 (or before)
RSAI and RSAD Forms Approved by TDOT and Submitted by TDOT to FAA Memphis ADO for Final Review and Approval	RSAI and RSAD Forms with Exhibits must be sent to the FAA Memphis ADO before scheduling a 90% ALP Progress Review Meeting	August 1, 2024
Modification of Standards (MOS)	As needed, a MOS must be submitted, reviewed, and approved by the FAA before scheduling the 60% ALP Progress Review Meeting	(As needed)

60% ALP Documents Submitted to TDOT for Review	Must be submitted 3 weeks prior to the scheduled 60% ALP Progress Review Meeting	September 6, 2024
60% ALP Progress Review Meeting	N/A	September 27, 2024
90% ALP Documents Submitted to TDOT for Review	Must be submitted 3 weeks prior to the scheduled 90% ALP Progress Review Meeting and 6 months prior to the grant end date. AGIS must be approved and verified by the FAA in ADIP prior to scheduling the 90% ALP Progress Review Meeting. RSAI and RSAD Forms with Exhibits must be sent to the FAA Memphis ADO before scheduling a 90% ALP Progress Review Meeting	January 10, 2025
90% ALP Progress Review Meeting	N/A	January 31, 2025
100% ALP Documents Submitted to TDOT For Final Review	Must be provided to TDOT 3 months prior to the grant end date.	March 4, 2025
Submission of ALP Documents in OE/AAA by TDOT	N/A	March 25, 2025
FAA Airspace Determination Letter and Comments Received	Allow 3-4 months to receive the FAA Airspace Determination Letter and Comments from the FAA Memphis ADO	July 25, 2025
Revisions Completed per FAA Memphis ADO Comments (as needed) and Submitted to TDOT	N/A	August 25, 2025
Airport Sponsor Electronic Signature on ALD and Exhibit A and Submission of Electronically Signed ALP Documents to TDOT	N/A	September 15, 2025
TDOT Conditional Approval Letter and Conditional Approval Electronic Signature on ALP Documents	N/A	September 29, 2025

Final Deliverables per the Executed Work Authorization (i.e., printed electronically signed ALP sets) Submitted to TDOT and Airport Sponsor	N/A	October 29, 2025
Final (or Outstanding) Invoices Submitted in TDOT's Grant Management System	Any final (or outstanding) invoices must be submitted in TDOT's Grant Management System within 60 days of the grant end date to be reimbursable.	January 7, 2026
Grant End Date	N/A	March 7, 2026
Project Closeout Letter Submitted by Airport Sponsor to TDOT	N/A	March 8, 2026 (or after final invoices have been paid and all deliverables received)
Project Closed	Allow 30-60 days for the TDOT ALP grant to be closed.	May 8, 2026 (or before)