

Manassas Regional Airport Master Plan Update



Chapter 7
Airport Layout Plan
Narrative



RS&H

TABLE OF CONTENTS

Chapter 7 Airport Layout Plan Narrative

- 7.1 Introduction 7-1
- 7.2 Airport Compliance with FAA Design Standards 7-2
- 7.3 Modification of Standards..... 7-2
- 7.4 Airport Layout Plan Highlights and Modifications 7-2
 - 7.4.1 Airfield Enhancements and Modifications 7-3
 - 7.4.2 Terminal Area Modifications 7-4
 - 7.4.3 Landside Parking Expansion 7-4
 - 7.4.4 Tenant Development / Aircraft Storage 7-4
 - 7.4.5 Future Land Uses 7-5
 - 7.4.6 Maintenance Facility 7-5
 - 7.4.7 Aircraft Rescue and Firefighting (ARFF) 7-5
 - 7.4.8 Air Traffic Control Tower (ATCT) 7-5
- 7.5 Airport Layout Plan Drawings Sheets 7-6
 - 7.5.1 Sheet 1 – Cover Sheet..... 7-6
 - 7.5.2 Sheet 2 – Airport Data Sheet 7-6
 - 7.5.3 Sheet 3 – Airport Layout Plan Drawing..... 7-7
 - 7.5.4 Sheet 4 and 5 – Terminal Area Plan: East and West 7-8
 - 7.5.5 Sheet 6 through 8 – Airport Airspace Drawings..... 7-9
 - 7.5.6 Sheet 9 through 14 – Runway Inner Approach Plan and Profile 7-9
 - 7.5.7 Sheet 15 – Land Use Plan (Existing) 7-9
 - 7.5.8 Sheet 16 – Land Use Plan (Future)..... 7-10
 - 7.5.9 Sheet 17 and 18 – Exhibit ‘A’ Airport Property Inventory Map 7-10
 - 7.5.10 Sheet 19 – Environmental Considerations and Utilities 7-11
 - 7.5.11 Sheet 20 – Conceptual Development Phasing Plan..... 7-11
- 7.6 Airport Layout Plan Drawing Set 7-11

LIST OF FIGURES

- Figure 7-1 Modification of Standard Limits 7-8

CHAPTER 7

AIRPORT LAYOUT PLAN NARRATIVE

7.1 INTRODUCTION

This chapter presents the Airport Layout Plan (ALP) drawing set, which has been produced as part of this Airport Master Plan process. The components of this chapter include the purpose of the ALP drawings, compliance with FAA design standards, and revisions to the ALP since the previous ALP update dated 2014. Additional sheets were added compared to the 2014 ALP set either because ALP requirements have changed since the 2014 ALP update was submitted to the FAA for approval, or by the direction of the Airport to show additional detail in areas not previously shown.

The ALP drawing set serves as a visual representation of the Airport's existing facilities and planned future development. It is also required by the FAA for Manassas Regional Airport capital projects to be considered for future federal AIP funding, and to be compliant with the Airport's Federal Grant Assurances. The Aviation Activity Forecast Update, preferred alternatives and the overall development plan that was derived in the Alternatives Chapter are included in the ALP, along with any other facility changes that have taken place since the last ALP update in 2014. The drawing set was prepared using several FAA guidelines and checklists, which included the following:

- » FAA Advisory Circular 150/5070-6B Change 2, *Airport Master Plans*
- » FAA ARP SOP 2.00 *Standard Procedure for FAA Review and Approval of Airport Layout Plans (ALPs)*
- » FAA ARP SOP 3.00 *Standard Procedure for FAA Review of Exhibit 'A' Airport Property Inventory Maps*

The ALP requires FAA approval, independent of the Master Plan. As such, the review of the ALP drawing set is accomplished through several intermediate steps, including reviews by the Airport, the FAA Airports District Office (ADO), and several other FAA offices involved in the associated airspace review.

The ALP drawing set serves several needs for the Airport, the City of Manassas, Prince William County, and the FAA. As presented in the FAA Advisory Circular 150/5070-6B, *Airport Master Plans*, there are five primary functions of the Airport Layout Plan (ALP) that defines its purpose:

- » FAA-approved ALPs are necessary to receive financial assistance under the terms of the Airport and Airway Improvement Act of 1982 (AIP). The maintenance of, and conformity to the plan is a grant assurance requirement upon which federal funds have been provided to HEF under the AIP program and previous programs. Previous programs include the 1970 Airport Development Aid Program (ADAP) and Federal Aid Airports Program (FAAP) of 1946.
- » The ALP creates a blueprint for airport development by depicting proposed facility improvements that are consistent with the strategic vision of the Airport sponsor. They also provide a guideline by which the sponsor can assure that development maintains Airport design standards and safety requirements and is consistent with airport and community land use plans.
- » The ALP serves as a public document that is a record of aeronautical requirements, both present and future, and as a reference for community deliberations on land use proposals and budget resource planning.
- » The approved ALP provides the FAA with a plan for airport development. This will allow compatible planning for FAA-owned facility improvements at the Airport and help the FAA to anticipate

budgetary and procedural needs. The approved ALP will also give the FAA the information it needs to ensure airspace is protected for planned facility or approach procedure improvements.

- » The ALP provides a working tool for use by the Airport sponsor, including planning and development, operations and maintenance.

7.2 AIRPORT COMPLIANCE WITH FAA DESIGN STANDARDS

The FAA provides airport design standards to ensure safe and efficient airport operations. The primary guidance is contained in FAA Advisory Circular 150/5300-13B, *Airport Design*. The master planning process also relies on numerous other FAA and Federal agency documents, including, but not limited to:

- » Federal Aviation Regulations Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*
- » FAA Advisory Circular 150/5340-30J, *Design and Installation Details for Airport Visual Aids*
- » FAA Advisory Circular 150/5340-1M Change 1, *Standards for Airport Markings*
- » FAA Order 8260.3E, Change 1, *United States Standard for Terminal Instrument Procedures (TERPS)*
- » FAA Order 8260.19I, *Flight Procedures and Airspace*
- » FAA Order 6850.2C, *Visual Guidance Lighting Systems*
- » FAA Order 5200.8, *Runway Safety Area Program*
- » Engineering Brief No. 75, *Incorporation of Runway Incursion Prevention into Taxiway and Apron Design*

7.3 MODIFICATION OF STANDARDS

Manassas Regional Airport has one modification to standard (MOS). The modification is for the east side of Taxiway B for 2,300 feet from Taxiway E to Taxiway G. The Taxiway Safety Area (TSA) for Airplane Design Group (ADG) III of 59 feet (118 ft wingspan) in this area has a FAA approved MOS of 44 feet (88 ft wingspan). The modification reference number is HEF_2023_33814 and was approved on March 29, 2023.

The previous Airport Master Plan identified no modification to standards. Since the previous master plan, the FAA has implemented FAA Order 5300.1G *Modifications to Agency Airport Design, Construction and Equipment Standards*, replacing Order 5300.1F. This order establishes the process for initiation, revision, coordination, and management of MOS applicable to airport design construction, and equipment procurement projects. Based on the type of modification to standard being submitted, additional Safety Risk Management panels may be required. In addition, any MOS should be submitted to the FAA prior to review and approval of an ALP. The proposed development within the 20-year planning period meets current FAA design standards and does not require any additional MOS to be filed.

7.4 AIRPORT LAYOUT PLAN HIGHLIGHTS AND MODIFICATIONS

This section highlights key elements and modifications that have been made since the Airport's 2014 ALP update. The modifications to the plan are based either on the Master Plan's analyses of identified future needs, changes related to the vision of the Airport, a change in FAA design criteria, or a combination of all

these factors. Enhancements and changes to the ALP set are detailed within this section as related to the future development within the master plan 20-year period.

7.4.1 Airfield Enhancements and Modifications

Primary Runway Enhancement

Within Sheet 3, Airport Layout Plan Drawing depicts a future 500-foot extension to Runway 16L-34R to the south. Taxiway B, the parallel taxiway to Runway 16L-34R, would also be extended and include an entrance/exit taxiway connector at the new Runway 34R end. This runway extension will support heavier aircraft operations which have been weight constrained during higher temperature days experienced at HEF. The MALSF system for Runway 34R will need to be relocated, resulting in one set of lights being placed within Broad Run's Resource Protection Area (RPA); however, this placement is permitted by the City of Manassas due to the utility function. The width for Runway 16L-34R has been widened from 100 feet to the recommended standard width of 150 feet as the critical aircraft for the runway, B737-800, has a maximum certified takeoff weight (MTOW) greater than 150,000 lbs.¹ The MTOW of the B737-800 is 174,200 lbs, as a result the future pavement condition of Runway 16L-34R will be improved to support the critical aircraft.² These factors will impact dimensions for the runway protection zone (RPZ) and the necessary land for ground based navigational equipment. It is recommended that HEF ensure the current and future RPZ's are protected from any incompatible land uses as well as airspace penetrations.

Taxilane/Taxiway Enhancement

The analysis completed under this study determined the existing Taxilane/Taxiway C provides direct access from the East Apron to the approach end of Runway 16L which is non-standard. The improvement shown to Taxilane/Taxiway C aims to improve airfield safety by mitigating the risk of runway incursions in this area. Taxilane D is displaced to the south to preserve a dedicated aircraft runup area which supports aircraft runups and circulation in the area. Per guidance in FAA Engineering Brief No. 89A, *Taxiway Nomenclature Convention*, to promote positive identification of parallel taxiways and associated connectors Taxiway B's connectors have been updated to reflect the appropriate number designations, B1 through B6. A new taxiway identified as Taxiway F coming off the high-speed exit, current Taxiway B2 and future Taxiway B3, connecting to the East Apron is depicted on the Airport Layout Plan Drawing to allow quick access to passenger terminal gates by arriving commercial aircraft. In alignment with guidance provided in Advisory Circular 150/5340-18G and Engineering Brief 89A, the introduction of future Taxiway F will cause for redesignation of existing Taxiway F to future Taxiway G. Existing Taxiway G will be redesignated to Taxiway H.

Existing Taxiway G, identified in the Airport Layout Drawing Plan as future Taxiway H, will be extended to provide access to future corporate hangar sites nearby. The last ALP update (2014) depicted a partial parallel taxiway, Taxiway M, to Runway 16L-34R. This Airport Layout Plan Drawing carries this vision forward and incorporates Taxiway M as an ultimate condition beyond the planning period. Taxiway M will limit runway crossings in the case an aircraft departing the West Apron needs the longer runway for departure. Taxiway M's construction will require bridge integrity consistent with the design standards

¹ AC 150/5300-13B – Airport Design; Appendix G Footnote #12

² FAA Aircraft Characteristics Database, Last update October 2023

used for Taxiway B and Runway 16L-34R, as it crosses over Broad Run. Other taxiway modifications include naming taxiways connecting Taxiway A to and through the West Apron. Taxiway Q, Taxiway R, Taxiway S, Taxiway T, Taxiway U, and Taxiway W are identified on the Airport Layout Plan Drawing. Taxiways J and L are depicted on the east side of the airport as an ultimate condition to provide access to future development area which is planned outside of the 20-year planning period.

7.4.2 Terminal Area Modifications

In preparation for commercial service introduction to the airport, the Airport Layout Plan Drawing depicts an expansion of the terminal facility on the East Apron. With the introduction of passenger service this expansion will allow the terminal to accommodate required processing areas such as check-in area, checked baggage inspection systems (CBIS), baggage claim, security screening checkpoint, hold rooms, and concessionaire space.

In addition to the terminal expansion, the apron in front of the terminal and associated tie downs have been modified to support air carrier operations via hardstand, RON parking, and Deice Pad, and GA parking spots. Taxiway Z geometry has been modified in the Airport Layout Plan Drawing as existing Taxiway Z and significant number tie-down parking cannot be accommodated with the forthcoming commercial aircraft. In the future the lion share of GA tie-downs will be removed from the East Apron and relocated to the West Apron to accommodate future air carrier service on the East Apron.

7.4.3 Landside Parking Expansion

To support the anticipated increase in passenger traffic additional landside parking is planned for the airport. The vacant quadrants adjacent to the existing parking lot in front of the terminal are proposed to be converted to parking. Remote parking is proposed on airport property just east of Wakeman Drive and north of Harry Parrish Boulevard.

7.4.4 Tenant Development / Aircraft Storage

On the east side of the Airport, new transient apron space is shown south of Taxiway E. The transient apron space is sited between the two FBOs and in the vicinity of both the terminal and a perimeter access gate. Future Taxiway H provides access to future corporate hangar facilities. Two older T-hangar structures on the East Apron are depicted as demolished which could provide a development opportunity for revenue generating corporate development. The two demoed T-hangars are replaced by T-hangar development on the West Apron.

In alignment with the Strategic Plan and Airport Visioning within this Master Plan, aircraft hangars and tie-downs will be constructed on the West Apron to support the shift of GA aircraft operations to the west side of the airport. All future demand for aircraft hangars, transient aircraft parking, and tie-downs would be accommodated by tenant development under lease terms in accordance with Airport minimum standards and the Airport's development review process. Therefore, this Master Plan incorporated hangar development concepts into the Airport Layout Plan to meet the forecast demand. These concepts are preliminary, and all land development should be done in accordance with Airport policy and demand needs.

7.4.5 Future Land Uses

The airport does not have an existing land use plan. Zoning classifications on airport property follow ordinances of the City of Manassas and Prince William County. Sheet 16, Future Airport Land Use Plan, shows the preferred land use for the 20-year planning period. Key changes in land use from the 2014 ALP includes the proposal for adjacent land acquisition in the airport's northwest quadrant serving both aeronautical and non-aeronautical purposes. In light of ongoing research and development in Advanced Air Mobility (AAM) within the region, particularly at the airport, buildings F3 and F4 are positioned to support development opportunities in this function. It is recommended that Airport staff coordinate with Prince William County planning staff on updating land use designations within airport property as needed, and when appropriate, changing the status of any newly acquired parcels. Over 20 acres of non-aeronautical airport property in the northeast quadrant was released in 2023 and therefore is reflected in Sheet 15 – Existing Land Use Plan and Sheet 16 – Future Land Use Plan.

7.4.6 Maintenance Facility

Airport staff have identified the need to expand and relocate the Maintenance Equipment Storage (MES)/Snow Removal Equipment (SRE) Facility to accommodate new larger multi-use SRE equipment and provide a storage facility with a layout which meets the growing needs of the airport. Within Sheet 3, Airport Layout Plan Drawing the proposed facility is relocated to the northeast corner of the airport just west of Wakeman Drive. This area provides the necessary room to provide pavement for snow removal equipment while expanding the storage capacity for essential maintenance equipment.

7.4.7 Aircraft Rescue and Firefighting (ARFF)

The facility requirements portion of this study identified the need for the airport to construct an ARFF facility on airport. At the time of this writing, the current emergency response procedures requires City of Manassas Fire and Rescue Department personnel to drive from the nearest fire station (2.9 miles away) to the airport and deploy the ARFF vehicles located in T-hangar C-3. The response time with the existing agreements in place will be improved by the construction of an ARFF facility. The preferred concept includes a new ARFF facility on the north side of displaced Taxiway C. The area where the future building is proposed sits just outside the departure surface and near the building restriction line (BRL). If a taller structure is desired, there may be a need to shift the facility further the east. Additional study should be conducted during pre-design of the ARFF facility to determine most efficient facility configuration while remaining compatible with critical areas.

7.4.8 Air Traffic Control Tower (ATCT)

The existing air traffic control tower (ATCT) was initially built in Centennial, Colorado in the mid-1960s, before being dismantled and transported to its current location at the Airport in 1991. Despite its continued service, parts of the ATCT have aged considerably, with some components reaching 60 years old and beyond their expected useful life. This challenges the Airport's ongoing maintenance efforts to keep the ATCT operational and safe for air traffic control purposes. Therefore, the Airport Layout Plan Drawing depicts a new ATCT southwest of its current location just west of Observation Road. A siting analysis was conducted as a separate effort during the Master Plan, factoring in the 500-foot runway extension. This analysis led to the proposed height of the new ATCT at 120-feet AGL. With the siting analysis it was determined any vegetation/trees obstructing the new ATCT line of sight will be cleared.

7.5 AIRPORT LAYOUT PLAN DRAWINGS SHEETS

The airport layout plan set graphically illustrates the proposed development of the Airport over the 20-year planning period, while also providing general guidance for the ultimate vision. An ALP set is required by the FAA for an airport sponsor to be considered for future funding, and to be compliant with the airport's Federal Grant Assurances. The complete ALP set for Manassas Regional Airport consists of the following sheets, defined in the following subsections.

- » Sheet 1 – Cover Sheet
- » Sheet 2 – Airport Data Sheet
- » Sheet 3 – Airport Layout Plan Drawing
- » Sheet 4 – Terminal Area East
- » Sheet 5 – Terminal Area West
- » Sheet 6 – Airport Airspace
- » Sheet 7 – Airport Airspace and Conical Surface
- » Sheet 8 – Airport Airspace and Conical Surface – Obstruction Table
- » Sheet 9 – Inner Portion of the Approach Surface Runway 16L
- » Sheet 10 – Inner Portion of the Approach Surface Runway 34R (Existing)
- » Sheet 11 – Inner Portion of the Approach Surface Runway 34R (Future)
- » Sheet 12 – Runway Obstruction Tables
- » Sheet 13 – Inner Portion of the Approach Surface Runway 16R
- » Sheet 14 – Inner Portion of the Approach Surface Runway 34L
- » Sheet 15 – Land Use Plan (Existing)
- » Sheet 16 – Land Use Plan (Future)
- » Sheet 17 – Exhibit A – Airport Property Map
- » Sheet 18 – Exhibit A – Property Table
- » Sheet 19 – Environmental and Utility Considerations
- » Sheet 20 – Conceptual Development Phasing Plan

7.5.1 Sheet 1 – Cover Sheet

This sheet denotes the Airport name and an index chronicling the ALP drawing sheets contained in the drawing set. The sheet also provides an airport location and vicinity map, as well as a title block organized to include approval signatures and a history of ALP revisions.

7.5.2 Sheet 2 – Airport Data Sheet

This sheet provides data tables containing detailed information about the Airport's existing and anticipated conditions. This sheet also provides critical information about the Airport's runways and safety area dimensions. Major components on this sheet include:

- » Airport Data Table
- » Wind Rose Data
- » Declared Distances
- » Runway Data Table
- » Taxiway / Taxilane Data Table
- » Survey Monuments
- » Modification to Standards Table

7.5.3 Sheet 3 – Airport Layout Plan Drawing

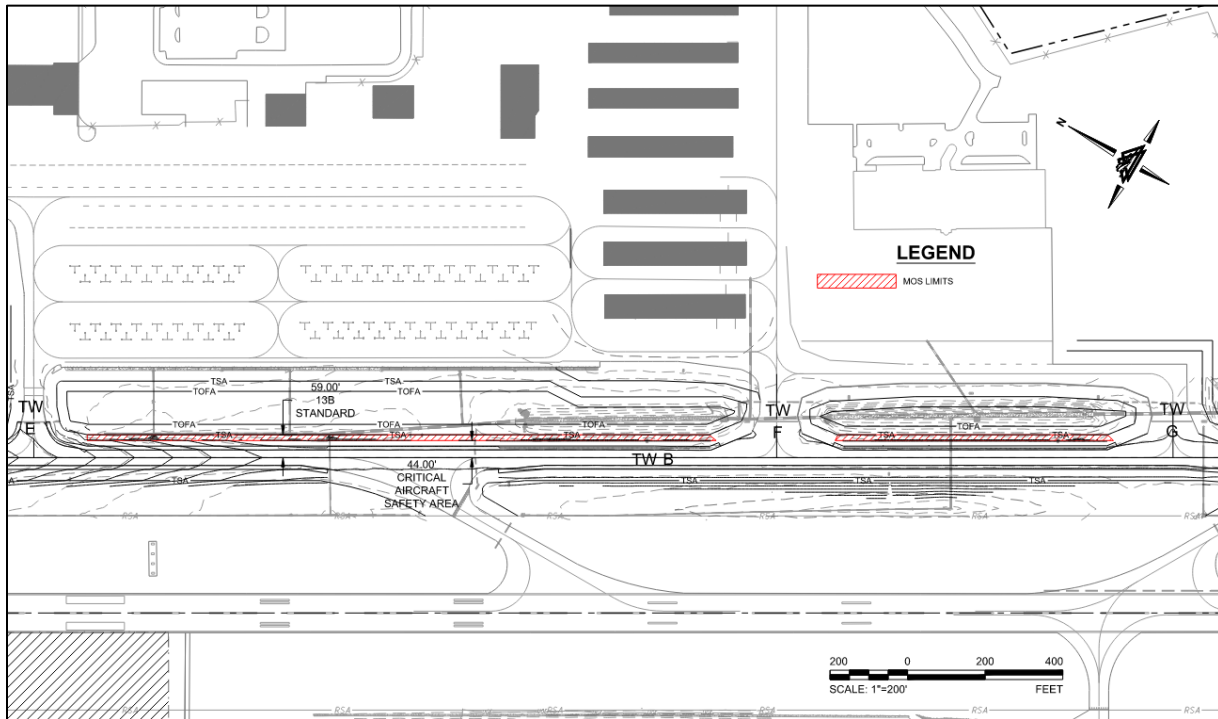
The Airport Layout Plan Drawing is a key document which serves as a graphic representation of existing and future Airport facilities. The future Airport facilities include those that are scheduled to be completed during the 20-year planning period to meet the forecast demand. Additionally, this sheet includes ultimate facility build-out, which are those outside the 20-year planning period. One of the primary purposes of this drawing is to depict those areas that future and ultimate facilities are planned to be constructed upon so the associated land can be reserved for their use.

The drawing also reflects changes to physical features on and in the vicinity of the Airport that may affect navigable airspace or the ability of the Airport to operate. Development shown on the ALP corresponds to the Airport's Capital Improvement Program (CIP) for the 20-year period. Specifically, the sheet depicts the limits of the Airport property interests and configuration of facilities in compliance with geometric design separation and clearance standards. It also includes airspace and navigational aid (NAVAID) facilities.

Additionally, the ALP provides dimensional data in line with FAA planning and design standards as specified in FAA Advisory Circular 150/5300-13B Airport Design and 150/5070-6B - Change 2, Airport Master Plans. This information assists ALP users in planning and ensuring sufficient spacing between proposed development and existing and future runways, taxiways, taxilanes, and their related airspace.

One area to note that does not meet FAA standards is the east side of Taxiway B, 2,300 feet between Taxiway E and Taxiway G. The Taxiway Safety Area (TSA) does not meet the critical aircraft's (Gulfstream G500) ADG-III taxiway design standard of 59 feet or 118 feet wingspan. The Modification to Standard is subject to review at any time if conditions originally justifying the MOS change, or if the FAA deems re-evaluation as being in the public's best interest.

FIGURE 7-1
MODIFICATION OF STANDARD LIMITS



Source: HEF Airport Records, 2023

Per the FAA ARP SOP 2.00 *Standard Procedure for FAA Review and Approval of Airport Layout Plans (ALPs)* an approval block for the FAA approval stamp is also included on the Airport Layout Plan Drawing.

7.5.4 Sheet 4 and 5 – Terminal Area Plan: East and West

The two East and West Terminal Area Plan sheets show additional detail of the existing and future areas of major general aviation operations and airfield enhancements. Key facilities shown on the Terminal Area Plans include:

- » Terminal Expansion
- » Apron configuration and aircraft parking positions
- » Future ARFF Facility
- » Future Maintenance Facility
- » Terminal Vehicle Parking Lot Expansion
- » New Air Traffic Control Tower
- » General Aviation Aircraft Hangars
- » Corporate Facilities

7.5.5 Sheet 6 through 8 – Airport Airspace Drawings

These scaled drawings identify obstacle identification surfaces. The surfaces define the limits of recommended land use control for the height of objects surrounding the Airport's 14 Code of Federal Regulations (CFR) Part 77 Imaginary Surfaces. A digital USGS map is used as the base map for the drawings in which each of the 14 CFR Part 77, Subpart C, Imaginary Surfaces (Primary, Approach, Transitional, Horizontal, and Conical) are depicted. These drawings depict the ultimate airspace configuration for the Airport.

The sheets also provide numerical data for all obstructions visually depicted in the plan view of the Airport Airspace Conical Surface drawing. Each obstruction is identified with a description, a top elevation, the surface the object is penetrating, the surfaces' elevation at the penetrating point, the amount of penetration, and a recommended disposition. Obstructions vary from vegetation to man-made objects. Some objects are defined as fixed-by-function, such as NAVAIDS, because of current siting requirements and the role they play in ensuring the safe navigation of flight. Obstructions include various types of vegetation, which can be mitigated through removal or trimming. The proposed disposition for vegetation located off airport property is listed to be trimmed but should be coordinated with the landowner to determine the proper mitigation. The proposed disposition for vegetation on airport property is listed to be trimmed or removed depending on the location or whether it is affected by future/ultimate improvements.

7.5.6 Sheet 9 through 14 – Runway Inner Approach Plan and Profile

Sheets 9 through 13 provide a plan and profile view of each of the Airport's runway approach surfaces. These sheets provide a more detailed view of the first 5,400 feet for the existing/future precision runway, Runway 16L, and the first 3,600 feet for the non-precision runways, Runway 34R and Runway 16R-34L. Obstructions are depicted in blue and identified with an object number. Additionally, the runway protection zone, navigational aids, airport boundary, natural features, roadways, and other applicable data is provided.

The obstruction analysis performed during this master plan study identified obstructions off each runway end, mainly vegetation. Due to the high density of trees around the Airport some of the obstructions are depicted by using the highest treetop within a 200-foot by 200-foot grid starting from each runway end. Runway 16L Inner Approach Surface depicts a cluster of trees due to the large volume of vegetation on this end of the airport. Vegetation obstructions on airport-property have been mitigated during the lifecycle of the Master Plan. Obstructions off airport property will require coordination with the landowner to determine the proper mitigation.

7.5.7 Sheet 15 – Land Use Plan (Existing)

The Existing Airport Land Use Plan depicts the existing land use for both on and off airport property. This drawing also depicts the City of Manassas Land Use, Prince William County Land Use, Aeronautical, Non-aeronautical, and airport operations areas (AOA) for the airport. The municipal boundaries for the airport are also depicted as the airport is located on the boundary of Prince William County and the City of Manassas. Noise contours developed from 2021 airport operations are depicted on Sheet 15.

7.5.8 Sheet 16 – Land Use Plan (Future)

The Future On-Airport Land Use Plan defines or re-establishes parcels of land within the airport property boundary to provide more specificity. The master plan process examined existing land uses and determined a strategic plan to utilize the parcels within the Airport property line most efficiently. The outcome expands the areas designated as aeronautical and non-aeronautical land use on the airport. In relation to ultimate land use, the southeast development area has been preserved for aeronautical development; however, given the anticipated demand the master plan team does not anticipate development in this area during the planning period. Sheet 16 also depicts noise contours based on 2021 airport operations. During the Master Plan study, the airport requested the development of a noise model using 2021 traffic data, and specifically including twelve daily operations of A321 aircraft and thirty-six daily operations of B737-800 aircraft. These modeled noise contours, identified as 'AC OPS' to represent Air Carrier Operations, are also displayed on Sheet 16.

7.5.9 Sheet 17 and 18 – Exhibit 'A' Airport Property Inventory Map

The Airport Property Map – Exhibit 'A', divided into separate sub sheets, depicts the airport property interests consistent with the Airport Layout Plan Drawing. This drawing documents past airport land acquisition, including fee-simple and easement tracts, and includes all those acquired, released, or sold since 2018. This sheet was developed in accordance with ARP SOP 3.00 *FAA Review of Exhibit 'A' Airport Property Inventory Maps*. Information on each of the existing parcels at HEF include:

- » Grantor (Selling Owner)
- » Type of interest acquired
- » Acreage
- » Type of conveyance instrument
- » Recording information
- » Federal Agreement (FAA Grant Number)
- » Type of Easement
- » Mineral and Mining Rights

The development of the Exhibit 'A' carried forward the previous Exhibit 'A' Airport Property Map, established in 2018. Since the previous Exhibit 'A' was developed, the FAA has updated the requirements for a compliant Exhibit 'A' to the current ARP SOP 3.00 standards. The changes in standards for a compliant Exhibit 'A' require additional information be presented for each parcel compared to prior years. This planning team used readily available sources to obtain the necessary information for this task, however, some information is still unknown.

Coordination with the local FAA ADO determined the parcels and easements that were purchased using Federal Grants. The remaining parcels are graphically depicted based on the information provided from the previous Exhibit 'A', City of Manassas or Prince William County Tax Parcel information.

7.5.10 Sheet 19 – Environmental Considerations and Utilities

The Environmental Considerations drawing depicts water resources, such as wetlands and floodplains, in the vicinity of the Airport. The wetlands include surface waters, Broad Run Creek, running through the west and southern portion of airport property and Cannon Branch to the east of the airport property. The drawing also depicts existing and proposed utilities to support development.

7.5.11 Sheet 20 – Conceptual Development Phasing Plan

The Conceptual Development Phasing plan provides a visual depiction of the proposed phasing of enhancements and additions over the course of the planning period, and demand driven development options that work to move towards the ultimate vision of the Airport. The phasing plan directly correlates with the implementation plan provided in the previous chapter. The sheet is intended to help visibly tie together the Airport's CIP to the timing and location of future projects and enhancements. Though all future development is not represented on the Airport's CIP, demand driven development, such as, hangars, are also represented over the course of the planning-period.

7.6 AIRPORT LAYOUT PLAN DRAWING SET

The Airport Layout Plan drawing set inserted as part of this report is a reduced-size version of the 24-inch by 36-inch drawings that have been reviewed and approved by the FAA, Virginia Department of Aviation, and the Airport.