Appendix B: PEA Tier 1 and 2 Projects

2026-2036 PEA Project Descriptions

The following sections provide descriptions of the 16 Tier 1 and Tier 2 PEA Projects. The project locations are shown in **Figure 1** and **Figure A5**[1]. All airfield construction projects would be coordinated with Air Traffic Control Tower (ATCT) personnel prior to construction start and appropriate Notices to Airmen (NOTAM)[2] would be issued. Airfield development would be designed in accordance with applicable FAA design standards and would be approved by the FAA prior to construction start.

Tier 1 Projects (Years 2026-2030)

Construction work on the Tier 1 Projects would begin after the FAA environmental determination is issued on the PEA and appropriate permits are issued by responsible agencies. The Tier 1 projects are expected to be constructed within five years after the FAA issues its determination.

Project #1 - Terminal Building Expansion (north, south, and west)

The existing 21,000 square foot (SF) terminal at HEF was constructed in 1996[3]. It was designed to support operations of small regional aircraft and does not meet current standards for scheduled commercial operations. It contains no baggage system, no security screening, and it lacks the necessary security separations between landside and airside functions. Further, components of the existing terminal do not meet current Americans with Disabilities Act (ADA) standards. It currently houses the Airport's offices, meeting spaces, tenant offices and restroom facilities.

Under the Franchise Agreement, Avports would modify the terminal so that it meets accepted design standards for functionality, safety and security. The proposed terminal expansion includes modification of the existing terminal and a two-phase expansion (**Figure A6**).

The initial action in the terminal area would be the demolition of Building 13, which is currently the Airport Maintenance building. The Airport Maintenance functions would be relocated to a new building constructed as part of Project #7 which is discussed later in this section.

Phase 1 of the terminal expansion would be the construction and placement of a 38,491 SF pre- engineered metal building located south of the existing terminal building, as shown in **Figure A6**. Utilities for the terminal expansion would be extended from the existing terminal and the former site of Building 13. An outdoor concessions area would be constructed on the north side of the Phase 1 terminal. The Phase 1 terminal interior would contain baggage claim, hold rooms, office space, passenger screening, and restrooms (**Figure A7**).

Phase 2 of the terminal expansion would include the following three elements: 1) construction of a

[1] Figures 1 through 5 can be found in the body of the PEA. Figures "A#" can be found in Appendix AError! Reference source not found..

[2] NOTAM is a notice containing information essential to personnel concerned with flight operations but not known far enough in advance to be publicized by other means. It states the abnormal status of a component of the National Airspace System (NAS) – not the normal status. (Federal Aviation Administration. (n.d.). Retrieved May 20, 2025, from*What is a NOTAM:* https://www.faa.gov/about/initiatives/notam/what_is_a_notam.)

[3] Manassas, VA. (n.d.). *Manassas Regional Airport*. Retrieved October 9, 2025, from About Us: https://flyhef.com/about

connector building between the existing terminal and the Phase 1 terminal; 2) an extension to the north end of the existing terminal; and 3) an extension on the south side of the Phase 1 terminal (**Figure A7**)., Phase 2 would add 36,608 SF of passenger terminal space to HEF.

At the conclusion of Phase 1 and Phase 2, the total square footage of the passenger terminal would be approximately 75,099 SF with a total of seven aircraft parking positions used for passenger ground loading positions (gates)[4].

This Project is being designed according to standards set forth by International Air Transport Association (IATA), Airport Cooperative Research Program (ACRP), and Transportation Security Administration (TSA) standards; the Design and Construction Standards Manual (City of Manassas); and the Airport Development Reference Manual.

Project #2 – West Ramp GA Tie-Down Relocation

To facilitate construction of Project #1, 43 light GA aircraft[5] parking positions (tie-downs) need to be relocated from the East Ramp to the West Ramp. This relocation requires the installation of 43 new tie-downs at the West Ramp to accommodate the relocation of light GA aircraft from the East Ramp to the West Ramp (**Figure A8**).

Since the West Ramp is already configured for light GA operations, no additional construction would be required to accommodate the aircraft relocated to the West Ramp.

Project #3 - East Ramp Strengthening, Reconfiguration, and Rehabilitation

The East Ramp would be repaved to accommodate the terminal expansion (Project #1). Seven aircraft parking positions and a service road for airport vehicles would be added. The new parking positions constructed in Project #3 would be sized to accommodate up to seven 737-800 aircraft. The 737-800 aircraft is commonly used for scheduled commercial airline operations.

The proposed work on the East Ramp would be performed in two stages during years 2026-2028. The first stage would involve demolition of 840,000 SF of existing asphalt and concrete. The second stage would commence after the expanded terminal building is complete (Project #1, Phase 2). The second stage includes the repaving and strengthening of the East Ramp and construction of aircraft parking positions adjacent to the terminal gates. From base to surface, the strengthening and paving layers would consist of 6-inches of P209 aggregate base, 6-inches of P304[6] cement treated base, and 16-inches of P501 concrete. There would be no aircraft operations on the East Ramp or on Taxiway Echo during the demolition, repaving, and strengthening work because the pavement work would be feature-wide.

At the west side of the East Ramp a bioswale[7] would be constructed to meet current stormwater requirements (**Figure A6**). The bioswale would be 1,020 feet (ft) in length and 50 ft wide. The purpose of the bioswale is to filter stormwater as it drains off the East Ramp before it discharges into the existing

[4] Ground loading involves the use of airstairs, or ground boarding ramps positioned near an aircraft to assist in boarding and deplaning passengers rather than a loading bridge that is physically connected to the terminal building.
[5] Light GA aircraft are typically aircraft with one or two engines that weigh less than 12,500 pounds (lbs). These types of aircraft are generally used for training and recreational use.
[6] PXXX is an FAA designation for specific pavement design and materials used for concrete, asphalt, base course material, etc.
[7] Bioswales are channels designed to concentrate and convey stormwater runoff while removing debris and pollution

stormwater system.

Project #4 - Terminal Parking Lot Rehabilitation and Expansion

The existing ground-level terminal parking lot is immediately east of the existing terminal building. The parking lot is a large rectangle divided into four quadrants. Currently, only the northwest quadrant is paved, and it has 119 striped parking spaces. In order to accommodate expected parking demand associated with the addition of scheduled commercial operations at the Airport, Project #4 involves:

- paving and striping the remaining three grass covered quadrants,
- creating landscaped islands that would delimit the ends of the parking areas; and
- reconfiguring the parking arrangements within the existing paved lot to accommodate the parking lot design changes.

A stormwater detention system would be constructed below ground in the Terminal Parking lot to manage stormwater flows from the added impervious surface. Upon completion of the parking lot improvements, access to the parking lot would be provided at the north terminal loop entrance, off Wakeman Drive (Dr) which would be converted from two-way to one- way, and in the existing center aisle entrance west of the Harry J Parrish Boulevard (Blvd) and Wakeman Dr intersection. Vehicles would exit at the south end of the terminal parking lot loop and also in the central aisle. At completion, the expanded parking lot would have capacity for approximately 529 parking spaces, including 11 ADA accessible parking spaces[8] for a total of 201,151 SF (**Figure A9**). This Project would be constructed in 2026.

Project #5 - Economy Parking Lot Construction

Project #5 would be constructed in a currently undeveloped area of the Airport between Wakeman Dr (west), Cannon Branch (east), Harry J. Parrish Blvd (south), and the Airport Fuel Farm (north) (**Figure A10**). The proposed parking lot would encompass approximately 221,112 SF and would accommodate 647 parking spaces (13 ADA Accessible) and a shuttle bus station. The project would include the construction of retaining walls to preserve the Resource Protection Area (RPA) that occurs on the east and south side of Project #5. A stormwater detention system would be constructed below ground in the Economy Parking lot to manage stormwater flows from the added impervious surfaces. Access to the Economy Parking Lot would be from the east side of Wakeman Dr (**Figure A10**). This Project would be constructed in 2026.

Project #6 - Bridge Rehabilitation: Runway 16L/34R and Taxiway Bravo

The bridges for Runway 16L/34R and Taxiway Bravo span Broad Run (**Figure A11**). While the existing bridges were widened in 2014-2015 to meet FAA design standards[9] they were not designed with sufficient strength to accommodate routine operations by 737-800 aircraft which are expected to operate in

[8] ADA requires two percent accessible spaces for parking facilities with 501-1000 spaces. One in six accessible spaces must be van-accessible; both the terminal lot and the economy lot have four van-accessible spaces.

[9] The Runway and Taxiway Bridges were widened to accommodate FAA design standards for Runway Safety Areas (RSA) and Taxiway Safety Areas (TSA). The RSA and TSA provide a clear area in the event an aircraft veers off the runway or taxiway. RSA and TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, must be drained by grading or storm sewers to prevent water accumulation, must be capable under dry conditions of supporting snow removal and aircraft rescue and firefighting equipment and of supporting the occasional passage of aircraft without causing major damage to the aircraft, no objects may be located in any safety area, except for objects that need to be located in a safety area because of their function. These objects must be constructed, to the extent practical, on frangible mounted structures of the lowest practical height, with the frangible point no higher than 3 inches above grade

connection with commercial service. Specifically, the existing bridges would be strengthened by constructing a Mechanically Stabilized Earth (MSE) wall beneath the runway and taxiway bridges (**Figure A12**). See **Appendix C** for a detailed description of construction methods and the August 22, 2025 memo from Walter P Moore titled: "*H*EF Manassas Airport Bridge Assessments Structural Evaluation Results for the Bridge Rehabilitation Project and associated coordination with federal and state agencies.

In order to complete the proposed stream bank and under bridge work, the stream waters from Broad Run would be maintained at the seasonal low flow level. A bypass channel would be used to divert waters from Broad Run during construction. See **Appendix C** for details on construction methods within Broad Run and the December 12, 2025, memo from Walter P. Moore titled "Memorandum – Preliminary Concept for Maintaining Broad Run Minimum Water Flow During Construction at HEF Manassas Airport". This memo describes the temporary measures used to facilitate construction and maintain low flow through Broad Run to preserve mussel species downstream of the Bridges (**Figure A11**). This Project would be constructed between 2026 and 2027.

Project #7 - Construction of a New Snow Removal Equipment (SRE) Building

Project #7 is the construction of a new, larger, multi-use SRE that would provide adequate equipment maintenance and storage space to accommodate two pieces of multifunction snow removal equipment that are planned to be procured by the Airport, in addition to the two existing snow removal vehicles. In addition to supporting SRE storage and maintenance, the SRE building would also serve as a new Maintenance Equipment and Storage facility to replace Building 13, which would be demolished as part of Project #1. The existing building is a mixed use vehicle maintenance building and is not designed for SRE equipment. The new building would be located in the northeast corner of the Airport on undeveloped land adjacent to Wakeman Dr (**Figure 1, Figure A5**).

The new SRE building would be 150 ft long by 80 ft wide by 30 ft high. The building is specifically designed for SRE equipment. Utilities connections include electrical, communications, natural gas, water and sewer service. The building footings would be 24 inches in depth. The pavement around the building would consist of a 2-inch Virginia Department of Transportation (VDOT) Type Stone Matrix Asphalt (SMA) Surface Course (SM12.5a or SM9.5A) over a 6-inch VDOT Cement Treated Base Course (eight percent cement content by weight)[10]. Overall, apron grades and adjacent surface gradients would be constructed in accordance with FAA design standards. This Project would be constructed between 2027 and 2028.

Project #8 - Taxiway Bravo Widening

Taxiway Bravo is a parallel taxiway, providing aircraft access for the full length of the primary runway (Runway 16L/34R) from the East Apron areas (**Figure 1, Figure A5**). The taxiway has two high-speed exits along with connecting taxiways at both ends of the runway.

Project #8 widens the existing taxiway by 10 ft on each side. The taxiway width would increase from 30 ft to 50 ft to meet FAA design standards for 737-800 (Group III) aircraft[11]. Construction associated with

[10] All About Pavements, Inc**.** 2020 Pavement Management Program Update for Manassas Regional Airport (HEF). *Virginia Department of Aviation.* May 2022. Report prepared for Virginia Department of Aviation, Richmond, VA, with support from AIP Grant Number 3-51-0000-012, 2019.
[11] FAA Advisory Circular 150/5300-13B Airport Design:

this project would be performed in coordination with the ATCT and airport tenants and appropriate NOTAMs would be issued.

The Project #8 expansion area would be paved in three layers. From surface to base these layers would consist of 4-inches of P401 asphalt surface course, 6-inches of P403 cement treated base, and 12- inches of P220 cement treated soil base. Overall, apron grades and adjacent surface gradients would be designed and constructed in accordance with FAA design standards. This Project would be constructed between 2027 and 2028.

Project #9 - Runway 16L/34R Reconstruction and Strengthening

Runway 16L/34R dimensions are 6,200 ft in length by 100 ft in width. The runway pavement has reached the end of its useful life as the last rehabilitation was performed over 20 years ago[12]. This project would reconstruct and strengthen the full length of the runway (approximately 952,000 SF) (**Figure 1, Figure A5**) to accommodate operations by 737-800 aircraft[13]. The existing blast pads on either end of the runway are not being repaved as part of this project. Construction of this Project would be done in stages between 2027 and 2029 to avoid prolonged closures of the runway and impacts to scheduled commercial airline operations.

The existing Runway has variable 3-to-8 inches of P401 asphalt surface course over 5-to-6 inches of stabilized base course (cement or asphalt treated base course) over subgrade. This Project would add three inches to the existing pavement. For analysis purposes, it is assumed the new pavement would consist of P401 asphalt.

Project #9 would also include infrastructure improvements, such as an underground stormwater detention system, electrical, grading, and the installation of new storm drains along the runway. The runway lighting system would be upgraded to light-emitting diode (LED) lights and airfield signs would be replaced with LED fixtures. This Project would be constructed between 2027 and 2029.

Project #10 - Taxiway Echo Fillet Widening

Taxiway Echo would be widened to meet Group III design standards for 737-800 aircraft[14]. The widening of Taxiway Echo would entail adjusting the fillets to meet these applicable design standards and widening the taxiway from 40 ft to 50 ft (**Figure 1, Figure A5**). It is assumed that approximately 2,400 SF of new pavement would be added to the existing taxiway. This would also include the relocation of existing taxiway lights and signs at the intersection of Taxiway Echo and Taxiway Bravo.

The new pavement would consist of three layers: 4-inch P401 asphalt surface course, 6-inch P304 cement-

https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC-150-5300-13B-Airport-Design-Chg1-w-errata.pdf
[12] All About Pavements, Inc**.** 2020 Pavement Management Program Update for Manassas Regional Airport (HEF). *Virginia Department of Aviation.* May 2022. Report prepared for Virginia Department of Aviation, Richmond, VA, with support from AIP Grant Number 3-51-0000-012, 2019.
[13] Manassas Regional Airport Master Plan Update, Section 5.4.2 Near-term Development Projects: https://flyhef.com/application/files/7517/6002/8994/Master_Plan_2025_Condensed.pdf
[14] FAA Advisory Circular 150/5300-13B Airport Design: https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC-150-5300-13B-Airport-Design-Chg1-w-errata.pdf

treated base course, and a 6-inch P209 crushed aggregate base course. Existing pavement grades would remain the same as under current conditions to promote proper drainage. This Project would be constructed between 2027 and 2029.

Project #11 – Taxiway Bravo Reconstruction and Strengthening (south of the bridge)

The Taxiway Bravo pavement has reached the end of its useful life[15]. The pavement would need to be strengthened to support the proposed scheduled commercial operations at HEF. The taxiway pavement north of the bridge over Broad Run was rehabilitated in the Summer of 2024 and would not need to be strengthened as part of this project.

The taxiway strengthening would encompass both the concrete bridge section that traverses Broad Run and the taxiway south of the bridge section (**Figure 1, Figure A5**). It is assumed that the rehabilitation and strengthening would entail replacement of the taxiway pavement with three new layers. From surface to base these would consist of 4-inches of P401 asphalt surface course, 6-inches of P403 cement treated base, and 12-inches of P220 cement treated soil base. Overall, adjacent surface gradients would be in accordance with FAA design standards[16]. In addition, the existing runway lights and signs with modern LED fixtures and replace the pavement markings. This Project would be constructed between 2029 and 2030.

[15] Manassas Regional Airport Master Plan Update, Section 5.4.2 Near-term Development Projects: https://flyhef.com/application/files/7517/6002/8994/Master_Plan_2025_Condensed.pdf
[16] FAA Advisory Circular 150/5300-13B Airport Design: https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC-150-5300-13B-Airport-Design-Chg1-w-errata.pdf

Tier 2 Projects (Years 2032-2036)

Tier 2 projects would begin construction in 2032. For Tier 2 pavement replacement projects, it is assumed that all existing asphalt and concrete would be removed, and the new pavement, except where noted, would consist of no less than 18 inches of layered material.

Project #12 - Construction of a new East Ramp Taxiway

To support aircraft flow and avoid congestion on the East Ramp, this new taxiway entrance is needed to give pilots and air traffic controllers options for aircraft entering and exiting the East Ramp[17]. This project would be designed for 737-800 (Group III) aircraft. It is located south of the existing Taxiway Echo and perpendicular to the existing Taxiway Bravo (**Figure 1, Figure A5**).

The new taxiway ramp would measure 265 ft long by 125 ft wide (33,125 SF). The area would be paved in three layers: 4-inch P401 asphalt surface course, 6-inch P304 cement-treated base course, and a 6- inch P209 crushed aggregate base course. The pavement grades would be set to promote proper storm drainage. New lighting, signage and marking would be installed in accordance with FAA design standards[18]. This Project would be constructed between 2032 and 2034.

Project #13 - Runway 16L/34R Widening

The width for Runway 16L/34R would be increased from 100 ft to 150 ft to accommodate 737-800 aircraft (**Figure 1, Figure A5**)[19]. The 25-ft wide pavement strips added to each side of the existing runway would be tapered to match the elevation of the runway bridge10. The runway pavement strips would be paved in three layers. From surface to base these would consist of 6-inches of P401 asphalt, 6-inches of P403 cement treated base, and 6-inches of P209 aggregate base. This Project would be constructed in 2033.

Project #14 - Construction of an Aircraft Deicing Pad and Apron Expansion between Taxiways Delta and Echo

The aircraft deicing pad would be sized to accommodate one 737-800 aircraft at a time (**Figure 1, Figure A5**). The pad would be designed in accordance applicable sections of FAA AC 150/5300-14D – Design of Aircraft Deicing Facilities.

The deicing pad and apron expansion area would measure 430 ft long by 330 ft wide (141,900 SF). The apron grades and adjacent surface gradients would be designed in accordance with FAA design standards[20] and the pavement grades would be set to promote storm drainage. The

[17] Manassas Regional Airport Master Plan Update, Section 5.4.3 Mid-term Development Projects: https://flyhef.com/application/files/7517/6002/8994/Master_Plan_2025_Condensed.pdf
[18] FAA Advisory Circular 150/5300-13B Airport Design: https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC-150-5300-13B-Airport-Design-Chg1-w-errata.pdf
[19] Manassas Regional Airport Master Plan Update, Section 5.4.3 Mid-term Development Projects: https://flyhef.com/application/files/7517/6002/8994/Master_Plan_2025_Condensed.pdf
[20] FAA Advisory Circular 150/5300-13B Airport Design: https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC-150-5300-13B-Airport-Design-Chg1-w-errata.pdf

pavement layers would be a 4-inch P401 asphalt surface course, 6-inch P304 cement-treated base course, and a 6-inch P209 crushed aggregate base course.

The deicing fluid would be captured from the sloped inward surface of the pad, flow into proposed trench drains at the base of the pad, and discharged into a new 1,500 to 2,000 gallon holding tank. The fluid would then be removed for recycling. This Project would be constructed between 2033 and 2034.

Project #15 - Construction of new Expanded East Ramp and Taxilane between Taxiways Delta and Echo

This project is the construction of a new taxilane providing access between Taxiway Delta and Taxiway Echo which are in the north part of the East Ramp (**Figure 1, Figure A5**). As with the proposed new East Ramp Taxiway (Project #12), the new taxilane is needed to facilitate the movement of 737-800 aircraft in the East Ramp area[21]. By creating the new taxilane, aircraft would be able to pass north and south on existing Taxiway Zulu without interfering with the aircraft parked on the Fixed Base Operator (FBO) ramp.

The new taxilane would encompass an area of 110,000 SF. The new pavement would consist of a 4- inch P401 asphalt surface course, 10-inch P304 cement treated base course over compacted subgrade in accordance with FAA pavement specifications. This Project would be constructed between 2033 and 2036.

Project #16 - Construction of a new ARFF Facility

The Airport currently maintains two ARFF trucks and a fire attack vehicle that are housed in Building 10529 (T-Hangar C-3), a 50 ft by 60 ft hangar located south of the existing terminal. This is a temporary facility that has been outfitted into an ARFF station. This facility does not meet the Part 139 requirements for an ARFF station in support of scheduled commercial airline operations.

To support the introduction of scheduled commercial airline operations, the FAA has identified the need for the Airport to construct a new, FAA compliant, stand-alone ARFF facility.

The proposed concept includes a new 4-bay ARFF facility on the north side of Taxiway Charlie (**Figure 1, Figure A5**). The building dimensions are proposed to be 100 ft long by 60 ft wide by 30 ft high. Depth of the building footings is 24 inches. Utilities connections include electrical, communications, natural gas, water and sewer service. As with the pavement around the SRE building, the ARFF facility pavement would have a 2-inch VDOT Type SMA asphalt surface course (SM12.5A or SM9.5A) top course overlying a 6-inch VDOT cement treated base course (eight percent cement content by weight). This Project would be constructed between 2035 and 2036.

[21] Manassas Regional Airport Master Plan Update, Section 5.4.3 Mid-term Development Projects: https://flyhef.com/application/files/7517/6002/8994/Master_Plan_2025_Condensed.pdf