FINAL
ENVIRONMENTAL ASSESSMENT

West Corporate Development and East Parcel Development

Manassas Regional Airport

Prepared for

City of Manassas

And

U.S. Department of Transportation
Federal Aviation Administration

As lead Federal Agency pursuant to the National Environmental Policy Act of 1969

Prepared by:

RS&H, Inc.

This Environmental Assessment becomes a Federal document when evaluated, signed and dated by the Responsible Federal Official.

Responsible Federal Official

3/30/18
Date

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Location

Manassas Regional Airport (HEF)
Manassas, Virginia

Proposed Federal Action

The proposed federal action consists of approval for the Airport's proposed redevelopment of the west side corporate area and development of a parcel on the east side of the Airport. The Federal Aviation Administration (FAA) must comply with the National Environmental Policy Act of 1969 (NEPA) prior to processing applications for federal assistance in funding various airport development projects and approval of the Airport Layout Plan (ALP) that depicts the proposed development projects. Issuing a FONSI does not constitute a commitment by the FAA to provide federal financial assistance for these development actions.

Project Description

HEF's proposed development program includes the following projects, which constitute the Proposed Action:

West Corporate Area

- *On-Airport roadway improvements* – Improvements to the intersection of Observation Road and Piper Lane, located on the northwest side of the Airport and realignment of Observation Road to the west. The roadway improvements would equate to about 4,000 linear feet.
- *Fixed Base Operator (FBO) building and parking lot reconstruction* – Demolition of two existing FBO buildings and associated structures and replace with a 71,100 square foot consolidated FBO building to the west of the current FBO buildings. A new parking lot would extend around the west and north sides of the proposed new FBO building to provide parking for FBO employees and users. The existing apron would be expanded to the northwest to provide FBO access to the airfield.
- *Corporate hangar/building and parking lot construction* - Eleven new corporate hangars/buildings would be constructed on the west side. All of the hangars would be about 3,600 square feet in size. The corporate hangar/buildings could also serve as office space. All corporate hangars/buildings would have access to the airfield. Parking lots would also be constructed in the areas near the corporate hangars/buildings to provide parking for employees and users.
- *T-hangars demolition/replacement and construction and T-hangar parking lot* - Five T-hangars would be demolished, equating to about 130,000 square feet, and replaced with new T-hangars of similar size. In addition, six new T-hangars would be constructed in the same area. The new T-hangars would increase the building footprints by a total of about 61,000 square feet. The apron area would be expanded to provide airfield access from these T-hangars.
- *Aircraft apron and taxilane tie down parking expansion* - The west apron area would be extended by about 25 acres. The apron expansion would provide airfield access for the

proposed T-hangars, corporate hangars, and relocated FBO. The apron expansion would also provide increased areas for designated tie-downs and taxilane extensions.

- *Maintenance and storage building construction* – An approximate 1,180 square foot maintenance and storage building would be constructed in the current location of one of the two FBO buildings, which will be demolished, on the northwest side of the Airport. The Airport maintenance equipment currently housed on the east side of the Airport would be relocated to the proposed new maintenance and storage facility.
- *Wash rack construction* – An approximate 1,180 square foot wash rack would be constructed north of the T-hangars for use by all Airport tenants.
- *Utilities extension and stormwater drainage improvements* - Utilities, including electricity, water, sewer, and communication services, would be extended to the proposed new development from nearby electrical lines and water/sewer mains. Stormwater drainage improvements would occur west of the proposed relocated FBO facility and would accommodate the increase in impervious surface from the proposed development.
- *Security fence extension* - The Airport's security fence would be extended to encompass the extended improvements. Access gates would be added in various locations to provide access to the airfield by authorized Airport tenants and personnel.

East Parcel Area

- *On-Airport roadway improvements* – Realignment of Wakeman Drive to the northeast. The roadway improvement would equate to about 3,000 linear feet.
- *Corporate hangar/building and parking lot construction* - New corporate hangars/buildings would be constructed on the east side of varying sizes, equating to about 120,000 square feet. The corporate hangar/buildings could also serve as office space. All corporate hangars/buildings would have access to the airfield. Parking lots would also be constructed in the areas near the corporate hangars/buildings to provide parking for employees and users.
- *Taxilane extension* - The taxilane would be extended by about 135,000 square feet to provide airfield access to the proposed development.
- *Utilities extension and stormwater drainage improvements* - Utilities, including electricity, water, sewer, and communication services, would be extended to the proposed new development from nearby electrical lines and water/sewer mains. Stormwater drainage improvements would occur to accommodate the increase in impervious surface from the proposed projects.
- *Security fence extension* - The Airport's security fence would be extended to encompass the extended improvements. Access gates would be added in various locations to provide access to the airfield by authorized Airport tenants and personnel.

Purpose and Need

The purpose of the Proposed Action is to develop and maintain safe and modern facilities and to improve the Airport's ability to be financially self-sustaining. The current west side infrastructure is aging and existing hangars and pavements have exceeded their useful life and are in need of renovation or upgrade. In addition, portions of the west side of the Airport are underutilized. The City of Manassas seeks to maximize the redevelopment potential on the west side of the Airport and to initiate new development with access to the airfield on the east side of the Airport. The Airport's goal is to renovate or upgrade the facilities located west of Runway 16R-34L and to facilitate new development on the east side of the Airport.

Alternatives

In addition to the No Action Alternative, the following alternatives were considered for the Proposed Action:

No Action Alternative - Under the No Action Alternative, the City would not redevelop the west corporate area or develop the east parcel. Observation Road would remain in its current alignment. In addition, there would be no need to seek the FAA's unconditional approval of the ALP. The City would continue to operate the Airport and serve existing and forecast aviation activity. The No Action alternative would not satisfy the Purpose and Need because it would not allow the City to update and enhance the safety and efficiency of Airport facilities, nor would it allow the City to undertake activities to ensure the Airport remains a profitable enterprise with a positive economic impact.

Preferred Alternative – The preferred alternative includes developable areas on the west and east sides of the Airport that collectively encompass about 80 acres. The City proposes to redevelop the west side corporate area and develop a parcel on the east side of the Airport as described in the project description. In order to minimize encroachment into the 100-year floodplain and avoid the existing regulated floodway, the proposed west side development does not fully extend to the Airport's western property boundary and does not include an otherwise developable 30-acre parcel south of the east parcel area. Implementation of the preferred alternative would relocate Observation Road outside of the existing regulatory floodway and provide uninterrupted vehicular access to the west corporate development area when Broad Run overflows its banks and floods the intersection of Observation Road and Piper Lane. Avoiding a flooded intersection would provide emergency vehicles an uninterrupted roadway needed to access the west corporate development area. The preferred alternative would unavoidably affect about 20 acres of the 100-year floodplain and 2.7 acres of the regulatory floodway. Given the location of the Airport between Broad Run and Cannon Branch, the FAA safety area, and Airport property available for development, floodplain impacts are not completely unavoidable.

Alternative A – As a result of a developable on-Airport land analysis, there is an alternative on-Airport area that is currently undeveloped, outside of the Code of Federal Regulations (CFR) Title 14 Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace* transitional surface and Runway Protection Zones (RPZs), and has existing access to local roads. This alternative would provide about 100 acres of on-Airport property for new aviation hangars, apron, and taxilanes. This area is located on the east side of the airfield, southeast of the existing T-hangars, and northwest of Broad Run. Under Alternative A, Wakeman Drive would be extended approximately 1,100 feet to the southeast to provide vehicular access to this alternative's proposed new aviation development. Alternative A would provide more area for development than the preferred alternative; however, it would not be consistent with the screening criterion of minimizing floodplain encroachment to the maximum extent practicable. Alternative A would affect about 20 acres of the 100-year floodplain (similar to the preferred alternative) and about five acres of the regulatory floodway (about two acres more than the preferred alternative). As a result, Alternative A was not carried forward for further analysis.

Alternative B – There is an additional on-Airport area that is undeveloped and outside of the Part 77 transitional surface and RPZs. Alternative B would provide about 110 acres of on-Airport property for new aviation hangars, apron, and taxilanes. Alternative B is located on the east side of the Airport

airfield and extends from the existing T-hangars to the southern end of the Airport property. Under Alternative B, Wakeman Drive would be extended about 4,000 feet to the southeast to provide vehicular access to the area. Alternative B would also provide more area for development than the preferred alternative; however, it would not minimize floodplain encroachment to the maximum extent practicable. Alternative B would affect about 100 acres of the 100-year floodplain, about 80 more acres than the preferred alternative and Alternative A. In addition, Alternative B would affect about 20 acres of the regulatory floodway, about 17 more acres than the preferred alternative and 15 more acres than Alternative A. As a result, Alternative B was not carried forward for further analysis.

Discussion

The attached Environmental Assessment (EA) addresses the effect of the Proposed Action on the quality of the human and natural environment and is made a part of this Finding. The following impact analysis highlights the more thorough analysis presented in the document.

Air Quality

According to the Environmental Protection Agency (EPA), the project study area is in a maintenance area for the particulate matter (PM2.5) standard. The area is a marginal nonattainment area for the 2008 ozone (O3) standard. The project study area is also within an emission control area for oxides of nitrogen (NOx) and volatile organic compounds (VOCs). The Airport is in attainment for all other National Ambient Air Quality Standards (NAAQS).

Temporary construction emissions were modeled for the Proposed Action deriving tons per year of expected emissions. Based upon the generated emissions inventory for total project construction emissions, the Proposed Action is below the applicable de minimis thresholds for all NAAQS. There is the potential for generators to be used during construction. The City would ensure that the installation of all generator(s) complies with 9VAC 5-80, Article 6, Permits for New and Modified Sources. The Proposed Action would increase surface traffic due to increased employment at the Airport; estimated to be at about 30 employees. It is likely that these future employees would already reside in the region and would already be commuting to employment elsewhere in the region. Given the comparatively small change in the regional employment and the likelihood that future employees would already reside in the region, the Proposed Action would not materially change vehicle emissions in the area. In addition, the Proposed Action would not change aviation operations at the Airport; therefore, the operation of the Proposed Action would not significantly affect air quality.

Biological Resources

The Official Species List generated by the U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation (IPaC) system, identified three federally listed species within the project area, the Dwarf wedgemussel (*Alasmidonta heterodon*) (endangered), Harperella (*Ptilimnium nodosum*) (endangered), and Northern long-eared bat (NLEB) (*Myotis septentrionalis*) (threatened). None of these species were observed during the field survey and no critical habitat was identified in the IPaC report. Based on the field survey and assessment, no suitable habitat for the Dwarf wedgemussel or Harperella exist in the area of ground disturbing activities. The Proposed Action will therefore have No Effect on these species. There is suitable habitat for the NLEB, but the area of ground disturbing activities is not near a mapped or known hibernacula. Relying on the findings of the 1/5/2016 Programmatic Biological Opinion for Final 4(d) Rule on the NLEB and Activities Exempted from

Take Prohibitions to fulfill our project specific Section 7 responsibilities, a determination of Not Likely to Adversely Affect was made for this species.

The Virginia Department of Conservation and Recreation (VDCR) indicated that nine Commonwealth listed species may occur within two miles of the area of ground disturbing activities. The Broad Run Stream Conservation Unit (SCU), located adjacent to the study area, has a biodiversity ranking of B3, which represents a site of high importance. The Brook floater and Yellow lance are listed as natural heritage resources of concern in the SCU. Broad Run is also designated by the Virginia Department of Game and Inland Fisheries (VDGIF) as a "Threatened and Endangered Species Water" for the Brook floater. VDCR recommended implementation of, and strict adherence to, applicable state and local erosion and sediment control/storm water management laws and regulations and further coordination with the VDGIF for the Brook floater. Because no instream work is proposed as part of this Proposed Action, VDGIF does not anticipate adverse effects to the Brook floater.

Migratory birds were not observed in the area of ground disturbing activity. In addition, there are no known bald eagle nests near the area of ground disturbing activity. Wildlife biologists will conduct pre-construction surveys to determine the presence of active avian species nests in the area of ground disturbing activities. The construction contractor would avoid direct impacts to birds or active nests during construction and avoid impacts on any species the Migratory Bird Treaty Act (MBTA) protects. This could be accomplished through the implementation of time of year restrictions. The City would coordinate with USFWS and VDGIF to determine the appropriate avoidance measures, if necessary; therefore, avian species would not be affected by construction of the Proposed Action.

Coastal Resources

The Proposed Action was coordinated with the Virginia Department of Environmental Quality (VDEQ) through submittal of a Federal Consistency Certification. The VDEQ concurred that the proposed Action is consistent with the enforceable policies of the Virginia Coastal Zone Management Program provided that all applicable permits and approvals are obtained prior to the implementation of the Proposed Action.

The western portion of the project study area, which is in the City of Manassas limits, is not within the Virginia Coastal Zone Program (VCP) boundary. The eastern portion of the project study area is within Prince William County and within the VCP boundary. Given the eastern portion of project study area's location in the VCP, the eastern portion of the project study area is subject to the requirements of the Chesapeake Bay Preservation Act (CBPA). In addition, Broad Run, which intersects the western portion of the project study area, is within Prince William County and subject to the CBPA. The CBPA is an enforceable program of the VCP and establishes resource protection areas (RPAs) around land at or near the shoreline that plays a critical role in the water quality value. RPAs have a 100-foot vegetation buffer along streams or rivers to help protect water quality. An onsite delineation of the Cannon Branch RPA within the eastern portion of the project study area was reviewed and approved by Prince William County with a determination that the Proposed Action will not affect the RPA. The proposed east parcel development would avoid the 100-year floodplain and delineated wetlands. Road improvements (e.g., realignment of Wakeman Drive in the east parcel) are considered exempt from the provisions of the Chesapeake Bay Preservation Act provided the road improvements are constructed in accordance with local and state water quality protection criteria.

Department of Transportation Act, Section 4(f)

The boundary of Manassas Station Operations Battlefield (VDHR #076-5036), a National Register of Historic Places (NRHP) eligible resource, is located on airport property partially within the project area where ground disturbing activities are anticipated to occur. Archaeological site 44PW0729, a potentially eligible resource, is located immediately adjacent to proposed ground disturbing activities. The FAA made a *de minimis* determination for historic properties based on the lack of archaeological evidence for the Manassas Station Operations Battlefield within the project area, the lack of visual impacts on additional historic properties located within the viewshed of the proposed undertaking, and implementation of mitigation measures to protect site 44PW0729. Coordination with the Virginia Department of Historic Resources (VDHR) determined that the proposed undertaking will have no adverse effect on historic properties and no adverse effect on site 44PW0729 provided the City protect this site from construction-related activities by placing temporary fencing along a 20-foot buffer surrounding the site.

Hazardous Materials, Solid Waste, and Pollution Prevention

One hazardous waste site was identified by the U.S. Environmental Protection Agency in the project study area under the Resource Conservation and Recovery Act (RCRA), Dulles Aviation, Inc. Dulles Aviation, Inc. is the fixed base operator at the Airport and is a conditionally exempt small quantity generator. An Environmental Phase I report was generated for the Proposed Action. This report did not identify any sites in the project area other than Dulles Aviation, Inc. VDEQ's Division of Land Protection and Revitalization (DLPR) conducted a search of its solid and hazardous waste databases (2,000-foot radius), including petroleum release sites, in the project area vicinity to identify waste sites in close proximity to the area. The DLPR identified three additional RCRA sites near the Airport and several petroleum releases, which are listed as closed. A physical inspection of the survey area was conducted in late 2016. No hazardous waste, toxic materials, or potential origins of hazardous waste production were observed in the survey area.

If hazardous materials are encountered at any time during the construction phase, all work would cease and actions per Virginia Solid Waste Management Regulations (9VAC 20-81-620), Virginia Hazardous Waste Management Regulations (9VAC 20-60), Virginia regulations governing the transportation of hazardous materials (9VAC 20-110 *et seq.*) and EO 13514 (*Federal Leadership in Environmental, Energy, and Economic Performance*) Section 2(e) would be followed. Previously identified hazardous waste sites would not be affected by the Proposed Action. All structures being demolished/renovated/removed would be checked, and cleared of asbestos-containing materials and lead-based paint prior to demolition/renovation/removal. The selected construction contractor would follow federal, state, and local regulations regarding these types of materials, should any be found.

Construction of the Proposed Action would temporarily increase on-site hazardous material storage. This would be primarily in the form of diesel fuel necessary for the operation of construction equipment. The installation and use of an aboveground storage tank greater than 660 gallons for temporary fuel storage greater than120 days during the project must follow the requirements in 9VAC 25- 91-10 *et* seq. Construction of the Proposed Action would also cause a short-term temporary increase in the quantity of solid waste generated at the Airport. The selected construction contractor would be responsible for disposing of any waste in accordance with all federal, state, and local rules and regulations. Vegetative debris would be managed in accordance with the Virginia Department of

Forestry *Best Management Practices for Water Quality* and EO 12088 *Federal Compliance with Pollution Control Standards.*

Historical, Architectural, Archeological and Cultural Resources

The boundary for the potentially eligible Manassas Station Operations Battlefield, which is associated with the Manassas Battlefield Historic District, is partially located within the project area where ground disturbing activities would occur. The closest documented NRHP listed property is located approximately one-half mile from the project. Coordination with the VDHR resulted in a finding of no adverse effect for the proposed undertaking associated with the battlefield as well as the overall viewshed.

A Phase I subsurface archaeological survey was conducted for portions of the western study area where prior ground disturbance was not previously documented. Subsurface testing was followed by a metal detector survey of undisturbed areas in the eastern and western portions of the study area. The surveys did not encounter archaeological resources. Based on the survey results, as well as the proposed mitigation for site 44PW0729, the VDHR determined that there will be no adverse effects to archaeological resources associated with the proposed undertaking.

Natural Resources and Energy Supply

Construction of the Proposed Action would temporarily increase the amount of natural resources used at the Airport. This could include prefabricated building components, aggregate, sub-base materials, and oils associated with construction. Construction would also increase the energy demand at the Airport; however, this increase would be temporary and minor, and within the supply capabilities of the City of Manassas. Operation of the Proposed Action would increase the use of natural resources at the Airport in the form of water consumption, aviation fuel, and energy. The increase in the use of natural resources would not be significant and would not place a strain on the availability of resources for the surrounding area. The natural resources required by the Proposed Action are not rare or in short supply.

Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

An analysis of the Proposed Actions assumes that there would be about 75 construction workers based on the extent of the Proposed Action and about 30 new employees at the Airport for operation of the Proposed Action. The construction of the Proposed Action could cause the short-term employment of construction workers. Because construction associated with the Proposed Action would be temporary (estimated five (5) years), this would not cause a shift in population growth or change population growth patterns. Increased employment is assumed to draw employees from the surrounding area and would not require relocation from other areas. If relocations were to occur, the resulting shift would only account for a maximum of one percent population increase.

The Proposed Action does not include the permanent closure of any roads. The intersection of Observation Road and Piper Lane would be modified to prevent flooding during precipitation events. Wakeman Drive would ultimately be realigned to allow for the development of the east parcel. These roadway realignments would not affect traffic patterns, and would ultimately improve access to the west side of the Airport during precipitation events, as well as continue to allow access to the east side of the Airport. Increases in surface traffic are assumed to be 60 vehicles or 120 trips per day during construction. Construction-related traffic is anticipated to occur before or after peak traffic times, and

would not significantly affect the level of service of roadways around the Airport. The City would phase construction in a way that allows Airport employees, tenants, and other users to have uninterrupted access to the Airport during construction-related activities. It is also anticipated that the potential increase in tenant employees at the Airport would also increase the number of people traveling to the Airport; however, given the nature of operations at the Airport, it is unlikely that all tenant employees would travel to the Airport everyday (tenant employees would only travel to the Airport when needed for general aviation flights). In addition, the potential increase in employees (city and tenant) would not be significant.

Construction and operation of the Proposed Action would occur entirely on Airport property and would not require the relocation of residents or businesses. Construction and operation of the Proposed Action would also not affect surrounding communities.

Water Resources

Wetlands

A field delineation of the survey area identified 4.84 acres of wetlands and 114 linear feet of other surface waters. The U. S. Army Corps of Engineers (USACE) provided a Preliminary Jurisdictional Determination confirming the field delineation. Of the identified wetlands, the proposed West Corporate Development could potentially affect 0.02-acre of palustrine emergent wetlands and 1.60-acres of palustrine forested wetlands on the west side of the Airport. The impact to 1.60 acres of palustrine forested wetlands would be to meet floodplain mitigation requirements. The development of the east parcel would not affect wetlands. A total mitigation requirement of 3.22 credits is anticipated for the wetland impacts. Currently, there are over 20 banks that provide mitigation credits within the service area associated with the Proposed Action with over 70 credits available across the service area; therefore, it is anticipated that the Proposed Action will be able to offset the wetland impacts through purchasing wetland credits.

The City would coordinate with the USACE, VDEQ, and Virginia Marine Resources Commission (VMRC) to determine the appropriate permit(s) and mitigation measures. During the preliminary design of the Proposed Action, a Joint Permit is likely to be required for potential wetland effects. Based on the potential effects, it is likely that an Individual Permit from the USACE would be required as well as a Virginia Water Protection General Permit 4 from the VDEQ.

Floodplains

Approximately 58 acres of floodway and about 41 acres of 100-year floodplain are located within the project area. About 2.7 acres of the proposed West Corporate Development are within the designated floodway and 19.9 acres are within the 100-year floodplain. The proposed east parcel development would not affect the designated floodway or 100-year floodplain. To comply with minimum floodplain standards required by the National Flood Insurance Program (NFIP) for new buildings in a Zone AE floodplain, new structures must be elevated to or above the base flood elevation (BFE). This could require placing fill in the floodplain. Additionally, the portion of the existing Airport access road within the designated floodway would be raised above the BFE to provide improved accessibility during flood events. A floodplain analysis was conducted using Hydrologic Engineering Center's River Analysis System (HEC-RAS). This analysis concluded that the Proposed Action would not result in an increase in the 100-year flood elevation and would result in a change in flood boundaries on airport property only.

Floodplain impacts are unavoidable given the location of the Airport between Broad Run and Cannon Branch, the FAA safety area, and Airport property available for development. Efforts to minimize impacts on the floodway and 100-year floodplain were made during the design and grading of the proposed West Corporate Development. Observation Road was realigned to avoid the floodway to the maximum extent practicable at the intersection with Piper Lane. Roadway elevations were set at approximately the base flood elevation (BFE) as a safety measure to allow access to and from the Airport during a major storm event. To mitigate any increases in the BFE, an additional floodwater storage area was designed along Broad Run to convey floodwaters. The proposed mitigation site, adjacent to the project study area and on Airport property, achieved a "no-rise" condition of flood elevations required by the local floodplain authority, whereas other potential sites that were evaluated did not achieve a "no-rise" condition. Clearing & grubbing, excavation, other earthwork and ground stabilization are anticipated to complete the required mitigation.

Surface Waters

There are two surface water features in the project study area. Broad Road intersects the western portion of the project study area and Cannon Branch intersects the eastern portion of the project study area. Cannon Branch connects with Broad Run. Cannon Branch and the west bank of Broad Run have an associated RPA, which extends 100 feet on each side of the stream. The Proposed Action would increase impervious surface by approximately 25 acres. The Proposed Action would affect wetlands, which are also considered surface waters, but would not directly affect other surface waters in the project study area.

To meet Virginia Stormwater Management Program (VSMP) requirements for water quantity as identified in Virginia Administrative Code 9VAC 25-870-66, the Proposed Action would include on-site stormwater management facilities for detention. Water quality compliance as identified in 9VAC 25-870-65 requires that the Proposed Action include best management practices such as dry swales, bioretention, infiltration, and sheet flow to open space. In addition, the City would register for coverage under the VSMP General Permit for Discharges of Stormwater from Construction Activities (9VAC 25-870-1 *et seq.*) and would amend the Airport's Virginia Pollutant Discharge Elimination System (VPDES) Industrial Stormwater General Permit (VAR050985) for stormwater discharges associated with industrial activities. This update includes updating the Airport's Stormwater Pollution Prevention Plan (SWPPP). The SWPPP is not expected to significantly change, but would be modified to reflect the Proposed Action and the associated outfalls. The City would also be responsible for ensuring that a project-specific erosion and sediment control plan, and stormwater management plan if required, is submitted for review and approval prior to the start of ground disturbing activities.

Other Impact Categories

Additional categories addressed in the EA include, but are not limited to, climate, land use, noise and noise-compatible land use, visual effects, groundwater, and wild and scenic rivers. It is the FAA's finding that the Proposed Action will not have any significant effect on any of the addressed categories within the EA.

Mitigation Measures/Conditions of Approval

The FAA is conditioning approval of the Proposed Action upon implementation of the measures outlined below. The FAA may also take appropriate steps through contract plans, specifications, grant assurances, and special grant conditions to ensure these measures are undertaken.

Best Management Practices (BMPs) shall be implemented during construction to minimize erosion and sediment transport into surface waters following all standards and specifications under the Virginia Erosion & Sediment Control Handbook (1992, 3rd Edition).

Construction impacts will also be mitigated by the Sponsor's adherence to applicable BMPs specified in FAA AC 150/5370-10G, Standards for Specifying Construction of Airports, Item P-156, "Temporary Air and Water Pollution, Soil Erosion, and Siltation Control."

Registration for coverage under the General Permit for Discharges of Stormwater from Construction Activities (VAR10) is required for projects involving land disturbing activities equal to, or greater than, one acre, as well as development of a project-specific SWPPP. The SWPPP must be developed in accordance with the Virginia Stormwater Management Program (VSMP) permit regulations. It is anticipated that the City will amend the Airport's VPDES Industrial Stormwater General Permit (VAR050985) for stormwater discharges associated with industrial activities which will include updating the Airport's SWPPP.

A project-specific erosion and sediment control (ESC) plan must be completed, and approved by the locality in which the project is located, prior to any land disturbing activities equal to or greater than 10,000 square feet (2,500 square feet in a Chesapeake Bay Preservation Area). The ESC plan must be prepared in accordance with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R). In addition, a project-specific stormwater management (SWM) plan may be required prior to beginning land disturbing activities. If required, the SWM plan must be prepared in accordance with the Virginia Stormwater Management Law and Regulations (VSML&R).

Impacts to jurisdictional waters will require prior approval by the VDEQ and/or the USACE. Submit a Joint Permit Application (JPA) to VMRC for the proposed impacts to surface waters and wetlands.

All potential wetland and stream mitigation must comply with USACE-USEPA Compensatory Mitigation for Losses of Aquatic Resources (33 CFR 325 and 332/40 CFR 230). Non-impacted wetlands within 50 feet of any clearing, grading, or filling activities will be flagged or clearly marked during construction activities.

Fugitive dust must be kept to a minimum by using control methods outlined in 9VAC 5-50-60 et seq. of the Regulations for the Control and Abatement of Air Pollution.

If project activities include the open burning of construction material or the use of special incineration devices, this activity must meet the requirements under 9VAC 5-130 *et seq.* of the *Regulations* for open burning, and may require a permit.

All structures being demolished, renovated, or removed will be inspected for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to demolition. If ACM or LBP are found, in addition to the federal waste-related regulations, state regulations 9VAC 20-81-620 for ACM and 9VAC 20-60-261 for LBP must be followed.

Projects requiring the installation, operation, or modification of fuel burning equipment or other air pollution emitting equipment may be subject to registration or permitting requirements in accordance with 9VAC 5-80-1100 *et* seq.

Limit the use of "cut-back" (liquefied asphalt cement, blended with petroleum solvents) for road construction and paving work in accordance with 9VAC5-45-780 *et seq.*

All solid waste, hazardous waste, and hazardous materials, including contaminated soils, must be managed in accordance with all applicable federal, state, and local environmental regulations.

If evidence of a petroleum release is discovered, it must be reported to DEQ, as authorized by Virginia Code§ 62.1-44.34.8 through 9 and 9VAC 25-580-10 *et seq.*

The installation and use of an aboveground storage tank (>660 gallons) for temporary fuel storage (>120 days) during the project must follow the requirements in 9VAC 25- 91-10 *et* seq.

Implement mitigation measures to protect site 44PW0729 from construction-related activities, which require placing temporary fencing along a 20-foot buffer surrounding the site.

Submit a Water Quality Impact Assessment (WQIA) to the Office of Local Government Programs for proposed land development within the RPA per 9VAC25-830-140.

Complete and coordinate a Conditional Letter of Map Revision (CLOMR) with the Federal Emergency Management Agency (FEMA) prior to initiation of any construction activities that affect the floodplain.

Coordinate roadway improvements with the appropriate local and stated entities during design and construction and obtain a Virginia Department of Transportation Land Use Permit if required.

All required permits and approved plans for the projects comprising the Proposed Action must be obtained prior to construction.

Construction activities must be conducted in accordance with the provisions set forth in applicable permits.

Public Involvement

A public notice was published in the Fauquier Times/Prince William Times/Gainesville Times beginning January 31, 2018. Copies of the draft EA were made available for the public to review at the Manassas Regional Airport Administrative Office, 10600 Harry J. Parrish Boulevard, Manassas, Virginia 20110; The Manassas Regional Airport website at http://www.manassasregionalairportprojects.com/; the Central Community Library, 8601 Mathis

Avenue, Manassas, Virginia 20110; and Manassas City Hall, 9027 Center Street, Manassas, Virginia 20110. A public workshop was held on February 20, 2018 at the Airport's Administrative Office Lobby and Conference Room. The comment period ended on March 3, 2018. No comments were received from the general public.

Comments on the draft EA were received from the VDEQ Office of Environmental Impact Review (OEIR), the EPA, and the VDGIF. Comments provided mitigation measures and recommendations for the Proposed Action. Mitigation measures are summarized in the Mitigation Measures/Conditions of Approval discussion above. Responses to comments have also been incorporated into the final EA and included in Appendix I.

Conclusion and Approval

I have carefully and thoroughly considered the facts contained in the attached EA. Based on that information, I find the proposed Federal action is consistent with existing national environmental policies and objectives of Section 101(a) of the National Environmental Policy Act of 1969 (NEPA) and other applicable environmental requirements. I also find the proposed Federal action will not significantly affect the quality of the human environment or include any condition requiring any consultation pursuant to section 102(2)(C) of NEPA. As a result, FAA will not prepare an EIS for this action.

Recommended: _____ 3/30/18
Susan Stafford — Date
Environmental Specialist, Beckley AFO

Approved: _____ 3/30/18
Matthew DiGiulian — Date
Manager, Beckley AFO

Disapproved: _____ _____
Matthew DiGuilian — Date
Manager, Beckley AFO

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Acronyms and Abbreviations

A

ACRP	Airports Cooperative Research Program
ALP	Airport Layout Plan

B

BFE	Base Flood Elevation
BMP	Best Management Practice

C

CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLOMR	Conditional Letter of Map Revision
CO	Carbon Monoxide
CWA	Clean Water Act

E

EA	Environmental Assessment
ESA	Endangered Species Act
EO	Executive Order

F

FAA	Federal Aviation Administration
FBO	Fixed Base Operator
FEMA	Federal Emergency Management Agency
FR	Federal Register

G

GAO	U.S. Government Accountability Office
GHG	Greenhouse Gas

H

HEC-RAS	Hydrologic Engineering Center's River Analysis System

I

ICAO	International Civil Aviation Organization

L

LED	Light-emitting Diode

N

NAAQS	National Ambient Air Quality Standards
NAS	National Airspace System
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NPS	National Park Service
NO_2	Nitrogen Dioxide
NPIAS	National Plan of Integrated Airport Systems

O

O_3	Ozone

P

Pb	Lead
PM	Particulate Matter

R

RCRA	Resource Conservation and Recovery Act
RPZ	Runway Protection Zone

S

SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SPCC	Spill Prevention, Control and Countermeasures
SWPPP	Stormwater Pollution Prevention Plan

T

TSCA	Toxic Substances Control Act

U

USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

V

VaFWIS	Virginia Fish and Wildlife Information Service
VCP	Virginia Coastal Zone Management Program
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDGIF	Virginia Department of Game and Inland Fisheries
VDOT	Virginia Department of Transportation
VMRC	Virginia Marine Resources Commission
VPDES	Virginia Pollutant Discharge Elimination System Permit
VSMP	Virginia Stormwater Management Program

CHAPTER 1

INTRODUCTION

This Page Intentionally Left Blank

This Environmental Assessment (EA) identifies and evaluates the potential environmental effects of the construction and operation of various proposed airside and landside improvements at Manassas Regional Airport (Airport).

The Federal Aviation Administration (FAA) is the lead federal agency to ensure compliance with the National Environmental Policy Act (NEPA) for airport development actions. This EA is prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, as well as applicable Council on Environmental Quality (CEQ) regulations implementing NEPA, applicable Executive Orders (EOs), and other applicable federal, state, and local requirements.

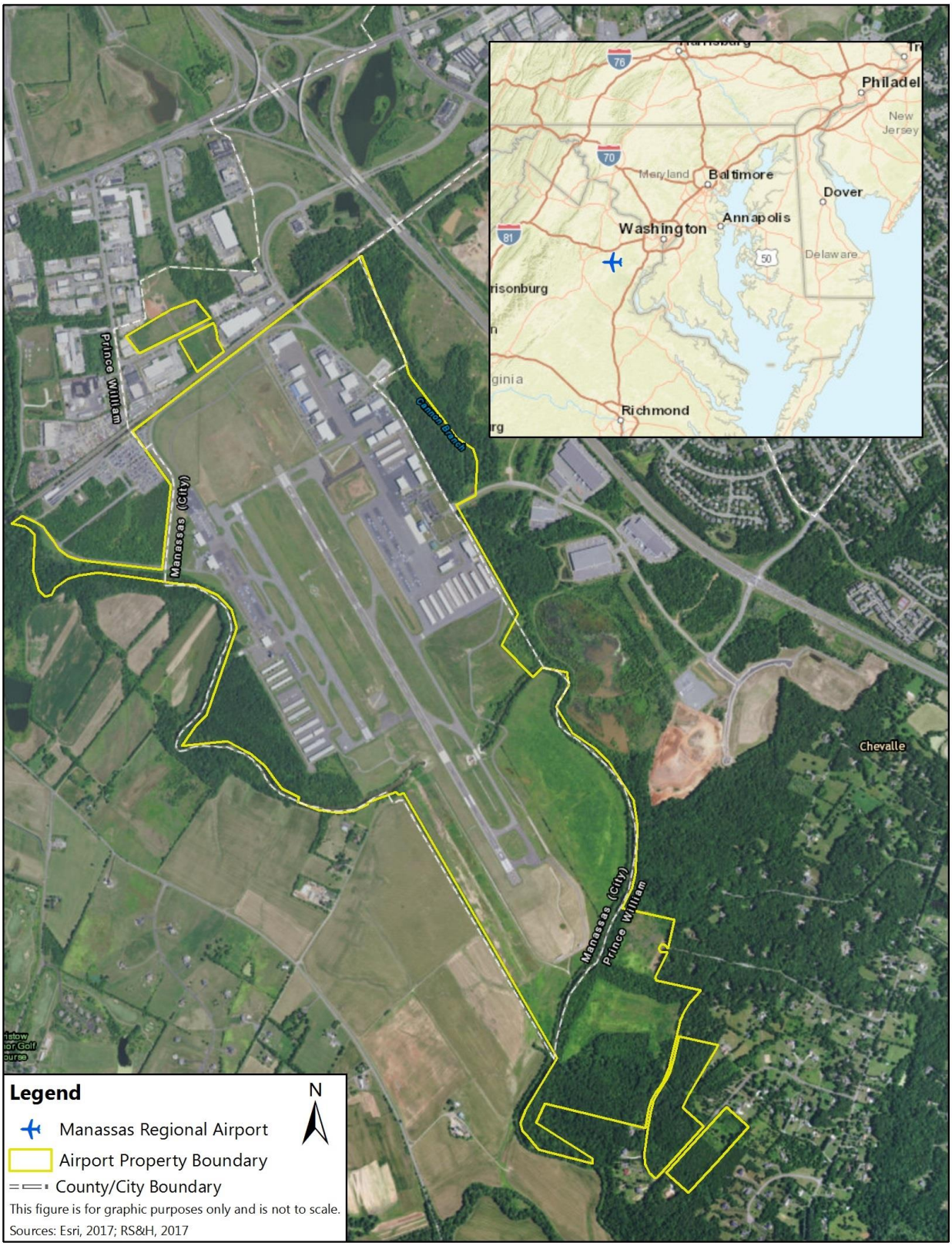
1.1 AIRPORT OVERVIEW

The City of Manassas (City), Virginia owns and operates the Airport. The Airport encompasses about 920 acres, largely within the City of Manassas. About 20 acres land on the east side of Airport property fall within the limits of Prince William County. Major roadways near the Airport include Nokesville Road to the north and Prince William Parkway to the east. Bristow Road is west of the Airport and Brentsville Road is south of the Airport. **Figure 1-1** shows the Airport location.

The FAA's National Plan of Integrated Airports Systems (NPIAS) classifies the Airport as a national general aviation airport, meaning that the Airport "supports the national airport system by providing communities with access to national and global markets." (FAA, 2016b) In 2016, the Airport had an estimated 87,312 total operations and no enplanements, with 402 based aircraft (FAA, 2017). The Airport is the busiest general aviation airport in the Commonwealth of Virginia, and in the 2011 *Virginia Airport System Economic Impact Study*, it was determined that the Airport contributed more than $234 million to the local economy (Virginia Department of Aviation, 2011).

The Airport has a terminal building, fixed base operator (FBO) hangars/buildings, and various corporate and general aviation hangars. There are two runways at the Airport: Runway 16L/34R is 6,200 feet long by 100 feet wide; Runway 16R/34L is 3,704 feet long by 100 feet wide.

FIGURE 1-1
AIRPORT LOCATION



1.2 PROPOSED ACTION

The City proposes to redevelop the west side corporate area and develop a parcel on the east side of the Airport (Proposed Action). The Proposed Action includes:

- On-Airport roadway improvements
- FBO building and parking lot reconstruction
- Corporate hangar/building and parking lot construction
- T-hangars demolition/replacement and construction and T-hangar parking lot
- West aircraft apron and taxilane tie down parking expansion
- Taxilane extension
- Maintenance and storage building construction
- Wash rack construction
- Utilities extension and stormwater drainage improvements
- Security fence extension

The following subsections describe the proposed development in the west corporate area and east parcel.

1.2.1 West Corporate Area

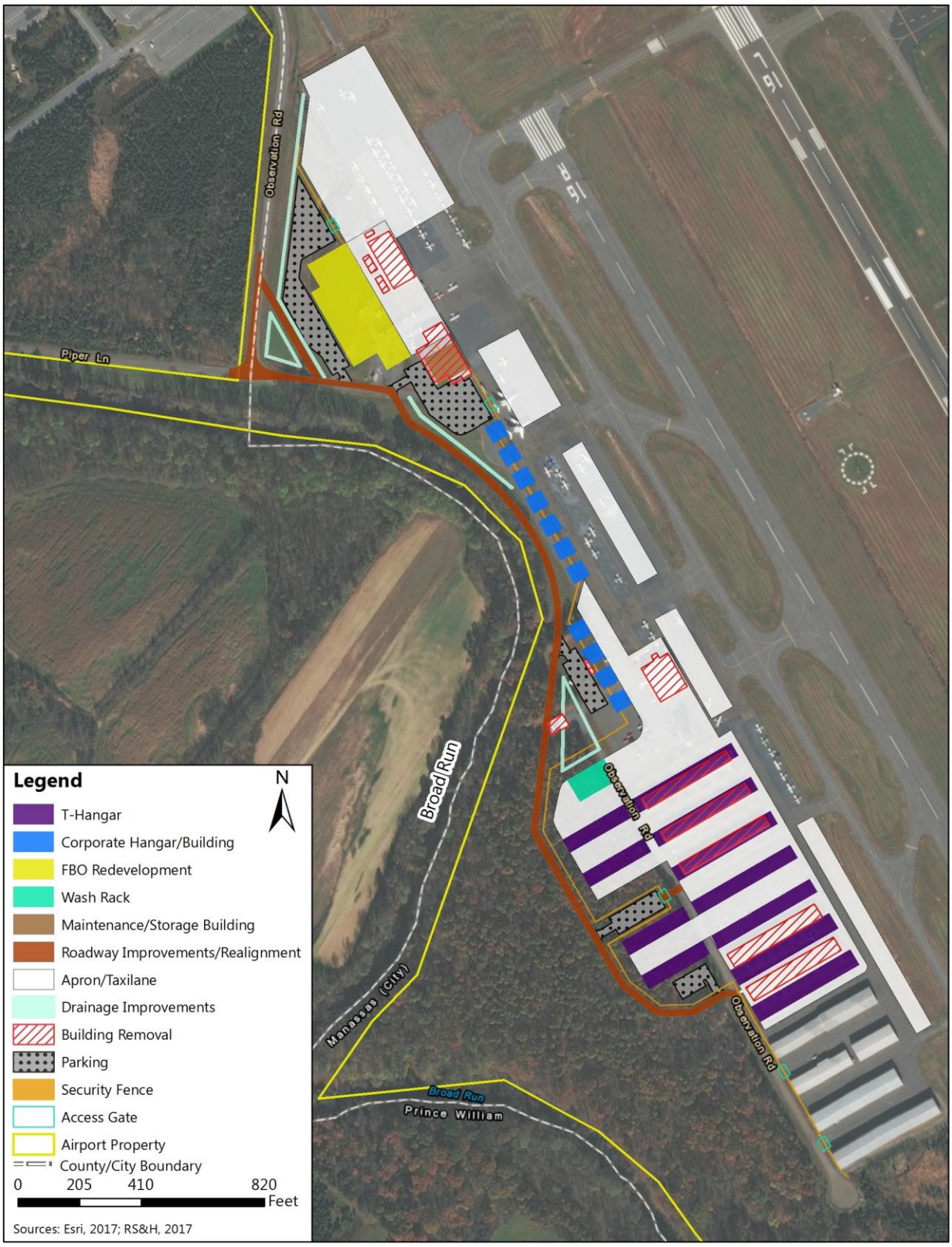
The proposed development of the West Corporate Area (**Figure 1-2**) is based on the West Corporate Development Study that the City completed in 2013. By analyzing the condition of area (e.g., condition of hangars/building, apron, etc.) and the Airport's short-term and long-term goals, specifically the Airport's Strategic Plan, the West Corporate Development Study provided a development layout that would maximize the redevelopment potential for the west side of the Airport.

On-Airport Roadway Improvements: Improvements would be made to the intersection of Observation Road and Piper Lane, located on the northwest side of the Airport (see **Figure 1-2**). Additionally, Observation Road would be realigned to the west (see **Figure 1-2**). The roadway improvements would equate to about 4,000 linear feet.

FBO Building and Parking Lot Reconstruction: The two existing FBO buildings and associated structures would be demolished and replaced by a 71,100 square foot consolidated FBO building to the west of the current FBO buildings (see **Figure 1-2**). A new parking lot would extend around the west and north sides of the proposed new FBO building to provide parking for FBO employees and users. The existing apron would be expanded to the northwest to provide FBO access to the airfield.

Corporate Hangar/Building and Parking Lot Construction: Eleven new corporate hangars/buildings would be constructed on the west side; all of the hangars would be about 3,600 square feet in size (see **Figure 1-2**). The corporate hangar/buildings could also serve as office space. All corporate hangars/buildings would have access to the airfield. Parking lots would also be constructed in the areas near the corporate hangars/buildings to provide parking for employees and users.

FIGURE 1-2
PROPOSED WEST CORPORATE AREA DEVELOPMENT



T-hangar Demolition/Replacement and Construction and T-hangar Parking Lot: Five T-hangars would be demolished, equating to about 130,000 square feet, and replaced with new T-hangars of similar size. In addition, six new T-hangars would be constructed in the same area (see **Figure 1-2**). The new T-hangars would increase the building footprints by a total of about 61,000 square feet. The apron area would be expanded to provide airfield access from these T-hangars.

Aircraft Apron Expansion: The west apron area would be extended by about 25 acres (see **Figure 1-2**). The apron expansion would provide airfield access for the proposed T-hangars, corporate hangars, and relocated FBO. The apron expansion would also provide increased areas for designated tie-downs and taxilane extensions.

Maintenance and Storage Building Construction: As **Figure 1-2** shows, an about 1,180 square foot maintenance and storage building would be constructed in the current location of one of the two FBO buildings located on the northwest side of the Airport (southern most building of the two FBO buildings), which would be demolished. The Airport maintenance equipment currently housed on the east side of the Airport would be relocated to the proposed new maintenance and storage facility.

Wash Rack Construction: An about 1,180 square foot wash rack would be constructed north of the T-hangars and would be available for all Airport tenants to use (see **Figure 1-2**).

Utilities Extension and Stormwater Drainage Improvements: Utilities, including electricity, water, sewer, and communication services, would be extended to the proposed new development from nearby electrical lines and water/sewer mains. Stormwater drainage improvements would occur west of the proposed relocated FBO facility and would accommodate the increase in impervious surface from the Proposed Action (see **Figure 1-2**).

Security Fence Extension: The Airport's security fence would be extended to encompass the extended improvements. Access gates would be added in various locations to provide access to the airfield by authorized Airport tenants and personnel.

1.2.2 East Parcel Area

The proposed development of the east parcel (**Figure 1-3**) is the maximum developable land area within the parcel. While the exact layout of the area has not been determined, this EA analyzes the maximum amount of development.

On-Airport Roadway Improvements: Wakeman Drive would be realigned to the northeast (see **Figure 1-3**). The roadway improvement would equate to about 3,000 linear feet.

FIGURE 1-3
POTENTIAL EAST SIDE PARCEL DEVELOPMENT

Corporate Hangar/Building and Parking Lot Construction: New corporate hangars/buildings would be constructed on the east side of varying sizes, equating to about 120,000 square feet (see **Figure 1-3**). The corporate hangar/buildings could also serve as office space. All corporate hangars/buildings would have access to the airfield. Parking lots would also be constructed in the areas near the corporate hangars/buildings to provide parking for employees and users. Under the current preliminary design, there would be about 35,000 square feet of parking.

Taxilane Extension: The taxilane would be extended by about 135,000 square feet to provide airfield access to the proposed development (see **Figure 1-3**).

Utilities Extension and Stormwater Drainage Improvements: Utilities, including electricity, water, sewer, and communication services, would be extended to the proposed new development from nearby electrical lines and water/sewer mains. Stormwater drainage improvements would occur to accommodate the increase in impervious surface from the Proposed Action. Because the development in this area has not been designed further than preliminary drawings, the specific location of the stormwater drainage improvement(s) is not known. However, the improvements would occur in the surrounding area, within the area analyzed in this EA.

Security Fence Extension: The Airport's security fence would be extended to encompass the extended improvements. Access gates would be added in various locations to provide access to the airfield by authorized Airport tenants and personnel.

1.2.3 Requested Federal Action and Time Frame

The City will request the FAA's unconditional approval of these projects, which are shown on the conditionally approved Airport Layout Plan (ALP).

Construction of the proposed development in the west corporate area is anticipated to start in calendar year 2018 and would occur over six phases. The City anticipates that the proposed development in the west corporate area would take about five years to complete, and that construction of the proposed development in the east parcel would start between 2018 and 2022.

1.3 DOCUMENT ORGANIZATION

This EA is organized into the following chapters:

Chapter 1: Introduction – This chapter provides an overview of the Airport, describes the Proposed Action that this EA evaluates, and outlines the organization of the EA.

Chapter 2: Purpose and Need – This chapter identifies the problem being addressed (i.e., need) and describes how the City of Manassas proposes to solve the problem (i.e., purpose).

Chapter 3: Alternatives – This chapter provides a description of the No Action Alternative and identifies the alternatives that this EA considers or eliminates from detailed analysis.

Chapter 4: Affected Environment – This chapter provides an overview of the existing environmental conditions in the areas that the Proposed Action may affect. This chapter also identifies past, present, and reasonably foreseeable future actions that may contribute to cumulative impacts when considered in combination with the Proposed Action.

Chapter 5: Environmental Consequences – This chapter describes the potential environmental effects that the Proposed Action and each reasonable alternative would have on the affected environment. Pursuant to regulations and CEQ Guidance documents, this chapter also discusses cumulate effects. That discussion focuses on the effects that the Proposed Action would have on environmental resources, in combination with the effects of those resources from past, present, and reasonably foreseeable future actions.

Where appropriate, this EA contains figures and tables to clarify the analysis presented in this chapter.

Chapter 6: Agency Coordination and EA Distribution – This chapter describes the coordination process associated with the development of the EA.

Chapter 7: List of Preparers – This chapter identifies the individuals who prepared, contributed to, and reviewed this EA.

Chapter 8: References – This chapter lists the references used in the development of this EA.

Appendices – The appendices contain relevant material, analyses, or technical reports used in preparing this EA.

CHAPTER 2

PURPOSE AND NEED

This Page Intentionally Left Blank

FAA Order 1050.1F, Section 6-2.1(c) states that the Purpose and Need should briefly describe the underlying purpose and need for the federal action and provide the foundation for identifying reasonable alternatives to a Proposed Action. The Purpose and Need identifies the problem facing the proponent (i.e., the "need" for the action) and the proposed solution to the problem (i.e., the "purpose" of the action).

2.1 PURPOSE AND NEED FOR THE PROPOSED ACTION

The City of Manassas seeks to maximize the redevelopment potential on the west side of the Airport and to initiate new development with access to the airfield on the east side of the Airport. The current west side infrastructure is aging and existing hangars and pavements have exceeded their useful life. In addition, portions of the west side of the Airport are underutilized. The Airport's goal is to renovate or upgrade the facilities located west of Runway 16R-34L and to facilitate new development on the east side of the Airport.

The City completed an airport strategic plan for the years 2012 through 2021. This plan identified short-term and long-term goals of the Airport. In working toward those goals, and consistent with the FAA's mission of promoting a safe and efficient National Airspace System (NAS), the purpose of the Proposed Action is to meet the following needs:

1. Develop and maintain safe and modern facilities.
2. Improve the Airport's ability to be financially self-sustaining.

2.1.1 Develop and Maintain Safe and Modern Facilities

The City completed the *West Corporate Redevelopment Study* and Airport Master Plan Update (City of Manassas, 2013b). These studies identified the need for on-Airport roadway improvements, additional building/hangar space and building/hangar replacement, and improvements to the airfield pavement to continue to work toward the long-term goals of the City. By addressing these various improvement needs, the City is able to develop and maintain safe, modern facilities at the Airport. In addition to the airport planning reports, the *2032 Comprehensive Plan Manassas Next* recommends improving the Airport's facilities to enhance safety and comply with FAA design standards (City of Manassas, 2013a). A summary of these needs follows.

On-Airport Roadway Deficiencies: Sections of Observation Road and Piper Lane are within the Broad Run floodway and 100-year floodplain. These roadways frequently experience flooding, which restricts access to facilities on the west side of the Airport (see photo right). Additionally, the swales along the intersection of Observation Road and Piper Lane, public roadways, have experienced erosion.

The City recently acquired a parcel of land on the east side of the Airport. Currently, Wakeman Drive, a public roadway, separates the east parcel from the remainder of the Airport property. In order to provide access to and from the airfield from future development in the east parcel, Wakeman Drive would need to

be realigned east of the east parcel. The current alignment of Wakeman Drive prevents the City from developing this land for its planned use as aviation development because it prevents airfield access.

Building/Hangar Space and Age: All of the Airport-owned hangars on the west side of the Airport are leased and the City has a waiting list of people who have requested a hangar when one becomes available. Many of the existing hangars have exceeded their useful lives and have deteriorated to the point that refurbishment would not be cost effective (see photo left).

During the development of the *West Corporate Redevelopment Study*, the City held meetings for interested tenants, stakeholders, the Airport Commission, and the public to review airport alternatives and solicit feedback. The participants preferred having an FBO on the west side of the airfield to service the needs of pilots and aircraft. Since all of the existing hangars are occupied, the participants liked the plan to increase the number of hangars on the west side. The participants also liked the planned increase in available parking to make it easier to access their aircraft on the west airfield. Another development element that was recommended by the tenants was a wash rack.

Airfield Pavement Conditions: Investigation of the west corporate development area revealed numerous pavement deficiencies including failing pavement sections, deficient pavement widths, and insufficient drainage. A pavement maintenance and management report completed at the Airport in 2008 found that many of the apron areas in the west airfield area had pavement condition indices[1] between 55 and 67, representing fair to good conditions. Forecast 2018 conditions for these areas yielded indices between 37 and 49, which indicates poor to fair conditions. Recent site visits to the area in 2016 and 2017 indicate that the pavement is in poor to fair condition. Many of these taxilanes were in visibly poor condition during the site investigation (see photo right).

2.1.2 Improve Financial Self-Sustainability

The FAA NPIAS for 2017-2021 identifies airport financial performance a key indicator of NAS performance. The financial performance of an individual airport is an important component of the NAS because nonfederal revenues from rents, fees, and taxes paid by airport users largely support the system. The NPIAS states: "Airports should be affordable to both users and the Government, relying primarily on user fees and placing minimal burden on the general revenues of the local, state, and federal governments." (FAA, 2016b)

Currently, portions of the Airport property are underutilized. Specifically, areas southwest of Observation Road and northwest of Wakeman Drive are undeveloped and in a prime location for development. The

[1] A pavement condition index is a numerical index between 0 and 100 that reflects the structural integrity and surface condition of the pavement. Zero indicates a failed pavement and 100 represents new pavement.

generation of revenue through the proposed aviation related development will help the Airport to become more efficient, and supports the FAA's statutory responsibilities under 49 U.S.C. § 47101 and the City's grant obligations arising from the acceptance of property and federal grant funds. Grant Assurance 24 requires that an airport sponsor maintain a fee and rental structure for the facilities and services at the airport to be as self-sustaining as possible.

In addition to its role in the NAS, the Airport is a vital component of the City's economy. According to the 2032 Comprehensive Plan: Manassas Next (City of Manassas, 2013a), the Airport offers accessibility to the region, and many business uses can take advantage of the proximity to support business growth and the opportunity for economic development. In addition, the City proposes to encourage greater utilization and further development of the Airport as a key provider of air service in the region. Key customers of economic development at the Airport include developers, tenants, airport operators, and existing businesses (City of Manassas, 2016). The proposed development would encourage greater utilization and further development of the Airport as a key provider of air service in the region.

This Page Intentionally Left Blank

CHAPTER 3

ALTERNATIVES

This Page Intentionally Left Blank

NEPA, CEQ regulations, and FAA Order 1050.1F require an analysis of alternatives that satisfy the Purpose and Need for a proposed action. As **Chapter 2** of this EA describes, the City's Purpose for the Proposed Action is to develop and maintain safe and modern facilities and to improve the Airport's ability to be financially self-sustaining. The Need is to replace aging infrastructure that have exceeded their useful life and to maximize the redevelopment potential on the west side of the Airport and to initiate new development with access to the airfield on the east side of the Airport. This serves as a basis for the comparison of alternatives and may prompt the selection of an alternative that has fewer environmental effects.

In addition, NEPA requires agencies to consider a "no action" alternative in their NEPA analyses and to compare the effects of not taking action with the effects of the action alternative(s).

3.1 SCREENING CRITERIA FOR ALTERNATIVES

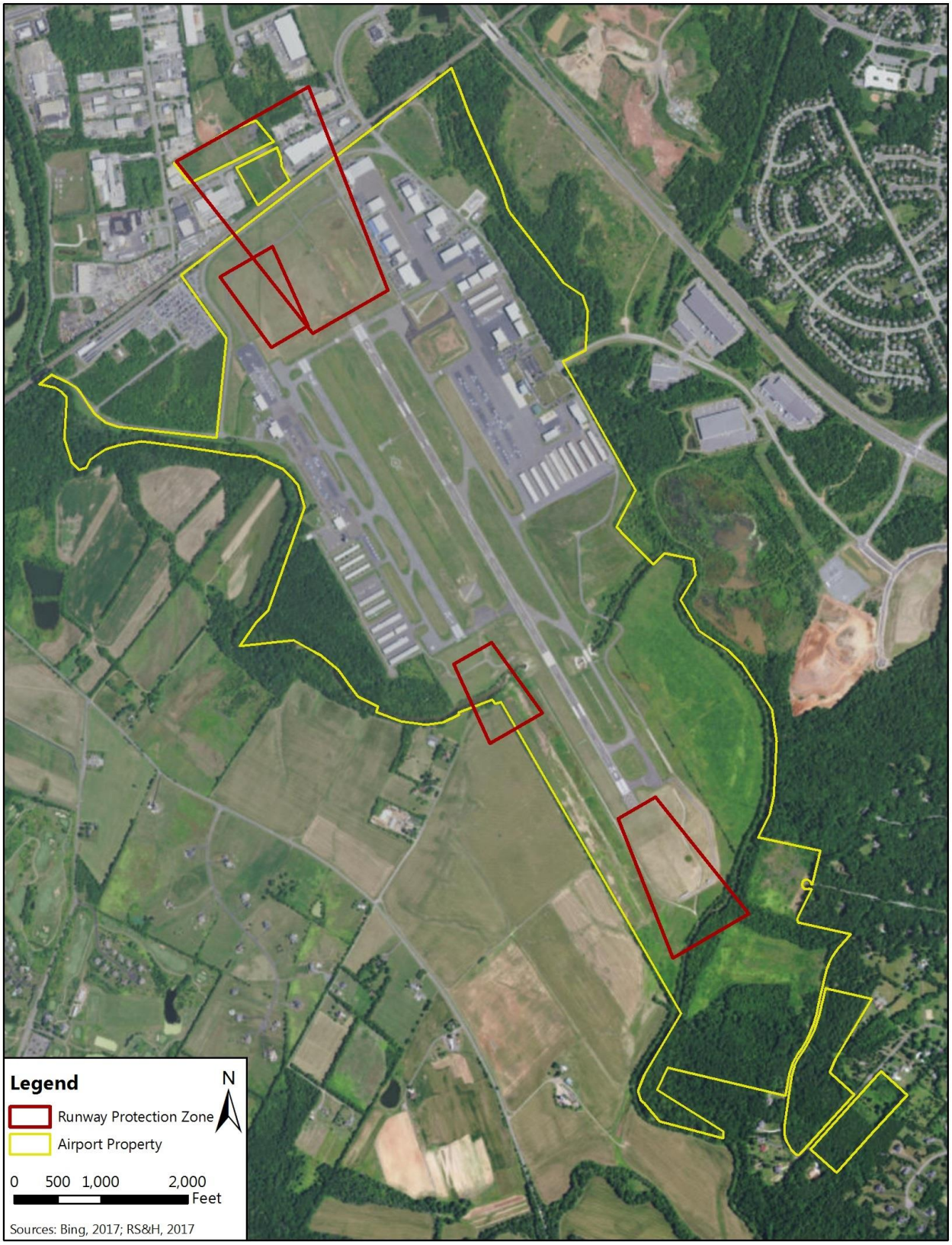
The potential alternatives included on-Airport locations that could accommodate new aviation development of similar magnitude to the Proposed Action. The consideration of alternatives also addressed the potential use of environmental resources. In compliance with EO 11998, *Floodplain Management* and U.S. Department of Transportation (USDOT) Order 5650.2, *Floodplain Management and Protection*, this EA also evaluates alternatives that might avoid or minimize effects to the 100-year floodplain. FAA Order 5050.4B (Paragraph 706.d(5)(a)) requires consideration of alternatives if unresolved conflicts regarding environmental resources would result from implementation of a proposed action. The following sections describe the screening criteria used to evaluate alternatives.

3.1.1 Developable on-Airport Land

The investigation of developable on-Airport land followed the guidance of FAA Advisory Circular (AC) 150-5300-13A Change 1, *Airport Design,* and Code of Federal Regulations (CFR) Title 14 Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace* (Part 77). Areas within designated FAA safety areas (e.g., runway protection zone (RPZ)), or areas in which building height is restricted for airspace protection, were eliminated from consideration.

According to FAA AC 150-5300-13A Change 1, RPZs are trapezoidal areas off the end of the runways that serve to enhance the protection of people and property on the ground in the event an aircraft travels beyond the runway end. The Airport maintains and clears on-Airport RPZs of incompatible objects and activities. The FAA guidance considers the congregation of people and new construction of buildings or other improvements obstructions are not permitted in an RPZ. New aviation development (i.e., incompatible objects and activities) within a RPZ is not compatible with aircraft operations at the Airport. Therefore, on-Airport property within existing RPZ areas were eliminated from consideration of new aviation development at the Airport. **Figure 3-1** shows the location of the RPZs.

FIGURE 3-1
AIRPORT RPZS



3.1.2 Avoidance / Minimization of 100-Year Floodplain

The 100-year floodplain and floodway extends over a majority of the Airport property. A floodplain is a land area adjacent to a river, stream, lake, estuary, or other water body that is subject to flooding. The floodplain consists of two sections: the floodway and the flood fringe. The Federal Emergency Management Agency (FEMA) defines the "regulatory floodway" as the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Floodways carry the bulk of the floodwater downstream, and is usually the area where water velocities and forces are the greatest. To the greatest extent, a floodway should be keep free of encroachments including new development or substantial improvements.

EO 11988, *Floodplain Management*, requires federal agencies to avoid, to the greatest extent possible, the long- and short-term adverse effects associated with use and/or modification of the 100-year floodplain, and to avoid direct or indirect development in the floodplain wherever there is a practicable alternative. Alternate on-Airport areas available for aviation development having lesser floodplain impacts would therefore be preferable to those with greater floodplain impacts. An alternative with greater floodplain impacts would not be consistent with EO 11998 and is not carried forward for further environmental analyses in this EA. **Figure 3-2** shows the FEMA-designated flood zones in and around the Airport.

3.2 ALTERNATIVES CONSIDERED

The alternatives screening criteria described in **Section 3.1** were used to identify on-Airport areas that could accommodate new aviation development. Developable land was also determined by narrowing the search to on-Airport areas that would be compatible with aircraft operations, have access to existing roadway, and minimize floodplain encroachment. In addition, NEPA requires agencies to consider a "no action" alternative in NEPA analyses and to compare the effects of not taking action with the effects of the action alternative(s). The No Action Alternative serves as a baseline to assess the effects of the Proposed Action.

3.2.1 No Action Alternative

Under the No Action Alternative, the City would not redevelop the west corporate area or develop the east parcel. Observation Road would remain in its current alignment. In addition, there would be no need to seek the FAA's unconditional approval of the ALP. The City would continue to operate the Airport and serve existing and forecast aviation activity.

3.2.2 Alternative A

As a result of the developable on-Airport land analysis, there is an alternative on-Airport area that is currently undeveloped, outside of the Part 77 transitional surface and RPZs (congregation of people and new construction of buildings or other improvements obstructions are not permitted in an RPZ), and has existing access to local roads. As **Figure 3-3** shows, Alternative A would provide about 100 acres of on-Airport property for new aviation hangars, apron, and taxilanes. This area is located on the east side of the airfield, southeast of the existing T-hangars, and northwest of Broad Run. Under Alternative A, Wakeman Drive would be extended approximately 1,100 feet to the southeast to provide vehicular access to this alternative's proposed new aviation development.

FIGURE 3-2
FLOODPLAINS IN AND AROUND THE AIRPORT

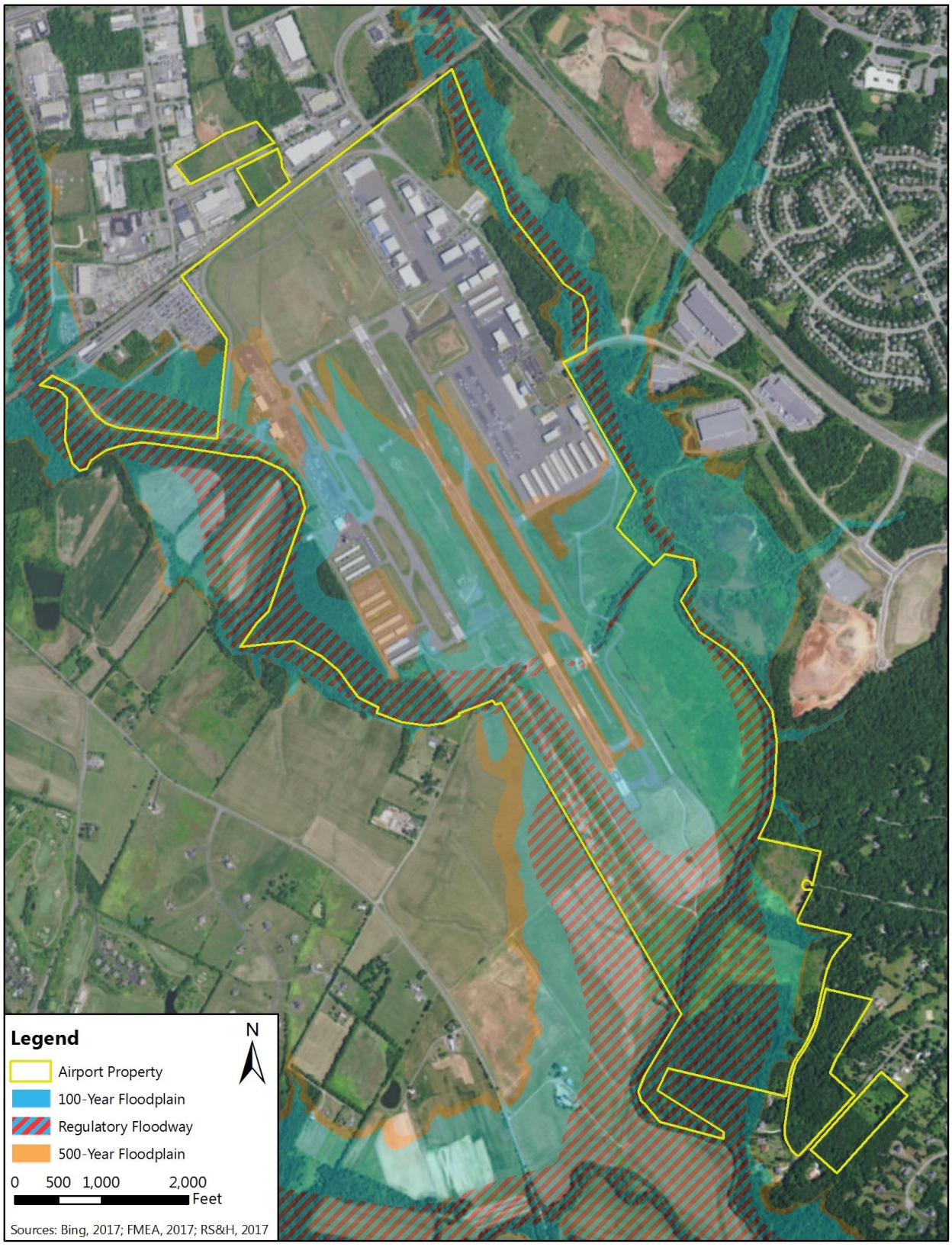
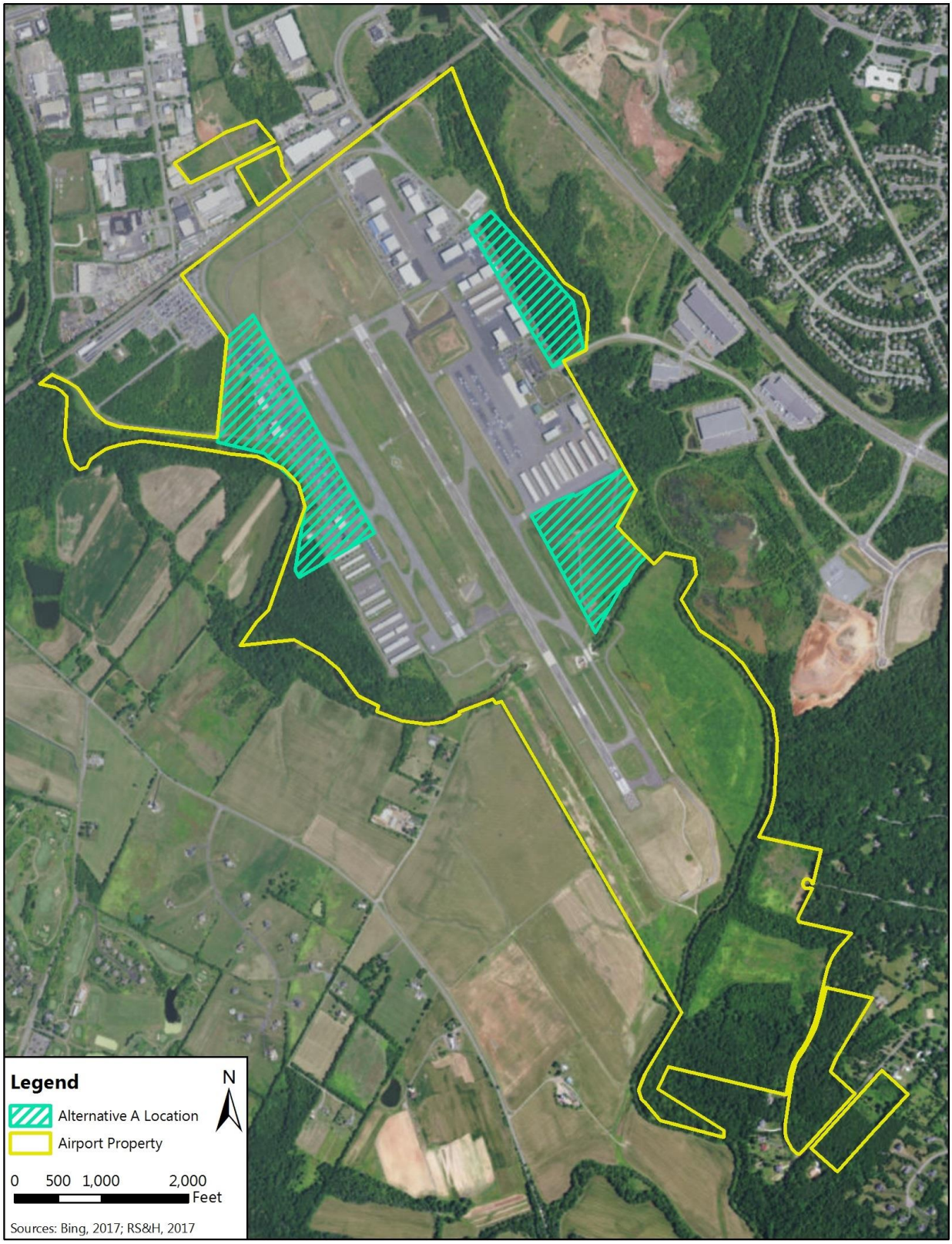


FIGURE 3-3
ALTERNATIVE A



3.2.3 Alternative B

There is an additional on-Airport area that is undeveloped and outside of the Part 77 transitional surface and RPZs. As **Figure 3-4** shows, Alternative B would provide about 110 acres of on-Airport property for new aviation hangars, apron, and taxilanes. Alternative B is located on the east side of the Airport airfield and extends from the existing T-hangars to the southern end of the Airport property. Under Alternative B, Wakeman Drive would be extended about 4,000 feet to the southeast to provide vehicular access to the area.

3.2.4 Proposed Action

As **Section 1.2** describes, the Proposed Action includes developable areas on the west and east sides of the Airport that collectively encompass about 80 acres, as depicted on **Figure 3-5**. The City proposes to redevelop the west side corporate area and develop a parcel on the east side of the Airport (Proposed Action). The Proposed Action includes:

- On-Airport roadway improvements
- FBO building and parking lot reconstruction
- Corporate hangar/building and parking lot construction
- T-hangars demolition/replacement and construction and T-hangar parking lot
- West aircraft apron and taxilane tie down parking expansion
- Taxilane extension
- Maintenance and storage building construction
- Wash rack construction
- Utilities extension and stormwater drainage improvements
- Security fence extension

3.3 ALTERNATIVES EVALUATION

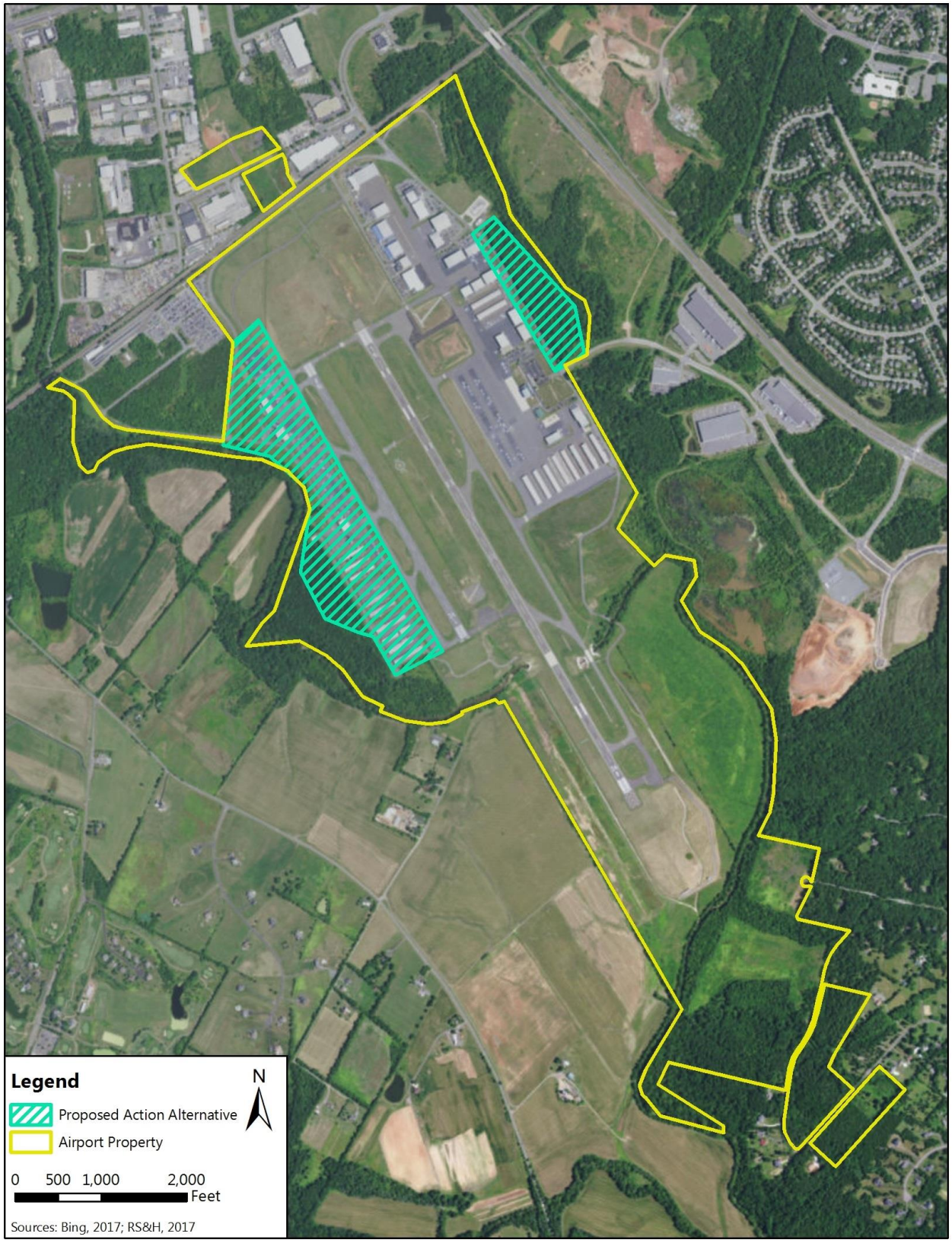
Alternatives were evaluated for compatibility with existing aircraft operations and whether development of the alternative would avoid and/or minimize the effects to areas protected by EO 11988, *Floodplain Management* (i.e., avoidance or minimization of effects to the 100-year floodplain).

3.3.1 No Action Alternative

The No Action Alternative would not satisfy the Purpose and Need for the Proposed Action because it would not allow the City to update and enhance the safety and efficiency of Airport facilities, nor would it allow the City to undertake activities to ensure the Airport remains a profitable enterprise with a positive economic impact. The EA retains the No Action Alternative for environmental baseline comparative purposes, to fulfill CEQ regulations (40 CFR Part 1502) implementing NEPA, and to comply with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. Therefore, the No Action Alternative is retained as the base against which the effects of the Proposed Action can be assessed (see **Chapter 5** for further details).

FIGURE 3-4
ALTERNATIVE B

FIGURE 3-5
PROPOSED ACTION ALTERNATIVE



3.3.2 Alternative A

Alternative A (see **Figure 3-3**) would provide more area for development than the Proposed Action. However, it would not be consistent with the screening criterion of minimizing floodplain encroachment to the maximum extent practicable. Alternative A would affect about 20 acres of the 100-year floodplain (similar to the Proposed Action) and about five acres of the regulatory floodway (about two acres more than the Proposed Action). Therefore, Alternative A would not avoid or minimize impacts to the 100-year floodplain when compared to the Proposed Action. As a result, this EA does not carry Alternative A forward for further analysis.

3.3.3 Alternative B

As with Alternative A, Alternative B (see Figure 3-4) would provide more area for development than the Proposed Action. However, it would not minimize floodplain encroachment to the maximum extent practicable. Alternative B would affect about 100 acres of the 100-year floodplain, about 80 more acres than the Proposed Action and Alternative A. In addition, Alternative B would affect about 20 acres of the regulatory floodway, about 17 more acres than the Proposed Action and 15 more acres than Alternative A. Therefore, Alternative B would not avoid or minimize impacts to the 100-year floodplain when compared to the Proposed Action. As a result, this EA does not carry Alternative B forward for further analysis.

3.3.4 Proposed Action

In order to minimize encroachment into the 100-year floodplain and avoid the existing regulated floodway, the Proposed Action's west side development does not fully extend to the Airport's western property boundary and does not include an otherwise developable 30-acre parcel south of the east parcel area shown in **Figure 3-4**. In addition, water resource specialists reviewed current FEMA Flood Insurance Rate Maps to assist with the development in the both project areas to minimize and, where possible, avoid impacts to the floodway and floodplain. Implementation of the Proposed Action would relocate Observation Road outside of the existing regulatory floodway and provide uninterrupted vehicular access to the west corporate development area when Broad Run overflows its banks and floods the intersection of Observation Road and Piper Lane. Avoiding a flooded intersection would provide emergency vehicles an uninterrupted roadway needed to access the west corporate development area. The Proposed Action would unavoidably affect about 20 acres of the 100-year floodplain (similar to Alternative A) and 2.7 acres of the regulatory floodway (about two acres less than Alternative A). Given the location of the Airport between Broad Run and Cannon Branch, the FAA safety area, and Airport property available for development, floodplain impacts are not completely unavoidable. As a result, the Proposed Action is carried forward for further analysis in **Chapter 5**.

This Page Intentionally Left Blank

CHAPTER 4

AFFECTED ENVIRONMENT

This Page Intentionally Left Blank

As FAA Orders 1050.1F and 5050.4B require, this chapter describes the environmental resources that the Proposed Action or its reasonable alternatives may affect. This information establishes a baseline for use in determining the potential effects of the Proposed Action and any reasonable alternatives.

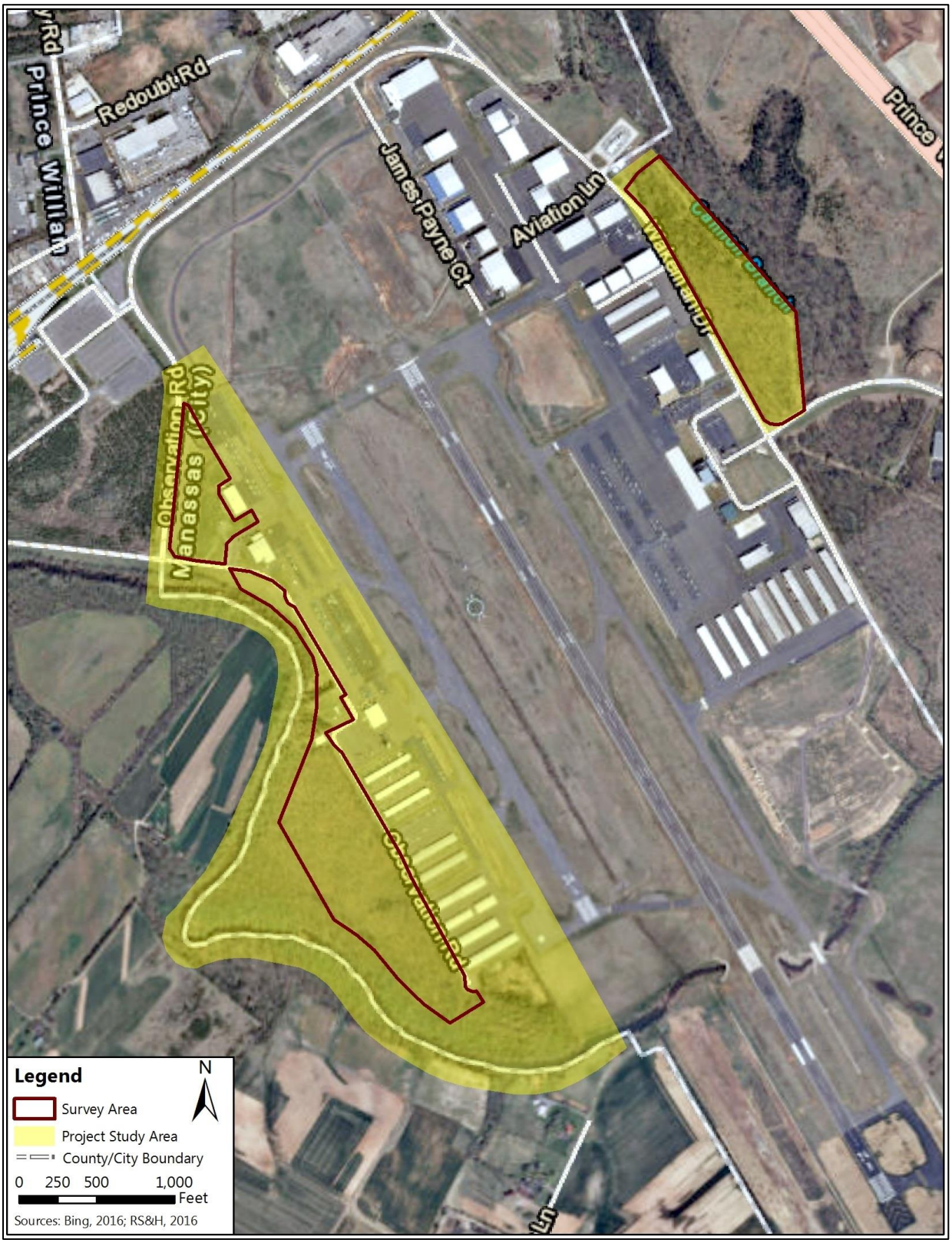
A survey area was established for the purposes of this EA to identify the area where ground-disturbing activities may occur in previously undeveloped area. The survey area excludes areas that have been previously disturbed because the environmental conditions of that area are well known. Conversely, the environmental characteristics (e.g., wetlands, biological resources, hazardous materials, etc.) of the areas that are undeveloped or undisturbed have not been previously recorded. The survey area is about 50 acres in size. The survey area serves as the boundaries for the biological, hazardous materials, archaeological, and wetland surveys. A project study area was also established for this EA in order to identify the environmental characteristics of the entire area that may be directly or indirectly affected by the Proposed Action. The project study area encompasses about 160 acres and encompasses the area that construction and operation of the Proposed Action may affect (see **Chapter 5**, Environmental Consequences, for further information on potential environmental effects). **Figure 4-1** shows the survey area and project study area.

As **Chapter 6** describes in detail, early coordination letters were sent to federal, state, and local agencies regarding the Proposed Action. Information received from agencies pertinent to the affected environment is included in this chapter. Agency response letters are located in **Appendix A**.

This chapter describes the existing conditions for the following environmental resources:

- Air Quality (**Section 4.1**)
- Biological Resources (**Section 4.2**)
- Climate (**Section 4.3**)
- Coastal Resources (**Section 4.4**)
- Department of Transportation Act, Section 4(f) (**Section 4.5**)
- Hazardous Materials, Solid Waste, and Pollution Prevention (**Section 4.6**)
- Historical, Architectural, Archaeological, and Cultural Resources (**Section 4.7**)
- Natural Resources and Energy Supply (**Section 4.8**)
- Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks (**Section 4.9**)
- Visual Effects (**Section 4.10**)
- Water Resources (**Section 4.11**)

FIGURE 4-1
PROJECT STUDY AREA

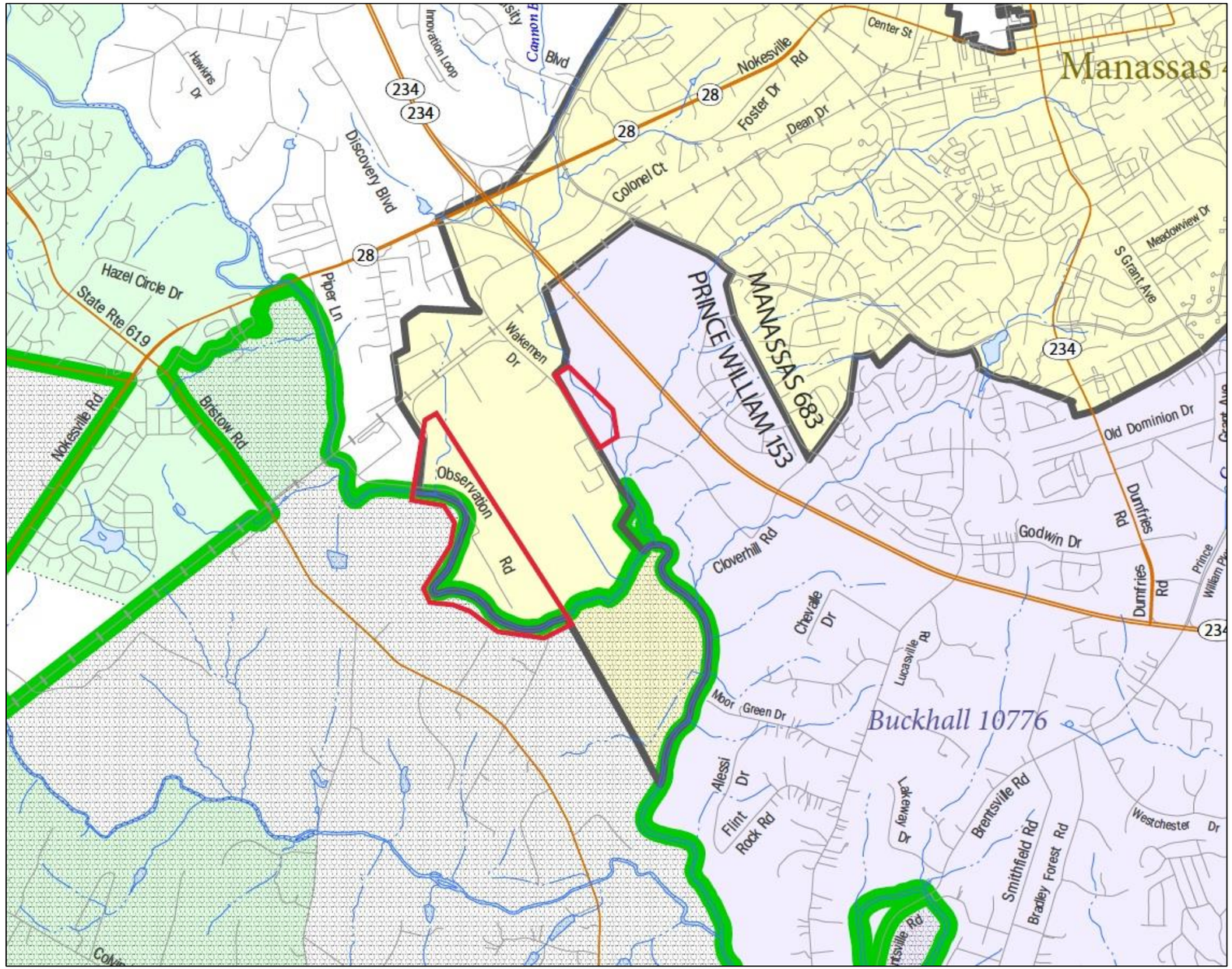


Based on the following information, this EA does not analyze potential effects to these resource categories:

- Farmlands: Portions of the project study area are classified as prime farmland or farmland of statewide importance. Specifically, these areas are at the intersection of Observation Road and Piper Lane, the southern end and western edge of the western project study area, a majority of the eastern project study area. However, the majority project study area and the entire area where ground disturbing activity would occur, is within an area that the U.S. Census Bureau identifies as an urban area (U.S. Census Bureau, 2010). Under Section 523(10)(B) of the Farmland Protection Policy Act, land that the U.S. Census Bureau identifies as urbanized areas are not subject to the provisions of the Farmland Protection Policy Act. Figure 4-2 shows and excerpt from the official U.S. Census Bureau Urbanized Area Map, with the project study area outlined in red.
- Land Use: The Proposed Action would be constructed on Airport property and would be consistent with the current and future use of the Airport. In addition, the Proposed Action would not affect local comprehensive plans or zoning.
- Noise and Noise Compatible Land Use: The Proposed Action would not change the number or type of existing and future aviation operations at the Airport. Therefore, the Proposed Action would not affect the noise environmental at or around the Airport. Temporary noise from construction of the Proposed Action would be localized to the immediate vicinity of the Airport. The closest residential area is about 500 feet southeast of the project study area. Because construction would occur primarily during day-time hours, and given the dense vegetation, and current noise environment in the area (operation of aircraft), construction of the Proposed Action is not anticipated to cause significant effects to noise-sensitive land uses. In addition, construction and operation of the Proposed Action would comply with local noise ordinances.
- Wild and Scenic Rivers: The closest Wild and Scenic River is White Clay Creek, about 115 miles northeast of the project study area. Given the distance from the Proposed Action, the Proposed Action would not affect this resource.

This Page Intentionally Left Blank

FIGURE 4-2
2010 U.S. CENSUS BUREAU URBANIZED AREA MAP WITH PROJECT STUDY AREA



LEGEND

SYMBOL DESCRIPTION	SYMBOL	LABEL STYLE
International		CANADA
Federal American Indian Reservation		L'ANSE RES 1880
Off-Reservation Trust Land		T1880
Urbanized Area		Dover, DE 24580
Urban Cluster		*Tooele, VT 88057*
State (or statistically equivalent entity)		NEW YORK 36
County (or statistically equivalent entity)		ERIE 029
Minor Civil Division (MCD) [1,2]		Bristol town 07485
Consolidated City		MILFORD 47500
Incorporated Place [1,3]		Davis 18100
Census Designated Place (CDP) [3]		*Incline Village 35100*

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Interstate	3	Water Body	*Pleasant Lake*
U.S. Highway	2	Military	Fort Belvoir
State Highway	4	Outside Subject Area	
Other Road	Marsh Ln		
Railroad	Southern RR		
Perennial Stream	*Tumbling Cr*		
Intermittent Stream	*Piney Cr*		

Where international, state, county, and/or MCD boundaries coincide, the map shows the boundary symbol for only the highest-ranking of these boundaries.

1 A ' ° ' following an MCD name denotes a false MCD. A ' ° ' following a place name indicates that a false MCD exists with the same name and FIPS code as the place; the false MCD label is not shown.

2 MCD boundaries are shown in the following states in which some or all MCDs function as general-purpose governmental units: Connecticut, Illinois, Indiana, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Vermont, and Wisconsin. (Note that Illinois and Nebraska have some counties covered by nongovernmental precincts and Missouri has most counties covered by nongovernmental townships.)

3 Place label color corresponds to the place fill color.
Label colors: Davis Davis Davis Davis Davis

Geographic Vintage: 2010 Census (reference date: January 1, 2010)
Data Source: U.S. Census Bureau's MAF/TIGER database (TAB10)
Map Created by Geography Division: March 10, 2012

This Page Intentionally Left Blank

4.1 AIR QUALITY

The Clean Air Act (CAA) (42 U.S.C. §§ 7401-761q) is the primary statute that relates to air quality. The U.S. Environmental Protection Agency (USEPA) sets National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The USEPA identifies the following six criteria air pollutants for which NAAQS are applicable:

1. carbon monoxide (CO)
2. lead (Pb)
3. nitrogen dioxide (NO_2)
4. ozone (O_3)
5. particulate matter (PM_{10} and $PM_{2.5}$)
6. sulfur dioxide (SO_2)

USEPA calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria (science-based guidelines) for setting permissible levels (USEPA, 2017). The USEPA classifies geographic areas that are in violation of one or more NAAQS as nonattainment areas. The USEPA bases nonattainment designations on the degree of nonattainment (e.g., serious, severe, moderate, marginal), which dictates the year by which the area must be brought into attainment of the NAAQS. States with nonattainment areas must develop a State Implementation Plan (SIP) that demonstrates how the state will bring the area into attainment of the NAAQS within designated timeframes. The USEPA classifies areas where concentrations of the criteria pollutants are below the NAAQS as attainment areas. Lastly, areas with prior nonattainment status that have since transitioned to attainment are maintenance areas.

The project study area is in a maintenance area for the USEPA's $PM_{2.5}$ standard. The area is a marginal nonattainment area for the USEPA's 2008 O_3 standard. The Metropolitan Washington Air Quality Committee is the lead planning organization for the project study area. As the USEPA requires, the Metropolitan Washington Air Quality Committee has a SIP for the 8-hour O_3 standard and a maintenance plan for the $PM_{2.5}$ standard (Metropolitan Washington Council of Governments, 2007; Metropolitan Washington Air Quality Committee, 2013). According to the VDEQ (see **Appendix F**), the project study area is within an emission control area for oxides of nitrogen (NOx) and volatile organic compounds (VOCs).

4.2 BIOLOGICAL RESOURCES (INCLUDING FISH, WILDLIFE, AND PLANTS)

Relevant federal laws, regulations, EOs, and other guidance related to the protection of biological resources include:

- Endangered Species Act (ESA) (16 U.S.C. §§ 1531-1544)
- Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668 *et seq.*)
- Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 *et seq.*)
- Fish and Wildlife Coordination Act of 1980 (16 U.S.C. § 661-667)
- EO 13112, *Invasive Species* (64 Federal Register (FR) 6183)
- Marine Mammal Protection Act (16 U.S.C. § 1361 *et seq.*)

- Migratory Bird Treated Act (MBTA) (16 U.S.C. §§ 703 *et seq.*)
- EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (66 FR 3853)
- Incorporating Biodiversity Considerations into Environmental Impact Analysis under NEPA (CEQ, 1993)
- Memorandum of Understanding to Foster the Ecosystem Approach (CEQ, 1995)

The following regulations implement the federal acts that protect biotic communities:

- 50 CFR Parts 17 and 402 implement the ESA.
- 50 CFR Part 22 implements the Bald and Golden Eagle Protection Act.
- 50 CFR Part 600 implements the Magnuson-Stevens Fishery Conservation and Management Act.
- 50 CFR Parts 18 and 216 implement the Marine Mammal Protection Act.
- 50 CFR Part 21 implements the MBTA.

A survey of the area in which ground-disturbing activities could occur identified habitat types and the presence or absence of federally and/or state listed species. Analysis was conducted in the field by walking and evaluating transects, designed to allow the consultant to cover the topography in a manner that would evaluate the entirety of the study area and the habitat present. If any potential habitat for a listed species was identified as present or potentially present, a species-specific survey would have been requested from an individual listed on the *USFWS approved surveyors in Virginia list*. This list is a list of surveyors approved for specific species throughout the commonwealth. A species specific survey request was not necessary as part of this EA as the habitat for the Dwarf Wedgemussel (*Alasmidonta heterordon*) and Harperella (*Ptilinium nodosum*) was not present. The remainder of this section summarizes those findings and the full report is included in **Appendix B**. The survey area includes mature, mixed hardwood forest; upland vegetation; forested wetland; and areas of compactly graded grass. **Appendix B** describes these areas in detail. No federally or state listed fauna were observed in the area. Common species observed within or known to exist in these areas include white tailed deer, wild turkey, raccoon, gray squirrel, striped skunk, eastern cottontail, Virginia opossum, Eastern box turtle, black racer, and various species of frogs and skinks. No species were observed in the area of compactly graded grass, and no evidence of species was observed in the area. However, it is likely that birds and smaller species (field mice, rabbit, frogs, skinks) use the area.

According to the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC), there is the potential for three federally listed species to occur in the area. This includes the Dwarf wedgemusslce (*Alasmidonta heterodon*) (clam), Northern long-eared bat (*Myotis septentrionalis*) (bat), and Harperella (*Ptilimnium nodosum*) (flowering plant). None of these species were observed during the field survey. Based on the field survey and assessment, no suitable habitat for the Dwarf wedgemusscle or Harperella exist in the area of ground disturbing activities. There is suitable habitat for the Northern long-eared bat, but the area of ground disturbing activities is not near a mapped or known hibernacula.

The Virginia Department of Game and Inland Fisheries (VDGIF) information tool (VaFWIS) and input from the Virginia Department of Conservation and Recreation (VDCR), indicate that nine Commonwealth listed

species may occur within two miles of the area of ground disturbing activities (**Table 4-1**). As VDEQ's October 2017 letter (see **Appendix F**) describes, the Broad Run Stream Conservation Unit is adjacent to the project study area. The Broad Run Stream Conservation Unit has a biodiversity ranking of B3, which represents a site of high importance. Natural heritage resources for the Brook floater and Yellow lance are associated with that site.[2] Broad Run is also designated by the VDGIF as a "Threatened and Endangered Species Water" for the Brook Floater.

TABLE 4-1
STATE LISTED SPECIES WITH THE POTENTIAL TO OCCUR IN OR AROUND THE AREA OF GROUND DISTURBING ACTIVITIES

Species Common Name (*Scientific Name*)	Status	Field Survey Assessment
Atlantic Sturgeon (*Acipenser oxyrinchus*)	State Endangered / Federally Endangered	Not Observed/No Suitable Habitat
Northern long-eared bat (*Myotis septentrionalis*)	State Threatened / Federally Threatened	Not Observed/No Known cave or hibernacula
Little Brown Bat (*Myotis lucifugus lucifugus*)	State Endangered	Not Observed/No Known cave or hibernacula
Tri-colored Bat (*Perimyotis subflavus*)	State Endangered	Not Observed/No Known cave or hibernacula
Brook Floater (*Alasmidonta varicosa*)	State Endangered	Not Observed/No Suitable Habitat
Peregrine Falcon (*Falco peregrinus*)	State Threatened	Not Observed
Loggerhead Shrike (*Lanius ludovicianus*)	State Threatened	Not Observed
Henslow's Sparrow (*Ammodramus henslowii*)	State Threatened	Not Observed
Migrant Loggerhead Shrike (*Lanius ludovicianus migrans*)	State Threatened	Not Observed

Source: Mill Creek, 2016

Of the species identified by the VaFWIS, only the Brook Floater has been confirmed to have been observed within a two mile radius. While none of the four listed avian species (peregrin falcon, loggerhead shrike, Henslow's sparrow, and migrant loggerhead shrike) were observed during the field survey, the habitat in the area is suitable for those species. Given the migratory nature of those species, the current development, and countermeasures associated with the Airport's Wildlife Hazard Management Plan, it is unlikely that these species regularly use the area. This assessment is supported by the fact that none of the four avian species have been observed within a two mile radius of the survey area (see **Appendix B**).

4.3 CLIMATE

Relevant federal laws, regulations, and EOs that relate to climate include:

- CAA (42 U.S.C. §§ 7408, 7521, 7571, 7661 *et seq.*)

[2] The Yellow lance is currently listed as a species of special concern by the USFWS; the designate of species of special concern has no official legal status.

- EO 13514, Federal Leadership in Environment Energy and Economic Performance (74 FR 52117)
- EO 13653, Preparing the United States for the Impacts of Climate Change (78 FR 66817)
- EO 13693, Planning for Federal Sustainability (80 FR 15869)
- 40 CFR Parts 60, 85, 86, and 600 implement the CAA

The following regulations implement the federal acts related to climate.

- 40 CFR Parts 60, 85, 86, and 600 implement the CAA.

Greenhouse gases (GHG) are gases that trap heat in the earth's atmosphere. Both naturally occurring and man-made GHGs primarily include water vapor, carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Activities that require fuel or power are the primary stationary sources of GHGs at airports. Aircraft and ground access vehicles, which are not under the control of an airport, typically generate more GHG emissions than airport-controlled sources.

Research has shown there is a direct correlation between fuel combustion and greenhouse gas (GHG) emissions. In terms of U.S. contributions, the U.S. Government Accountability Office (GAO) reports that "domestic aviation contributes about three percent of total carbon dioxide (CO_2) emissions, according to USEPA data," compared with other industrial sources, including the remainder of the transportation sector (20 percent) and power generation (41 percent) (GAO, 2009). The International Civil Aviation Organization (ICAO) estimates that GHG emissions from aircraft account for roughly three percent of all anthropogenic GHG emissions globally (Melrose, 2010). Climate change due to GHG emissions is a global phenomenon, so the affected environment is the global climate (USEPA, 2009).

The scientific community is continuing efforts to understand the impact of aviation emissions on the global atmosphere. The FAA is leading and participating in a number of initiatives intended to clarify the role that commercial aviation plays in GHG emissions and climate. The FAA, with support from the U.S. Global Change Research Program and its participating federal agencies (e.g., National Aeronautics and Space Administration, National Oceanic and Atmospheric Administration, USEPA, and U.S. Department of Energy), has developed the Aviation Climate Change Research Initiative in an effort to advance scientific understanding of regional and global climate impacts from aircraft emissions. The FAA also funds the Partnership for Air Transportation Noise & Emissions Reduction Center of Excellence research initiative to quantify the effects of aircraft exhaust and contrails on global and U.S. climate and atmospheric composition. The ICAO is examining similar research topics at the international level (Maurice & Lee, 2007).

4.4 COASTAL RESOURCES

Relevant federal laws, regulations, and EOs that protect coastal resources include the Coastal Barrier Resources Act (16 U.S.C. § 3501 *et seq.*) and the Coastal Zone Management Act (16 U.S.C. §§ 1451-1466).

The western portion of the project study area, which is in the City of Manassas limits, is not within the Virginia Coastal Zone Program (VCP) boundary. The eastern portion of the project study area is within the

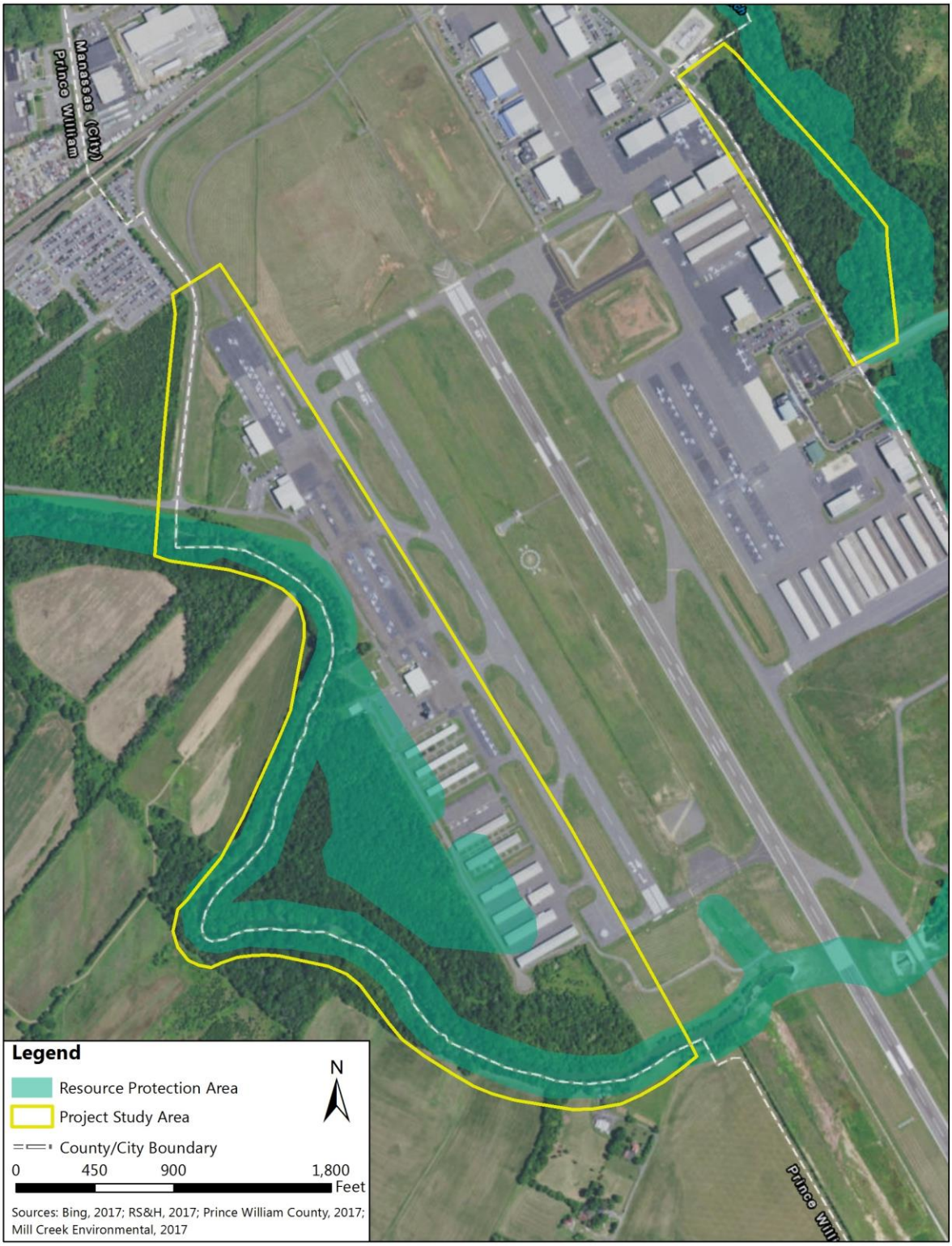
VCP boundary. The VDEQ is the lead agency and oversees the VCP office. The VCP has the following goals (VDEQ, 2017):

- "Goal 1: To protect and restore coastal resources, habitats, and species of the Commonwealth. These include, but are not limited to, wetlands, subaqueous lands and vegetation, beaches, sand dune systems, barrier islands, underwater or maritime cultural resources, riparian forested buffers, and endangered or threatened species.
- Goal 2: To restore and maintain the quality of all coastal waters for human and ecosystem health through protection from adverse effects of excess nutrients, toxics, pathogens, and sedimentation.
- Goal 3: To protect air quality.
- Goal 4: To reduce or prevent losses of coastal habitat, life, and property caused by shoreline erosion, storms, relative sea level rise, and other coastal hazards in a manner that balances environmental and economic considerations.
- Goal 5: To provide for sustainable wild fisheries and aquaculture.
- Goal 6: To promote sustainable ecotourism and to increase and improve public access to coastal waters and shorefront lands compatible with resource protection goals.
- Goal 7: To promote renewable energy production and provide for appropriate extraction of energy and mineral resources consistent with proper environmental practices.
- Goal 8: To ensure sustainable development on coastal lands and support access for water-dependent development through effective coordination of governmental planning processes.
- Goal 9: To avoid and minimize coastal and ocean resource use conflicts through research, planning, and a forum for coordination and facilitation among local, regional, state and federal government agencies, interest groups, and citizens.
- Goal 10: To promote informed decision-making by maximizing the availability of up-to-date educational information, technical advice, and scientific data including the use of new tools such as marine spatial planning."

Given the eastern portion of project study area's location in the VCP, the eastern portion of the project study area is subject to the requirements of the Chesapeake Bay Preservation Act. In addition, Broad Run, which intersects the western portion of the project study area, is within Prince William County and subject to the Chesapeake Bay Preservation Act.

The Chesapeake Bay Preservation Act is an enforceable program of the VCP and establishes resource protection areas (RPAs) around land at or near the shoreline that plays a critical role in the water quality value. RPAs have a 100-foot vegetation buffer along streams or rivers to help protect water quality. See **Figure 4-3** for the Prince William County designated RPAs in and around the project study area. Although RPAs are shown within the limits of the City of Manassas, the City of Manassas does not recognize RPAs because it is not part of the VCP, and, therefore, is not subject to the Chesapeake Bay Preservation Act which establishes RPAs. With regards to the RPA in the eastern portion of the project study area, an on-site delineation of the Cannon Branch RPA within the eastern portion of the project study area was reviewed and approved by Prince William County (see **Appendix F**).

FIGURE 4-3
RESOURCE PROTECTION AREAS



According to Prince William County, all creeks and streams in the County are subject to RPA buffers because they feed into the Potomac River and eventually to the Chesapeake Bay (Prince William County, 2017). Any work within an RPA requires County review and approval. The County does not allow the following activities in an RPA:

- New development
- Parking lots
- Clear-cutting trees
- Filling and grading activities
- Establishing Lawns

4.5 DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F)

Department of Transportation Act, Section 4(f) provides protection for special properties, including significant publicly owned parks, recreation areas, wildlife and waterfowl refuges, or any significant historic and archaeological sites. Relevant federal laws, regulations, and EOs that relate to Section 4(f) resources include:

- U.S. Department of Transportation (USDOT) Act – Section 4(f) (49 U.S.C. § 303.)
- Land and Water Conservation Fund Act of 1965 (16 U.S.C. §§ 4601-4604 et seq.)
- Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) – Section 6009 (49 U.S.C. § 303.)
- U.S. Department of Defense Reauthorization (Public Law (P.L.) 105-185, Division A, Title X, Section 1079, November 18, 1997, 111 Stat. 1916)

The following regulations implement the federal acts related to Section 4(f) resources.

- 23 CFR Part 774 et seq. implements USDOT Act – Section 4(f) and SAFETEA-LU – Section 6009
- 36 CFR Part 59 et seq. implements the Land and Water Conservation Fund Act of 1965

Section 4(f) of the USDOT Act provides that the Secretary of Transportation will not approve any program or project that requires the use of any publicly-owned park, recreational area, or wildlife or waterfowl refuge of national, state, or local significance or land from an historic site of national, state, or local significance, as determined by the officials having jurisdiction thereof, unless there is no feasible and prudent alternative to the use of such land and such program, and the project includes all possible planning to minimize harm resulting from the use.

There are no publicly owned wildlife and/or recreational areas, or lands purchased with Land and Water Conservation Funds (Section 6(f) resources) within the project study area. **Section 4.7** describes, in detail, potential historic properties in the project study area. Specifically, the Manassas Station Operations (VDHR # 076-5036), which extends into the project study area and the area where ground disturbing activities would occur, and archaeological site number 44PW0729, just west of the area where ground disturbing activities would occur.

4.6 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

Relevant federal laws, regulations, and EOs that relate hazardous materials, solid waste, and pollution prevention include:

- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- (42 U.S.C. §§ 9601-9765);
- Emergency Planning and Community Right to Know Act (42 U.S.C. §§ 11001-11050)
- Federal Facilities Compliance Act (42 U.S.C. § 6961)
- Hazardous Materials Transportation Act (49 U.S.C. §§ 5101-5128)
- Oil Pollution Prevention Act of 1990 (33 U.S.C. §§ 2701-2762)
- Pollution Prevention Act (42 U.S.C. §§ 13101-13109)
- Toxic Substances Control Act (TSCA) (15 U.S.C. §§ 2601-2697)
- Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §§ 6901-6992k)
- EO 12088, *Federal Compliance with Pollution Control Standards* (43 FR 47707)
- EO 12580, *Superfund Implementation* (52 FR 2923), (63 CFR 45871), and (68 CFR 37691)
- EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (72 FR 3919)
- EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* (74 FR 52117)

The following regulations and memorandum implement the federal acts related to hazardous materials, solid waste, and pollution prevention.

- 40 CFR Parts 300, 311, 355, 370, and 373 implement CERCLA.
- 40 CFR Parts 350-372 implement the Emergency Planning and Community Right to Know Act.
- 40 CFR Part 22 implements the Federal Facilities Compliance Act.
- 49 CFR Parts 100-185 implement the Hazardous Materials Transportation Act.
- 40 CFR Parts 109-116 implement the Oil Pollution Act.
- 40 CFR Parts 240-299 implements RCRA.
- 40 CFR Parts 745, 761, and 763 implements TSCA.

In a regulatory context, the terms "hazardous wastes," "hazardous substances," and "hazardous materials" have very specific meanings as described below.

- Hazardous Wastes: Subpart C of RCRA defines hazardous wastes (sometimes called characteristic wastes) as solid wastes that are ignitable, corrosive, reactive, or toxic. Examples include waste oil, mercury, lead or battery acid. In addition, Subpart D of RCRA contains a list of specific types of solid wastes that the USEPA has deemed hazardous (sometimes called listed wastes). Examples include degreasing solvents, petroleum refining waste, or pharmaceutical waste.
- Hazardous Substances: Section 101(14) of CERCLA defines this term broadly. It includes hazardous wastes, hazardous air pollutants, or hazardous substances designated as such under the Clean Water Act (CWA) and TSCA and elements, compounds, mixtures, or solutions, or substances listed

in 40 CFR Part 302 that pose substantial harm to human health or environmental resources. Pursuant to CERCLA, hazardous substances do not include any petroleum or natural gas substances and materials. Examples include ammonia, bromine, chlorine, or sodium cyanide.

- Hazardous Materials: According to 49 CFR Part 172, hazardous materials are any substances commercially transported that pose unreasonable risk to public health, safety, and property. These substances include hazardous wastes and hazardous substances as well as petroleum and natural gas substances and materials. As a result, hazardous materials represent hazardous wastes and substances. Examples include household batteries, gasoline, or fertilizers.

The USEPA identifies one hazardous waste site under RCRA in the project study area, Dulles Aviation, Inc. (USEPA, 2016). Dulles Aviation, Inc. is the FBO at the Airport and is a conditionally exempt small quantity generator (Handler ID: VAD982704686) under RCRA. The USEPA classifies Dulles Aviation as a petroleum and petroleum products merchant wholesalers (National Industry Classification System Codes 42472), flight training (National Industry Classification System Codes 611512), and other support activities for air transportation (National Industry Classification System Codes 48819). There are no toxic release sites, superfund sites, brownfields, or TSCA sites in the project study area (USEPA, 2016).

A physical inspection of the survey area was conducted in late 2016. No hazardous waste, toxic materials, or potential origins of hazardous waste production were observed in the survey area (see **Appendix C** for the full report). An Environmental Phase I report from Environmental Data Resources, Inc. was also obtained for the survey area. This report includes a search of all federal, state, and local databases for instances of pollution or environmental contamination in and around the survey area, which encompassed the area of ground disturbing activities and the construction staging area. No sites were reported in the survey area. One site, Dulles Aviation, was identified (see previous paragraph for description of this site) near the survey area. See **Appendix C** for the full Environmental Phase I report.

The closest landfill to the project study area is the Prince William County Sanitary Landfill, about 13 miles northwest of the project study area. The County expects the landfill to accommodate waste for the next 50 years (Prince William County, 2017). The County limits the amount of construction and demolition debris accepted at the facility in an effort to conserve space for municipal disposal needs. Construction and demolition debris are accepted at various recycling facilities in the area. Three of these facilities are within a five-mile radius of the project study area and include Envirosolutions, Galaxy Transfer Systems, Inc., and Broad Run Construction Waste Recycling (Metropolitan Washington Council of Goverments, 2017). These facilities are anticipated to have the capacity to accept construction and demolition debris for the foreseeable future.

4.7 HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL AND CULTURAL RESOURCES

The National Historic Preservation Act (NHPA) (54 U.S.C. §§300101 *et seq.*) establishes the Advisory Council on Historic Preservation, which oversees federal agency compliance with the NHPA. The NHPA also establishes NRHP, which the NPS oversees. Other applicable statues and EOs include:

- American Indian Religious Freedom Act (42 U.S.C. § 1996)

- Antiquities Act of 1906 (54 U.S.C. §§320301-320303)
- Archeological and Historic Preservation Act (54 U.S.C. §§ 312501-312508)
- Archeological Resources Act (16 U.S.C. §§ 470aa-470mm)
- USDOT Act, Section 4(f) (49 U.S.C. § 303)
- Historic Sites Act of 1935 (16 U.S.C. §§ 461-467)
- Native American Graves Protection and Repatriation Act (25 U.S.C. §§ 3001-3013)
- Public Building Cooperative Use Act (40 U.S.C. §§ 601a, 601a1, 606, 611c, and 612a4)
- EO 11593, *Protection and Enhancement of the Cultural Environment* (36 FR 8921)
- EO 13006, *Locating Federal Facilities on Historic Properties in Our Nation's Central Cities* (61 FR 26071)
- EO 13007, *Indian Sacred Sites* (61 FR 26771)
- EO 13175, *Consultation and Coordination with Indian Tribal Governments* (65 FR 67249)
- Executive Memorandum, Government-to-Government Relations with Native American Tribal Governments (April 29, 1994)
- Executive Memorandum on Tribal Consultation (Nov. 5, 2009) (65 FR 67249)
- USDOT Order 5650.1, Protection and Enhancement of the Cultural Environment

The following regulations implement the federal acts related to historical, architectural, archeological, and cultural resources.

- 36 CFR Parts 60, 62.1, 65, 68, 73, 78, 79, and 800 implement the NHPA.
- 43 CFR §§ 7.7 and 7.32, and 25 CFR Part 262.7 implement the American Indian Religious Freedom Act.
- 43 CFR Part 3 implements the Antiquities Act of 1906.
- 36 CFR Parts 68 and 79 implements the Archeological and Historic Preservation Act.
- 43 CFR Part 7, 36 CFR Part 79, and 25 CFR Part 262 implement the Archaeological Resources Protection Act.
- 23 CFR Part 774 implements the USDOT Act – Section 4(f).
- 36 CFR Part 65 implements the Historic Sites Act of 1935.
- 43 CFR Part 10 and 25 CFR § 262.8 implement the Native American Graves Protection and Repatriation Act.
- 41 CFR Parts 101-117 implement the Public Building Cooperative Use Act.

The Area of Potential Effect (APE) is the project study area and includes all areas of potential disturbance and all property within the view shed of the Airport. The FAA consulted with the Virginia Department of Historic Resources (VDHR) on the appropriateness of the APE. The VDHR did not object to the APE. See **Appendix D** for the consultation letter from the VDHR.

A Phase I archaeological survey was conducted for two portions of the survey area. Initial archival research shows that there has been extensive archaeological testing previously conducted at the Airport. Other areas were exempt from testing because of evidence of soil disturbance. The methodology used to determine the limits of the Phase I archaeological survey are included in **Appendix D**. No archaeological resources were identified in the survey area. One archaeological site, Site 44PW0729, has been identified within the project study area, just west of the survey area. This site has subsurface integrity and is interpreted as a campsite. The site is associated with the Middle Archaic to the Late Woodland prehistoric time period and is considered potentially eligible for listing on the NRHP. Planning efforts have resulted in the placement of a 20-foot buffer around the site for any planned development.

The closest National Register of Historic Places (NRHP)-listed resource is the Davis Beard House (10726 Bristow Road), about one-half mile west of the project study area (USEPA, NEPAssist, 2016). None of the buildings proposed for demolition or relocation are over 50 years old, a criterion for being eligible for listing on the NRHP. The Manassas Station Operations (VDHR # 076-5036) is a historic battlefield associated with the Manassas Battlefield Historic District, which is potentially eligible for listing on the NRHP. The district extends into the project study area and the area where ground disturbing activities would occur. **Appendix D** provides a detailed description of this site.

4.8 NATURAL RESOURCES AND ENERGY SUPPLY

The federal government encourages airport development that minimizes the use of consumable natural resources and minimizes demands on energy supplies. FAA policy also encourages developing facilities utilizing the highest design standards and incorporating sustainable designs.

Statutes and EOs that are relevant to natural resources and energy supply impacts include:

- Energy Independence and Security Act (42 U.S.C. § 17001 *et seq.*)
- Energy Policy Act (42 U.S.C. § 15801 *et seq.*)
- EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (72 FR 3919)
- EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* (74 FR 52117)

Natural resources and energy are consumed in the western portion of the project study area. The eastern portion of the project study area is undeveloped and, as such, no natural resources or energy are used in that area. Airport personnel and tenants regularly use consumable materials to maintain various airside and landside facilities and services. Those materials may include asphalt, concrete, aggregate for sub-base materials, various metals associated with such maintenance, and fuels associated with the operation of aircraft and vehicles.

Electrical power is necessary to keep the Airport operational and safe. The western portion of the project study area receives electricity supplies from the City of Manassas, which owns and maintains the electric distribution system within the city limits (City of Manassas, 2017). There is no electrical power provided to the eastern project study area because it is undeveloped. However, there are the existing electrical cables that run along the western edge of the eastern project study area.

4.9 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

This section describes the existing demographics of the area in and around the project study area as they relate to socioeconomics, environmental justice, and children's environmental health and safety risks. Workers related to construction at and operation of the Proposed Action are likely to reside in the City of Manassas and Prince William County. U.S. Census Bureau information for the City and County is the basis of the socioeconomic and environmental justice analyses. Census tracts are the smallest units that provide information on poverty, which is needed to determine effects on low-income populations. For consistency across this section, this EA uses information from the U.S. Census Bureau for Census Tracts 9013.04, 1903.05, and 9104.02 (see **Figure 4-4**).

4.9.1 Socioeconomics

The Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970 (42 U.S.C. § 61 *et seq.*), implemented by 49 CFR Part 24, is the primary statute related to socioeconomic impacts. Population, housing, and labor force data for the City of Manassas and Prince William County is included as the basis for evaluating potential socioeconomic impacts in **Chapter 5** of this EA.

4.9.1.1 Population

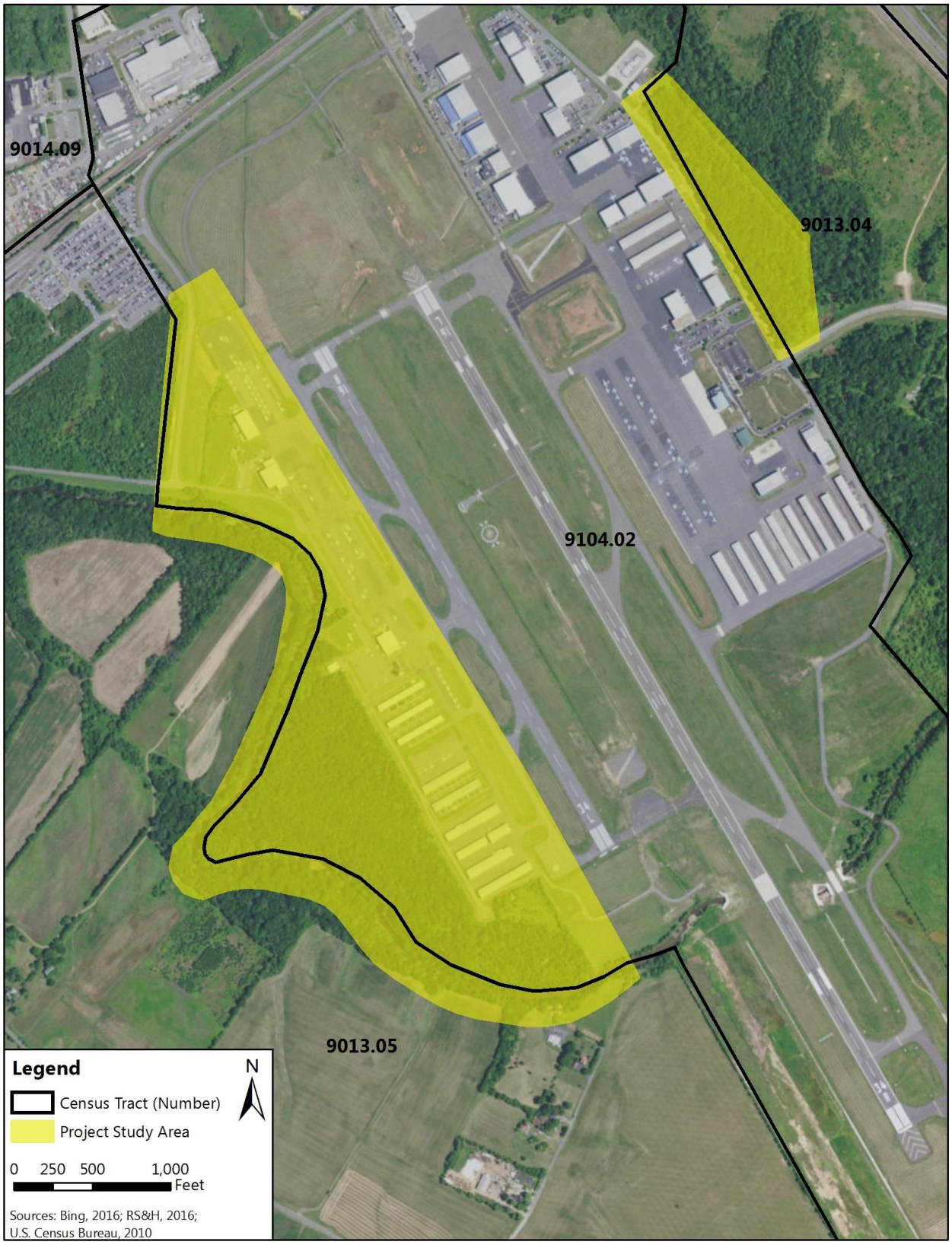
Table 4-2 lists the population growth from 2010 to 2015 in the census tracts that the project study area intersects, as well as the City, County, Commonwealth, and U.S. for comparison purposes. Between 2010 and 2015, the population in and around the project study area increased by an average of 10.51%. Comparatively, the population in the City and County increased at a slightly greater rate. The Commonwealth and U.S. had a slower rate of increase than the Census Tracts that the project study area intersects.

TABLE 4-2
POPULATION CHANGE BETWEEN 2010 AND 2015

Area	2010	2015	Percent Change
Census Tract 9013.04	2,486	2,388	-3.94%
Census Tract 9013.05	2,519	3,041	20.72%
Census Tract 9104.02	4,951	5,681	14.74%
City of Manassas	36,067	40,743	12.96%
Prince William County	379,415	437,271	15.25%
Commonwealth of Virginia	7,841,754	8,256,630	5.29%
United States	303,965,272	316,515,021	4.13%

Source: U.S. Census Bureau, 2010; U.S. Census Bureau, 2015

FIGURE 4-4
U.S. CENSUS BUREAU CENSUS TRACTS



4.9.1.2 Housing

Table 4-3 lists the total and vacant housing units in the referenced Census Tracts and surrounding geographies. An average of 8.14% of housing units are vacant in the referenced Census Tracts. About six percent and four percent of the housing units in the City and County, respectively, are vacant.

TABLE 4-3
HOUSING UNITS

Area	Total Units	Vacant Units (percentage)
Census Tract 9013.04	917	9.49%
Census Tract 9013.05	1,029	10.2%
Census Tract 9104.02	1,774	4.74%
City of Manassas	13,284	6.41%
Prince William County	142,786	4.20%
Commonwealth of Virginia	3,423,291	10.53%
United States	133,351,840	12.32%

Note: The U.S. Census Bureau considers vacant housing units those for rent; rented but not occupied; for sale; sold but not occupied; for seasonal, recreational, or occasional use; for migrant workers; and other vacant units.
Source: U.S. Census Bureau, 2015

4.9.1.3 Labor Force

The U.S. Census Bureau lists 5,734 employed civilians in the Census Tracts that intersect the project study area. The unemployment rate averages about eight percent in those tracts. Comparatively, the unemployment rate in the City and County is about eight percent and five percent, respectively. According to the 2012 Economic Census, retail trade and wholesale have the highest values of sales, shipments, receipts, revenue, or business done in the City and County (U.S. Census Bureau, 2012).

4.9.2 Environmental Justice

Relevant statutes, EOs, memorandums, and guidance include:

- Title VI of the Civil Rights Act, as amended (42 U.S.C. §§ 2000d-2000d-7)
- EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 FR 7629)
- Memorandum of Understanding on Environmental Justice and EO 12898
- USDOT Order 5610.2(a), Environmental Justice in Minority and Low-Income Populations (77 FR 27534)
- CEQ Guidance: Environmental Justice: Guidance Under the NEPA
- Revised USDOT Environmental Justice Strategy (77 FR 18879)

The following regulation implements the federal acts related to environmental justice:

- 28 CFR §42.401 implements Title VI of the Civil Rights Act, as amended.

In accordance with EO 12898, the CEQ issued guidance for each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations (CEQ, 1997). FAA Order 1050.1F, which is consistent with USDOT Order 5610.2(a) on Environmental Justice, establishes the requirements for assessing environmental justice impacts.

Table 4-4 describes the share of the population in poverty within the referenced Census Tracts compared to the City and County. About 6.6% of the population in the referenced Census Tracts are below the poverty level. **Table 4-5** shows the total minority presence in the referenced Census Tracts compared to the City and County. According to the U.S. Census Bureau, about 17.9% of the population in the referenced Census Tracts are minorities. This is less than that of the City and County.

TABLE 4-4
POPULATION BELOW THE POVERTY LEVEL

Area	Population for Whom Poverty Status is Determined	Percent of Population Living Below the Poverty Level
Census Tract 9013.04	1,894	5.8%
Census Tract 9013.05	3,041	4.4%
Census Tract 9104.02	2,372	9.6%
City of Manassas	40,716	9.7%
Prince William County	432,147	6.7%

Source: U.S. Census Bureau, 2015

TABLE 4-5
MINORITY POPULATION

Area	Total Population	Percent Minority
Census Tract 9013.04	2,388	9.8%
Census Tract 9013.05	3,041	12.4%
Census Tract 9104.02	5,681	31.4%
City of Manassas	40,743	28.6%
Prince William County	432,271	38.6%

Source: U.S. Census Bureau, 2015

4.9.3 Children's Environmental Health and Safety Risks

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (62 FR 19885) is the primary EO related to Children's Environmental Health and Safety Risks. EO 13045 directs federal agencies to identify and assess environmental health risks and safety risks that may disproportionately affect children.

In addition to the residential areas near the project study area, areas of particular concern for children's environmental health and safety risks include schools, day care facilities, children's health clinics, and

recreational facilities. The closest school to the project study area is Pennington Tradition School, about four miles northeast. As **Table 4-6** shows, the referenced Census Tracts, other than Census Tract 9013.05, have a lower percentage of children than the City and County.

TABLE 4-6
PERCENT OF CHILDREN (UNDER 18)

Area	Total Population	Percent Under 18 Years of Age
Census Tract 9013.04	2,388	22.5%
Census Tract 9013.05	3,041	28.5%
Census Tract 9104.02	5,681	22.8%
City of Manassas	40,743	27.1%
Prince William County	432,271	28.2%

Source: U.S. Census Bureau, 2015

4.10 VISUAL EFFECTS

A majority of the project study area is undeveloped (see **Figure 4-1**). The western portion of the project study area has Airport-related development (e.g., hangars, airfield pavement, parking). Off-Airport areas do not have a direct line-of-sight to the project study area due to other commercial development and vegetative buffers. The eastern portion of the project study area is undeveloped and has dense vegetation. Airport related development occupies most of the western portion of the project study area. The east parcel area consists largely of dense vegetation similar to the surrounding area.

The western portion of the project study area is illuminated for safety and security reasons by various types of landside lighting. These include lighting for buildings, the access roadway, apron area, and automobile parking areas. The closest residential area is about 500 feet southeast of the project study area. Given the dense vegetation, lighting from the project study area does not affect this area.

4.11 WATER RESOURCES

The following subsections describe the water resources in and around the project study area. Water resources include wetlands, floodplains, surface waters, and groundwater. As previously described, there are no Wild and Scenic Rivers in or around the project study area; therefore, that resource is not discussed in this section.

4.11.1 Wetlands

Statutes and EOs that are relevant to wetlands include:

- EO 11990, *Protection of Wetlands* (42 FR 26961)
- Clean Water Act (CWA) (33 U.S.C. §§ 1251-1387)
- Fish and Wildlife Coordination Act (16 U.S.C. § 661-667d)
- USDOT Order 6660.1A, Preservation of the Nation's Wetlands
- State statutes protecting wetlands

The following regulation implements the federal act related to wetlands.

- 33 CFR Parts 320-332 and 40 CFR Parts 230-233 implement the Clean Water Act as it pertains to wetlands.

The CWA defines wetlands as "…those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands have three necessary characteristics:

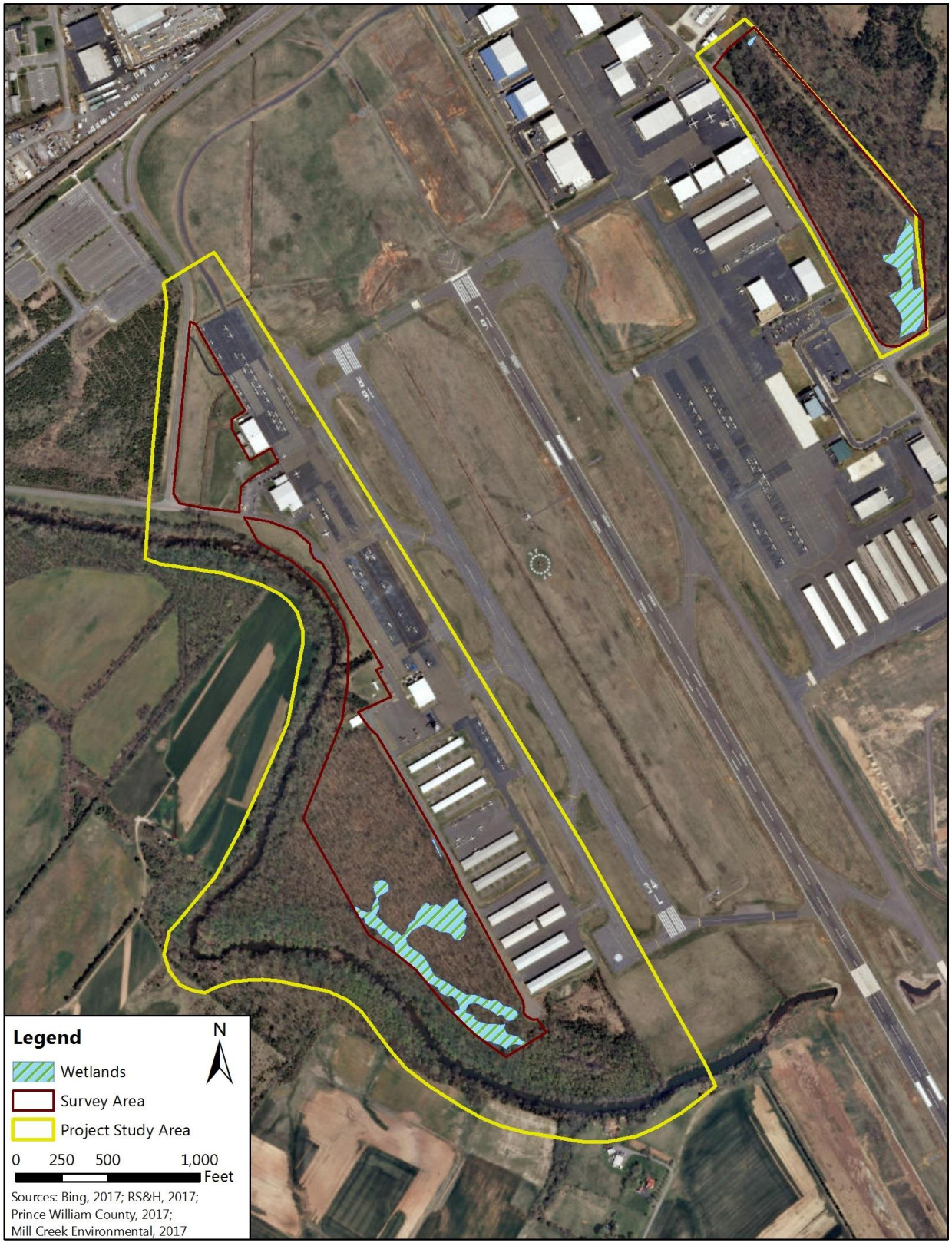
- Water: presence of water at or near the ground surface for a part of the year
- Hydrophytic Plants: a preponderance of plants adapted to wet conditions
- Hydric Soils: soil developed under wet conditions

A wetland field delineation of the survey area was conducted between October 24 and 26, 2016. Using the Wetland Determination form for the Eastern Mountains and Piedmont Region, 33 sample locations were used to make wetland/non-wetland determinations. Under the field survey, 4.84 acres of wetlands and 114 linear feet of other surface waters were delineated. The U.S. Army Corps of Engineers (USACE) confirmed the wetland boundaries on February 16, 2017. See **Appendix E** for the full wetland delineation report, including the Preliminary Jurisdictional Determination letter. The wetland types include palustrine forested wetlands and palustrine emergent wetlands. **Figure 4-5** shows the location of the identified wetlands in the survey area.

The wetlands identified in the west portion of the project study area appear to serve both hydrologic and biogeochemical functions. These wetlands serve a hydrologic function to the local area by providing a source of both long and short-term surface water storage. This surface water storage reduces flood peaks and serves as a source of stream moderation, especially during high runoff events. The storage provided by these wetlands also helps to reduce the amount of surface erosion sediments that could potentially make its way into Broad Run. These wetlands also provide a biogeochemical service to the local ecosystem through the retention of sediment. Much of the water entering this system enters via sheet, and storm-water flow associated with impervious surfaces. These surfaces can possess sediments, nutrients, metals, and other substances that have the potential to make their way into Broad Run. These wetlands may help store or filter these sediments.

The wetlands associated with the east portion of the project study area serve a hydrologic function to the local watershed by providing source of long and short-term water storage. Sheet and storm-water flow originating via precipitation on the surrounding landscape makes its way via steep downhill gradients toward Canon Branch, a perennial waterway. The water captured in the 1.49 acres of Palustrine Forested Wetlands is stored and slowly released in the adjacent Canon Branch. This hydrologic function serves as a source of short-term surface water storage, reducing downstream flood peaks. Additionally, the long-term storage provided by these wetlands helps moderate seasonal stream flows associated with Canon Branch.

FIGURE 4-5
DELINEATED WETLANDS



4.11.2 Floodplains

Relevant statutes and EOs pertaining to floodplains include:

- EO 11988, *Floodplain Management* (42 FR 26951)
- National Flood Insurance Act (42 U.S.C. § 4001 *et seq.*)
- USDOT Order 5650.2, Floodplain Management and Protection
- State and local statutes protecting floodplains

The following regulation implements the federal act related to floodplains.

- 44 CFR Part 60 implements the National Flood Insurance Act.

FEMA identifies portions of the 100-year floodplain (1% chance of annual flood) and floodway in the project study area. Floodplains are low-lying or flat areas adjoining waters that have a one percent or greater chance of a flood in any given year; also referred to as a 100-year flood event. FEMA defines a "regulatory floodway" as "the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height." (FEMA, 2016) **Figure 4-6** shows the location of the 100-year floodplain and floodway relative to the project study area. In the project study area, there are about 58 acres of floodway and about 41 acres of 100-year floodplain.

4.11.3 Surface Water

Relevant regulations and statues pertaining to surface waters include:

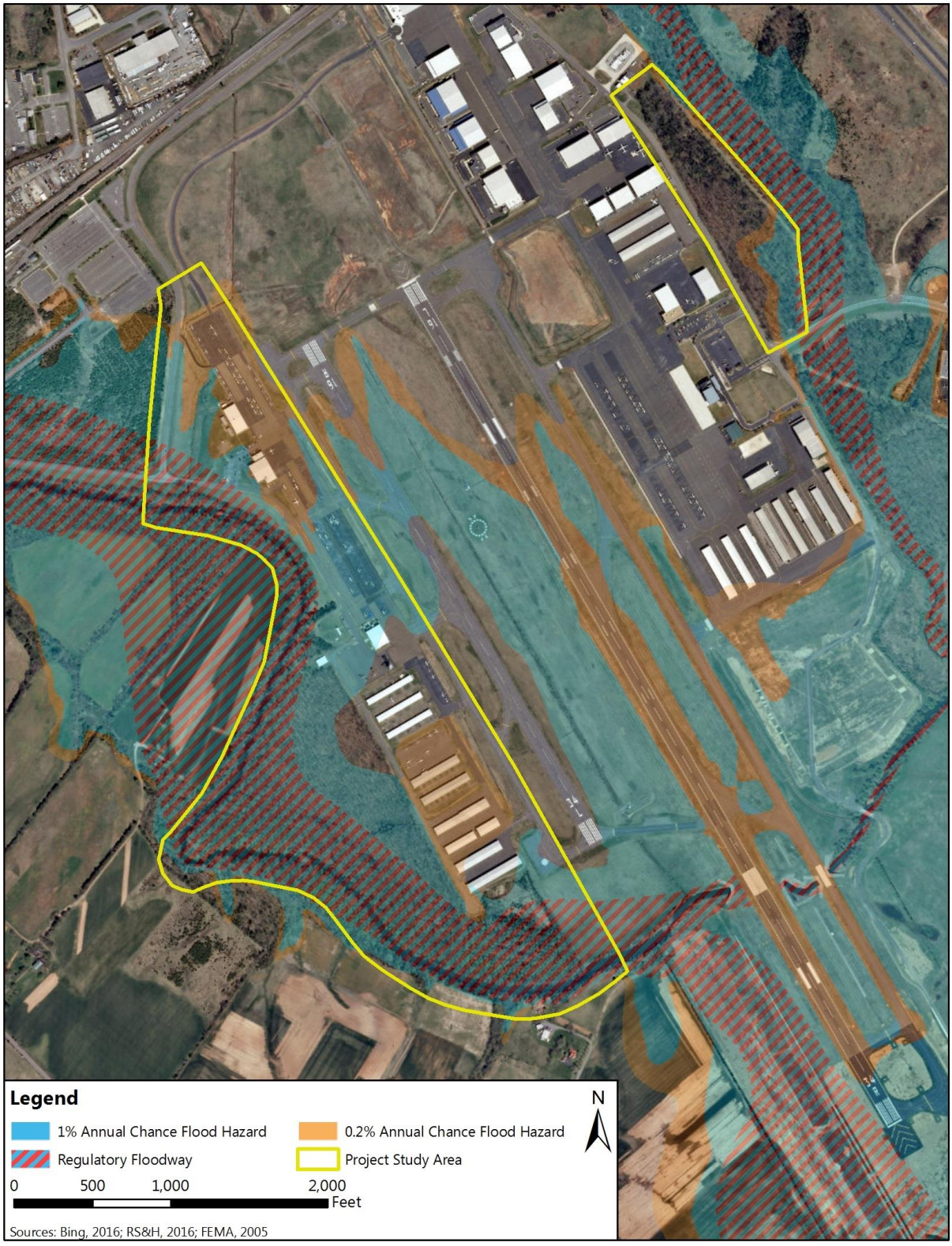
- CWA (33 U.S.C. §§ 1251-1387)
- Fish and Wildlife Coordination Act (16 U.S.C. § 661-667d)
- Rivers and Harbors Act (33 U.S.C. § 401 and 403)
- Safe Drinking Water Act (42 U.S.C. §§ 300(f)-300j-26)
- State statutes protecting surface waters

The following regulations implement the federal acts related to surface water.

- 40 CFR Parts 110-112, 116, 117, 122, 125, 129-131, 136 and 403 implement the Clean Water Act.
- 33 CFR Parts 114-118 and 320-332 implement the Rivers and Harbors Act.
- 40 CFR Parts 141-149 implement the Safe Drinking Water Act.

There are two surface water features in the project study area. Broad Road intersects the western portion of the project study area and Cannon Branch intersects the eastern portion of the project study area. Cannon Branch connects with Broad Run. As previously described, Cannon Branch and the west bank of Broad Run have an associated RPA which extends 100 feet on each side of the stream.

FIGURE 4-6
FLOODPLAINS



Precipitation that falls in the project study area moves to into Broad Run naturally or through a series of ditches and channels, which flows into the Middle Potomac-Anacostia-Occoquan basin. As the Virginia Department of Health – Office of Drinking Water describes (see **Appendix A**), there are no surface water intakes within a five-mile radius of the project study area.

The Airport operates under a Virginia Pollutant Discharge Elimination System Permit (VDEPS) General Permit (VAR050985) for stormwater discharge associated with industrial activity. This permit expires on June 30, 2019. The City also maintains an Oil Discharge Contingency Plan, an Integrated Spill Prevention, Control and Countermeasures (SPCC) Plan, and a Stormwater Pollution Prevention Plan (SWPPP) for the Airport. These plans outline best management practices (BMPs) for controlling potential pollutant releases to the surrounding surface waters. These plans also provide detailed procedures to follow in the unlikely event of a spill in order to minimize potential effects to the surrounding environment.

4.11.4 Groundwater

Relevant regulations and statues pertaining to groundwater include:

- Safe Drinking Water Act (42 U.S.C. §§ 300(f)-300j-26)
- State statutes protecting surface waters

The following regulation implements the federal act related to groundwater.

- 40 CFR Parts 141-149 implement the Clean Water Act as it pertains to groundwater.

The project study area is within the Broad Run Watershed (Prince William County, 2017). The City provides water sanitary sewer services to the Airport. The City draws water from Lake Manassas, the primarily water source, and if needed, the Prince William County Service Authority who draws water from the Potomac River (City of Manassas, 2015). The City uses the Prince William County Service Authority during peak consumption periods or in emergencies. As the Virginia Department of Health – Office of Drinking Water describes (see **Appendix A**), there are two public groundwater wells within one mile of the project study area at Broad Run Golf (PWS ID: 6153264) and Bristow Manor Golf Club (PWS ID: 6153041).

4.12 CUMULATIVE PROJECTS

This section identifies past, present, and reasonably foreseeable future actions that, when considered in combination with the Proposed Action, could contribute to potentially significant cumulative effects. The following summary of past, present, and reasonably foreseeable future actions include those undertaken or regulated by the City (on- and off-Airport property) and County. Past actions include actions completed between 2012 and 2016, present actions include those currently underway, and reasonably foreseeable future actions include those actions planned to occur between 2018 and 2020.

4.12.1 Past Actions

The following describes past actions that have occurred on- and off- Airport property between 2012 and 2016.

The City reported the following past actions on the Airport property:

- Extension of Runway 16L/34R

The following off-Airport projects have been completed near the Airport:

- Commercial development north of the Airport
- Widening of Route 28 to six lanes (Phase I)

4.12.2 Present Actions

The following projects are under construction at the Airport:

- HVAC unit replacement for the terminal building
- Airfield lighting regulator upgrades
- Airport signage upgrades
- Runway 34 Medium Intensity Approach Lighting System upgrade
- Taxiway D rehabilitation
- Comcast and Verizon fiber optics projects

There are no projects currently under construction around the Airport.

4.12.3 Reasonably Foreseeable Future Actions

The following describes the reasonably foreseeable future actions planned to occur at and around the Airport between 2018 and 2020.

The following on-Airport projects are reasonably foreseeable at the Airport between 2018 and 2020:

- Taxiway A rehabilitation
- Runway 16R/34L rehabilitation
- Security fiberline installation throughout the Airport
- Air Traffic Control Tower roof replacement
- Runway 16R/34L lighting system and Precision Approach Path Indicators upgrade
- Additional perimeter security gate installation
- Aurora development project

The following off-Airport projects are reasonably foreseeable between 2018 and 2020:

- Streetlight replacement throughout the City of Manassas
- Widening of Route 28 to six lanes (Phase II)

CHAPTER 5

ENVIRONMENTAL CONSEQUENCES

This Page Intentionally Left Blank

This chapter presents an analysis of the potential environmental effects from implementation of the Proposed Action compared to the No Action Alternative. The analyses in this chapter are consistent with FAA Orders 1050.1F and 5050.4B. To evaluate potential impacts, the analyses in this chapter overlay the components of the Proposed Action and No Action Alternative onto the existing conditions within the project study area for each environmental impact category presented in **Chapter 4**. The remainder of this chapter discusses the following environmental resource categories:

- Air Quality (**Section 5.1**)
- Biological Resources (**Section 5.2**)
- Climate (**Section 5.3**)
- Coastal Resources (**Section 5.4**)
- Department of Transportation Act, Section 4(f) (**Section 5.5**)
- Hazardous Materials, Solid Waste, and Pollution Prevention (**Section 5.6**)
- Historical, Architectural, Archaeological, and Cultural Resources (**Section 5.7**)
- Natural Resources and Energy Supply (**Section 5.8**)
- Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks (**Section 5.9**)
- Visual Effects (**Section 5.10**)
- Water Resources (**Section 5.11**)

5.1 AIR QUALITY

This section describes the significance threshold(s) pertaining to air quality and describes methodologies used to determine the potential air quality effects from of the Proposed Action compared to the No Action Alternative, and describes what those potential effects are.

5.1.1 Significance Threshold

FAA Order 1050.1F, Exhibit 4-1, provides the FAA's significance threshold for air quality, which states, "The action would cause pollutant concentrations to exceed one or more of the NAAQS, as established by the USEPA under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations."

In addition, air quality analysis considers the conformity of the Proposed Action with the SIP, as required by the General Conformity Rule under the Clean Air Act, as amended.

5.1.2 Methodology

Construction emissions are quantified using the USEPA MOVES model. Construction emissions include, but are not limited to, estimation of construction duration; construction type; materials used; estimated cost of construction; number, type, duration, and intensity of construction equipment usage; vehicle miles traveled; ambient meteorological conditions; fuel type used; and anticipated quantity of materials consumed. As **Chapter 1** describes, construction would occur over an estimated five-year period. The analysis provides the average annual construction emissions inventory over the five year period.

5.1.3 Environmental Consequences

The following sections describe the potential air quality effects from the No Action Alternative and Proposed Action.

5.1.3.1 No Action Alternative

Under the No Action Alternative, the west corporate development and east parcel development would not occur. The City would continue to operate the Airport and serve forecast aviation demands. Therefore, there would be no affect to air quality.

5.1.3.2 Proposed Action

Equipment and vehicle operations, demolition activities, paving activities, and other construction activities associated with the Proposed Action would cause air pollutant emissions. **Table 5-1** summarizes the estimated annual construction emissions from various sources. See **Appendix G** for the detailed construction emissions inventory.

TABLE 5-1
ANNUAL CONSTRUCTION EMISSIONS INVENTORY (TONS)

	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$	VOC
Emission Quantity	5.93	9.77	0.03	0.64	0.57	15.11
USEPA Threshold	N/A	100	N/A	N/A	100	50

N/A = Not Applicable
Source: RS&H, Inc.

The Proposed Action would increase surface traffic due to increased employment at the Airport; estimated to be at about 30 employees.[3] It is likely that these future employees would already reside in the region and would already be commuting to employment elsewhere in the region. Given the comparatively small change in the regional employment and the likelihood that future employees would already reside in the region, the Proposed Action would not materially change vehicle emissions in the area. In addition, the Proposed Action would not change aviation operations at the Airport. Therefore, the operation of the Proposed Action would not significantly affect air quality.

As **Chapter 4** describes, the project study area is in a nonattainment area for O_3 and a maintenance area for $PM_{2.5}$. This analysis compares the Proposed Action's emissions of VOC and NO_x, which are precursors to O_3, and the $PM_{2.5}$ to those of the No Action Alternative to determine if the net emissions would exceed the *de minimis* thresholds associated with the region's nonattainment status. As **Table 5-1** shows, the construction emissions associated with the Proposed Action would be below the applicable *de minimis* thresholds established under the General Conformity Rule and are presumed to conform. There is the potential for generators to be used during construction. The City would ensure that the installation of a generator(s) complies with 9 VAC 5-80, Article 6, Permits for New and Modified Sources, as the October VDEQ letter describes (see Appendix F).

[3] The number of employees is estimated based on projects at other airports of similar size and extent, as well as the type of development proposed (e.g., T-hangars and other GA/corporate hangars).

5.1.3.3 Mitigation and Best Management Practices

As described above, the Proposed Action would not exceed the *de minimis* threshold and no significant effect is anticipated. In the absence of potentially significant effects, mitigation measures are not proposed. Although construction of the Proposed Action would not cause a significant effect to air quality, the construction contractor would conduct construction activities, in accordance with 9 VAC 5-50-60 *et seq*. of the *Regulations for the Control and Abatement of Air Pollution* and FAA AC 150/5370-10G, *Standards for Specifying Construction of Airports*.

During construction, fugitive dust would be kept to a minimum by using control measures outlined in 9 VAC 5-50-60 *et seq*. of the *Regulations for the Control and Abatement of Air Pollution*. These include, but are not limited to:

- Use of water of chemicals for dust control (where possible and practicable);
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dust material;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments from soil erosion.

While open burning is not anticipated to occur during the construction of the Proposed Action, if open burning or use of special incineration devices were determined to be necessary, the activity would meet the requirements under 9 VAC 5-130-10 through 9 VAC 130-60 and 9 VAC 5-130-100 of the *Regulations for Open Burning*.

As described in the VDEQ's October letter (see **Appendix F**), the City would also ensure the selected construction contractor is aware of 9 VAC 5-45-780 *et seq*., typically applied to road construction, which places limitations on the use of "cut back."[4] Asphalt must be emulsified except when specific circumstances apply. In addition, there are time-of-year restrictions on its use from April through October in VOC emission control areas.

The selected construction contractor would also implement best management practices (BMPs), including, but not limited to:

- Reducing equipment idling time
- Using cleaner burning or low emissions fuel in equipment
- Encouraging employee carpooling
- Limiting construction activities during high wind events to prevent dust
- Reducing vehicle speeds on unpaved roads
- Installing tire washes and truck washes to deter tracking dirt and mud to areas outside the airport as vehicles enter and leave the disturbed, project-related work sites.

[4] Cut back is liquefied asphalt cement, blended with petroleum solvents.

The City would notify the selected construction contractor of the possible BMPs and incorporate BMPs into the construction contract.

5.2 BIOLOGICAL RESOURCES (INCLUDING FISH, WILDLIFE, AND PLANTS)

This section describes the significance threshold(s) pertaining to biological resources and describes methodologies used to determine the potential effects of the Proposed Action compared to the No Action Alternative, and describes those potential effects.

5.2.1 Significance Threshold

FAA Order 1050.1F, Exhibit 4-1, provides the FAA's significance threshold for biological resources, which states, "The USFWS or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species, or would result in the destruction or adverse modification of federally designated critical habitat."

5.2.2 Methodology

FAA Order 1050.1F, Exhibit 4-1, provides the factors that should be considered in evaluating the context and intensity of potential environmental impacts to biological resources, which include:

- "a long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area (e.g., a new commercial service airport);
- adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats;
- substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or
- adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance."

5.2.3 Environmental Consequences

The following sections describe the potential effects to biological resources of the Proposed Action compared to the No Action Alternative.

5.2.3.1 No Action Alternative

Under the No Action Alternative, the west corporate development and east parcel development would not occur. The City would continue to operate the Airport and serve forecast aviation demands. Therefore, there would be no affect to biological resources.

5.2.3.2 Proposed Action

The Proposed Action would, in part, disturb about 17 acres of previously undeveloped habitat. As previously described, some of this habitat has been previously disturbed (graded grassland) and is regularly mowed and maintained to help ensure a safe operating environment at the Airport. None of the affected habitats are rare, unique, or protected. These habitats are common in other areas around the Airport.

During construction activities, vegetation would be removed and water resources would be impacted within the limits of disturbance and direct mortality to individual animals could occur. As **Section 4.2** and **Appendix B** describe, no federally or state listed species, or evidence of those species, were observed in the area of ground disturbing activity. **Table 5-2** shows the determination of potential effects to federally and state listed species. For all species, the determinations are either "No Effect" or "Not Likely to Adversely Affect"

TABLE 5-2
THREATENED AND ENDANGERED SPECIES EFFECT DETERMINATION

Species Common Name (*Scientific Name*)	Status	Effect Determination
Dwarf wedgemussel (*Alasmidonta heterodon*)	Federally Endangered	No Effect
Harperella (*Ptilimnium nodosum*)	Federally Endangered	No Effect
Atlantic Sturgeon (*Acipenser oxyrinchus*)	State Endangered / Federally Endangered	No Effect
Northern long-eared bat (*Myotis septentrionalis*)	State Threatened / Federally Threatened	Not Likely to Adversely Affect
Little Brown Bat (*Myotis lucifugus lucifugus*)	State Endangered	Not Likely to Adversely Affect
Tri-colored Bat (*Perimyotis subflavus*)	State Endangered	Not Likely to Adversely Affect
Brook Floater (*Alasmidonta varicosa*)	State Endangered	No Effect
Peregrine Falcon (*Falco peregrinus*)	State Threatened	Not Likely to Adversely Affect
Loggerhead Shrike (*Lanius ludovicianus*)	State Threatened	Not Likely to Adversely Affect
Henslow's Sparrow (*Ammodramus henslowii*)	State Threatened	Not Likely to Adversely Affect
Migrant Loggerhead Shrike (*Lanius ludovicianus migrans*)	State Threatened	Not Likely to Adversely Affect

Sources: Mill Creek, 2016; RS&H, 2017

The USFWS certified the determination for federally-listed species through the USFWS IPaC process (see **Appendix B**). As VDEQ's October 2017 letter describes, VDCR found that the Proposed Action would not affect any documented state-listed plant and insect species. VDCR correspondence describes that the Yellow lance and Brook floater as natural heritage resources of concern (see Appendices B and F). VDCR recommended implementation of, and strict adherence to, applicable state and local erosion and sediment control/storm water management laws and regulations and also recommended further coordination with the VDGIF for the Brook floater. In VDEQ's October 2017 letter, it states that because no instream work is proposed as part of this Proposed Action, VDGIF does not anticipate adverse effects to the Brook floater. Overall, VDGIF did not indicate that wildlife or threatened and endangered species would be affected by the Proposed Action.

Federally and Commonwealth protected avian species, as well as species protected by the MBTA, were not observed in the area of ground disturbing activity. In addition there are no known bald eagle nests near

the area of ground disturbing activity. Wildlife biologists would conduct pre-construction surveys to determine the presence of active avian species nests in the area of ground disturbing activities. The selected construction contractor would avoid direct impacts to birds or active nests during construction and avoid impacts on any species the MBTA protects. This could be through the implementation of time-of-year restrictions. For example, the selected construction contractor would not remove trees during the time of year when certain avian species are known to nest through the time when youngling leave the nest. Time-of-year restrictions would depend on the species found, if any. The City would coordinate with USFWS and VDEQ to determine the appropriate avoidance measures, if necessary. Therefore, avian species would not be affected by construction of the Proposed Action.

5.2.3.3 Mitigation and Best Management Practices

The Proposed Action would not significantly affect biological resources, and is not likely to adversely affect protected species; therefore, mitigation is not required as part of the Proposed Action. The selected construction contractor could implement BMPs described in FAA AC 150/5370-10G to minimize potential indirect effects to biological resources (e.g., air quality, water quality). The City would notify the selected construction contractor to incorporate BMPs into the construction contract. Additionally, should any migratory bird nests be found during construction, the selected construction contractor would contact the City. The City would coordinate with the FAA, USFWS, and VDEQ. Construction activities would not resume without verbal and/or written authorization.

As VDEQ's October 2017 letter describes (see Appendix F), the selected construction contractor could also implement the following measures during development activities:

- Avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable.
- Maintain naturally vegetated buffers of 100 feet in width around wetlands and on both sides of perennial and intermittent streams, where practicable.
- Conduct significant tree removal and ground clearing activities outside of the primary songbird nesting season (March 15 through August 15).
- Implement and maintain appropriate erosion and sediment controls throughout project construction and site restoration.

5.3 CLIMATE

This section describes the significance threshold(s) pertaining to climate and describes methodologies used to determine the potential effects of the Proposed Action would have on climate compared to the No Action Alternative, and describes those potential effects.

5.3.1 Significance Threshold

While FAA 1050.1F does not provide a significance threshold for aviation-related GHG emissions, the projected increase in GHG emissions from the Proposed Action is discussed in the context of national and global GHG emissions from all sources.

5.3.2 Methodology

There are currently no accepted methods of determining significance for GHG emissions. Because the FAA has not established significance thresholds for climate, this section focuses on the disclosure of GHG emissions, rather than provision of an effect determination.

5.3.3 Environmental Consequences

The following sections describe the potential effects to climate from the No Action Alternative and Proposed Action.

5.3.3.1 No Action Alternative

Under the No Action Alternative, the west corporate development and east parcel development would not occur. The City would continue to operate the Airport and serve forecast aviation demands; consequently, the No Action Alternative would have no effect on climate. GHG emissions from operations at the Airport would continue to increase as aviation or other aviation related activity increased.

5.3.3.2 Proposed Action

Although there are no federal standards for aviation-related GHG emissions, it is well established that GHG emissions can affect climate. The Council on Environmental Quality (CEQ) has indicated that climate should be considered in NEPA analyses (FAA, 2012). As noted by CEQ, "it is not useful, for NEPA purposes, to link GHG emissions from a proposal to specific climatological changes to a particular site…When considering the GHG emissions, agencies do not need to calculate a proposal's GHG emissions as a percentage of nationwide or worldwide GHG emissions unless the agency determines that such information would be helpful to decision makers and the public to distinguish among alternatives and mitigations, or that the emissions and sequestration associated with a proposed action may rise to a significant level (CEQ, 2014)."

The use of fossil fuel powered machinery during construction of the Proposed Action would emit GHGs such as CO_2. These emissions would only last as long as construction activities (five years)..

The increase in employees at the Airport (an estimated 30 new employees), would increase vehicle-related GHG emissions in the project study area. As **Section 5.1** describes, the majority of the employees are likely to already live and work in the area; therefore, the vehicle-related GHG emissions in the area would not significantly change. In addition, the Proposed Action would not increase the number of aircraft operating at the Airport. Overall, the Proposed Action would not have a significant effect on GHGs and the global climate.

5.3.3.3 Mitigation and Best Management Practices

The FAA has not established a significance threshold related to GHG emissions and no significant affect is anticipated. In the absence of potentially significance effects, no mitigation measures are proposed. Although the Proposed Action would not significantly affect global GHG emissions, the Proposed Action could include BMPs to reduce construction-related GHG emissions to the highest level practicable. FAA AC 150/5370-10G identifies BMPs to minimize GHG emissions during construction. BMPs are similar to those for air quality and could include, but are not limited to:

- Reducing equipment idling time
- Using cleaner burning or low emissions fuel in equipment
- Encouraging employee carpooling,

5.4 COASTAL RESOURCES

This section describes the significance threshold(s) pertaining to coastal resources, describes methodologies used to determine the potential effects of the Proposed Action would have on coastal resources, and describes those potential effects.

5.4.1 Significance Threshold

FAA Order 1050.1F does not define a significance threshold for coastal resources; however, it does provide factors to consider in evaluating the context and intensity of potential environmental impacts to coastal resources. These include when the action would have the potential to:

- Be inconsistent with the relevant state coastal zone management plan(s);
- Impact a coastal barrier resource system unit (and the degree to which the resource would be impacted);
- Pose an impact to coral reef ecosystems (and the degree to which the ecosystem would be affected);
- Cause an unacceptable risk to human safety or property; or
- Cause adverse impacts to the coastal environmental that cannot be satisfactorily mitigated.

5.4.2 Methodology

This EA uses the requirements protecting coastal resources described in **Section 4.4** to assess environmental consequences. A coastal consistency letter was been prepared and submitted to VDEQ for review and concurrence. As **Section 4.4** describes, an on-site RPA delineation was conducted for this EA for the eastern portion of the project study area to determine the extent of the Cannon Branch RPA.

5.4.3 Environmental Consequences

The following sections describe the potential effects to coastal resources of the Proposed Action when compared to the No Action Alternative.

5.4.3.1 No Action Alternative

Under the No Action Alternative, the west corporate development and east parcel development would not occur. The City would continue to operate the Airport and serve forecast aviation demands. The No Action Alternative would not alter existing conditions related to coastal resources.

5.4.3.2 Proposed Action

The construction and operation of the east parcel development portion of the Proposed Action would occur in the VCP boundary. As **Section 4.4** describes, the west corporate development area is located entirely in the City of Manassas, which is not part of the VCP. This is supported by the VDEQ's October 2017 letter (see Appendix F), which states that the west corporate development is not subject to review for compliance with the Chesapeake Bay Preservation Act. Aside from the realignment of Wakeman Drive,

the construction associated with the east parcel development would not affect the designated Cannon Branch RPA. Prince William County approved the RPA delineation (see **Chapter 4** and **Appendix F**). Because the Proposed Action would not affect the RPA, Prince William County does not require the completion of a Preservation Area Site Assessment or PASA. The proposed development associated with the east parcel development would avoid the 100-year floodplain and delineated wetlands. As the October 2017 VDEQ letter describes, road improvements (e.g., realignment of Wakeman Drive) are considered exempt from the provisions of the Chesapeake Bay Preservation Act provided the road improvements are constructed in accordance with (i) regulations promulgated pursuant to the Virginia Erosion and Sediment Control Law and the Virginia Stormwater Management Act, (ii) an erosion and sediment control plan and a stormwater management plan approved by VDEQ, or (iii) local water quality protection criteria at least as stringent as the above state requirements (see **Appendix F**). The exemption of public roads is further conditioned on optimization of the road alignment and design, consistent with other applicable requirements, to prevent or otherwise minimize (i) encroachment into the RPA and (ii) adverse effects on water quality. Through coordination with VDEQ, the City realigned the potential extent of development associated with the east parcel development area in an effort to minimize encroachment into the RPA (see **Appendix F**). As the February 2018 VDEQ letter states, 9 VAC 25-830-110 of the Chesapeake Bay Preservation Area Designation and Management Regulations requires a site-specific RPA determination (see **Appendix F**) and a Water Quality Impact Assessment be submitted for projects that proposed land disturbing activities in RPAs. 9 VAC 25-830-140 also requires a Water Quality Impact Assessment for any proposed land development in an RPA.

The City would ensure that the Proposed Action is consistent with the enforceable policies of the VCP to the maximum extent practicable. A review of permits and approvals required for the Proposed Action under the enforceable polices of the VCP is included in the federal consistency certification in **Appendix F**. The City would coordinate the required Water Quality Impact Assessment with the VDEQ and Prince William County during the design phase of the east parcel development area. The layout analyzed in this EA is preliminary, and serves only as a basis to analyze the potential environmental effects associated with the maximum development of that area. As such, there is not sufficient data to complete a Water Quality Impact Assessment at this time. The VDEQ reviewed the Proposed Action and found the Proposed Action to be consistent with the Virginia Coastal Zone Management Program, provided that all applicable permits and approvals listed under the enforceable policies of the Coastal Zone Management Program are obtained prior to the implementation of the Proposed Action (see **Appendix F**).

5.4.3.3 Mitigation and Best Management Practices

As previously described, the Proposed Action is consistent with the Virginia Coastal Zone Management Program, provided that all applicable permits and approvals listed under the enforceable policies of the Coastal Zone Management Program are obtained prior to the implementation of the Proposed Action. The City would ensure that the Proposed Action is constructed and operated in accordance with all applicable federal, state, and local laws and regulations.

5.5 DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F)

This section describes the significance threshold(s) pertaining to Section 4(f) resources. This section also describes methodologies used to determine the potential effects of the Proposed Action compared to the No Action Alternative, and describes those potential effects.

5.5.1 Significance Threshold

FAA Order 1050.1F, Exhibit 4-1, provides the FAA's significance threshold for Section 4(f), which states, "The action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource."

For Section 4(f) purposes, a proposed action would "use" a resource in one of two ways.

Physical Use: The action physically occupies and directly uses the Section 4(f) resource. An action's occupancy or direct control (via purchase) causes a change in the use of the Section 4(f) resource. For example, building a runway safety area across a fairway of a publicly-owned golf course is a physical taking because the transportation facility physically used the course by eliminating the fairway.

Constructive Use: The action indirectly uses a Section 4(f) resource by substantially impairing the resource's intended use, features, or attributes. For example, a constructive use of an overnight camping area would occur when project-related aircraft noise eliminates the camping area's solitude. Although not physically occupying the area, the project indirectly uses the area by substantially impairing the features and attributes (i.e., solitude) that are necessary for the area to be used as an overnight camping area.

5.5.2 Methodology

FAA Order 1050.1F, Environmental Desk Reference (Desk Reference), Chapter 5, Section 3 provides guidance specific to airport projects to determine project use of a Section 4(f) resource. Methods used to determine land use compatibility under 14 CFR Part 150 (Noise Compatibility Planning) are helpful in determining if aircraft noise would cause a constructive use of Section 4(f) resources.

The project study area was reviewed for any publicly-owned park, recreational area, wildlife or waterfowl refuge, or historic site. An analysis of whether any components of any of the reasonable alternatives would have a physical or constructive use of the Section 4(f) was conducted. As described in **Section 4.7**, there are two Section 4(f) resources identified in the project study area: the Manassas Station Operations (VDHR # 076-5036) and Site 44PW0729.

5.5.3 Environmental Consequences

The following sections describe the potential effects to Section 4(f) resources associated with implementation of the Proposed Action compared to the No Action Alternative.

5.5.3.1 No Action Alternative

Under the No Action Alternative, the west corporate development and east parcel development would not occur. The City would continue to operate the Airport and serve forecast aviation demands. Therefore, there would be no affect to Section 4(f) resources.

5.5.3.2 Proposed Action

Construction and operation of the Proposed Action would occur entirely on Airport property and would not require the physical use (direct effect) of any Section 4(f) resource. With regards to Site 44PW0729, the City would ensure the protection of this site from construction-related activities by placing temporary fencing along the 20-foot buffer. In addition, the Proposed Action would not affect air quality, noise, or water quality in a manner that would indirectly affect that or any Section 4(f) resource. See **Section 5.7** for a detailed discussion regarding the *no adverse effects* determination for historic resources, including the FAA's *de minimis* determination for the Manassas Station Operations.

5.5.3.3 Mitigation and Best Management Practices

The City would place temporary fencing to ensure that construction-related activities avoid Site 44PW0729 and the associated 20-foot buffer. Because the Proposed Action would not cause direct or indirect effects to Section 4(f) resources, the City does not propose further mitigation or best management practices. See **Section 5.7** for the detailed discussion regarding historic resources.

5.6 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

This section describes the significance threshold(s) pertaining to hazardous materials, solid waste, and pollution prevention. This section also describes methodologies used to determine the potential effects of the Proposed Action compared to the No Action Alternative, and describes those potential effects.

5.6.1 Significance Threshold

FAA Order 1050.1F does not define a significance threshold for hazardous materials, solid waste, and pollution prevention; however, it does provide a number of factors to consider in evaluating the context and intensity of potential environmental impacts. FAA Order 1050.1F, Exhibit 4-1 states that these include when the action would have the potential to:

- "Violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management;
- Involve a contaminated site (including but not limited to a site listed on the National Priorities List). Contaminated sites may encompass relatively large areas. However, not all of the grounds within the boundaries of a contaminated site are contaminated, which leave space for siting a facility on non-contaminated land within the boundaries of a contaminated site. An EIS is not necessary required. Paragraph 6-2.3.a of [FAA Order 1050.1F] allows for mitigating impacts below significant levels (e.g., modifying an action to site it on non-contaminated grounds within a contaminated site). Therefore, if appropriately mitigated, actions within the boundaries of a contaminated site would not have significant impacts;
- Produce an appreciably different quantity or type of hazardous waste;
- Generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would exceed local capacity; or

» Adversely affect human health and the environment."

5.6.2 Methodology

This EA uses the information presented in **Section 4.6**, as well as the USEPA NEPAssist online tool. In order to determine potential impacts to those areas, the EA analyzes the potential increase in hazardous materials and waste at the Airport under the Proposed Action. The EA also analyzes how those materials and wastes would be handled and stored at the Airport.

5.6.3 Environmental Consequences

The following sections describe the potential effects to hazardous materials, solid waste, and pollution prevention of the Proposed Action compared to the No Action Alternative.

5.6.3.1 No Action Alternative

Under the No Action Alternative, the west corporate development and east parcel development would not occur. The City would continue to operate the Airport and serve forecast aviation demands. No construction related increase in the use or storage of hazardous materials would occur. The use and storage of hazardous materials would increase as activity levels at the Airport increased over time.

5.6.3.2 Proposed Action

Construction of the Proposed Action would temporarily increase on-site hazardous material storage. This would be primarily in the form of diesel fuel, necessary for the operation of construction equipment. Construction of the Proposed Action would also cause a short-term, temporary increase in the quantity of solid waste generated at the Airport. The selected construction contractor would be responsible for disposing of any waste in accordance with all federal, state, and local rules and regulations, including characterizing the all construction and demolition debris in accordance with the Virginia Hazardous Waste Management Regulations prior to disposal at an appropriate facility. Vegetative debris would be managed in accordance with the Virginia Department of Forestry *Best Management Practices for Water Quality* and EO 12088 *Federal Compliance with Pollution Control Standards*. As **Section 4.6** describes, the facilities in the area that accept construction and demolition debris are anticipated to have sufficient capacity for the foreseeable future. The addition of the construction and demolition debris from the Proposed Action would not have a substantial effect on the capacity of these facilities. In addition, the use of those facilities would allow some of the construction and demolition debris to be recycled or reused.

Construction would not occur at sites known or suspected to be contaminated. If hazardous materials are encountered at any time during the construction phase, all work would cease and actions per Virginia Solid Waste Management Regulations (9 VAC 20-81-620), Virginia Hazardous Waste Management Regulations (9 VAC 20-60) and Virginia regulations governing the transportation of hazardous materials (9 VAC 20-110-10 *et seq.*), and EO 13514 (*Federal Leadership in Environmental, Energy, and Economic Performance*) Section 2(e) would be followed. The construction of the Proposed Action would not affect the sites that **Section 4.6** describes. As the VDEQ October 2017 letter describes (see Appendix F), all structures being demolished/renovated/removed would be checked and cleared of asbestos-containing materials and lead-based paint prior to demolition/renovation/removal. The selected construction contractor would follow federal, state, and local regulations regarding these types of materials, should any

be found. If evidence of a petroleum release is discovered during construction activities associated with the Proposed Action, the selected construction contractor would immediately notify the City, which would report the discovery to VDEQ (per Virginia Code § 62.1-44.34.8 through 9 and 9 VAC 25-580-10 *et seq.*). Additionally, if the installation and use of an aboveground storage tank (less than 660 gallons) for temporary fuel storage (less than 120 days) is determined to be necessary for construction activities, the selected construction contractor would follow the requirements in 9 VAC 25-91-10 *et seq*.

Because the construction of the Proposed Action would disturb over one acre of land, the City would be responsible for obtaining a VPDES construction permit prior to the start of ground disturbing activities. The permit includes the development of a SWPPP to address any hazardous material issues, as necessary, associated with the Proposed Action.

Operation of the Proposed Action would not significantly change the type or quantity of hazardous materials used or stored at the Airport. Under the Proposed Action, the materials currently used in the hangars/buildings proposed for relocation would be moved to the new proposed locations. Tenants would be responsible for continuing to store and use hazardous materials in accordance with federal, state, and local rules and regulations. The Proposed Action would not significantly change the landscape maintenance needs of the Airport. However, should the use of pesticides or herbicides for landscape maintenance during construction or operation of the Proposed Action be required, the City would use chemicals in accordance with the principles of integrated pest management. Overall, the Proposed Action would not significantly affect hazardous materials, solid waste, or pollution prevention at the Airport. The County landfill has sufficient capacity to meet the solid waste needs of the Proposed Action. In addition, the Proposed Action would not affect the County landfill's expected capacity.

5.6.3.3 Mitigation and Best Management Practices

As previously described, the City would obtain a VPDES permit prior to the start of construction. Construction and operation of the Proposed Action would be in accordance with the provision of that permit, including the use of recommended BMPS. The City and selected construction contractor may also consider the following VDEQ pollution prevention recommendations as described in their February 2018 letter (see **Appendix I**):

- Development of an effect Environmental Management System.
- Consider environmental attributes when purchasing materials.
- Consider energy efficiency when choosing materials and products.
- Consider contractors' commitment to the environment when choosing contractors.
- Choose sustainable materials and practices for building construction and design
- Integrate pollution prevention techniques into the facility maintenance and operation, including inventory control for centralized storage of hazardous materials.

5.7 HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

This section describes the significance threshold(s) pertaining to historic, architectural, archaeological, and cultural resources. This section also describes methodologies used to determine the potential effects of the Proposed Action compared to the No Action Alternative, and describes those potential effects.

5.7.1 Significance Threshold

FAA Order 1050.1F does not provide a significance threshold for historical, architectural, archeological and cultural resources; however, it does provide a factor to consider in evaluating the context and intensity of potential environmental impacts. This would occur when the action would result in a finding of Adverse Effect through the Section 106 process. However, an adverse effect finding does not automatically trigger the preparation of an EIS (i.e., a significant impact).

5.7.2 Methodology

For purposes of this EA, historic, archeological, and cultural resources are districts, sites, buildings, structures, objects, landscapes, and Native American Traditional Cultural Properties (TCPs) that are on or eligible for listing on the National Register of Historic Places (NRHP). Such "NRHP properties" are nationally important due to their significant and respective roles in American history, prehistory, architecture, archeology, engineering and culture. Regulations at 36 Code of Federal Regulations (CFR) Part 800 *et seq.* provide detailed instructions to federal agencies on how to assess and address effects on those historically significant properties. A viewshed analysis was conducted to determine potential visual effects to historic resources (see **Appendix D**).

For archaeological resources, the results of the Phase I Archaeological Survey and metal detector survey (see **Section 4.7** and the complete surveys in **Appendix D**) were used to determine potential effects to archaeological resources.

5.7.3 Environmental Consequences

The following sections describe the potential effects to historical, architectural, archeological and cultural resources from the No Action Alternative and Proposed Action.

5.7.3.1 No Action Alternative

Under the No Action Alternative, the west corporate development and east parcel development would not occur. The City would continue to operate the Airport and serve forecast aviation demands. Therefore, there would be no affect to historical, architectural, archaeological, or cultural resources.

5.7.3.2 Proposed Action

As **Section 4.7** describes, there are no NRHP-listed resources in the APE. The closest NRHP site is over about one-half mile west of the APE. The Manassas Station Operations district is potentially eligible for listing on the NRHP and intersects the project study area. The Proposed Action would not change the viewshed of the APE or affect air quality, noise, or water quality in a manner that would affect that or any other NRHP-listed or eligible resource. See **Appendix D** for the detailed viewshed analysis. No archaeological resources have been identified in the direct APE (see **Section 4.7** and **Appendix D**). The

construction and operation of the Proposed Action would not affect archaeological resources. As previously described, Site 44PW0729 is immediately west of the survey area. The City would ensure the protection of this site from construction-related activities by placing temporary fencing along the 20-foot buffer described in **Section 4.7**.

The VDHR concurred with the FAA that the Proposed Action would have *no adverse effect on historic properties with the condition* that protective measures should be employed during construction for Site 44PW0729 (see **Appendix D**).

5.7.3.3 Mitigation and Best Management Practices

As previously described, Site 44PW0729 is located outside of the Proposed Action's limits of disturbance. However, the City would employ the measures described above (temporary fencing) to ensure that construction-related activities avoid this area and the associated 20-foot buffer. Overall, the Proposed Action would not cause direct or indirect effects to historical, architectural, archaeological, or cultural resources. In the unlikely event that there is an unanticipated discovery of archaeological material during construction, construction activities would stop immediately and the selected construction contractor would contact the City. The City will coordinate with the FAA and VDHR, and construction activities would not resume without verbal and/or written authorization.

5.8 NATURAL RESOURCES AND ENERGY SUPPLY

This section describes the significance threshold(s) pertaining to natural resources and energy supply. This section also describes methodologies used to determine the potential effects the Proposed Action compared to the No Action Alternative on those resources, and describes those potential effects.

5.8.1 Significance Threshold

FAA Order 1050.1F does not define a significance threshold for natural resources and energy supply; however, it does provide a factor to consider in evaluating the context and intensity of potential environmental impacts. Potentially significant effects could occur if the action would have the potential to cause demand to exceed available or future supplies of these resources, which include aviation and surface vehicle fuel, construction material, and electrical power.

Available industry information related to sustainable design and sustainable practices was reviewed to describe measures to reduce the potential landside development demands on natural resource and energy supplies. These useful references, recognized by the FAA are:

- Airports Cooperative Research Program (ACRP) Synthesis 10, Airport Sustainability Practices
- Sustainable Aviation Guidance Alliance Database

5.8.2 Methodology

This EA evaluates project-related potential effects on natural resources and energy supplies in the project study area. This is primarily done by examining how the Proposed Action would change landside operations compared to the No Action Alternative.

5.8.3 Environmental Resources

The following sections describe the potential effects to natural resources and energy supply of the Proposed Action compared to No Action Alternative.

5.8.3.1 No Action Alternative

Under the No Action Alternative, the west corporate development and east parcel development would not occur. The City would continue to operate the Airport and serve forecast aviation demands. No construction-related demand for natural resources would occur. Energy use would continue to increase as activity levels increased.

5.8.3.2 Proposed Action

Construction of the Proposed Action would temporarily increase the amount of natural resources used at the Airport. These could include prefabricated building components, aggregate, sub-base materials, and oils associated with the construction of the Proposed Action. These resources are not rare or in short supply, and the quantity required for development of this size would not place an undue strain on supplies. Construction would also increase the energy demand at the Airport; however, this increase would be temporary and minor, and within the supply capabilities of the City of Manassas.

Operation of the Proposed Action would increase the use of natural resources at the Airport in the form of water consumption, aviation fuel, and energy. The increase in the use of natural resources would not be significant and would not place a strain on the availability of resources for the surrounding area. The natural resources required by the Proposed Action are not rare or in short supply. For those reasons, the Proposed Action would not have a significant effect on natural resources compared to the No Action Alternative.

The Proposed Action would increase the overall energy requirements of the Airport compared to the No Action Alternative. Existing utilities would be extended to serve the proposed facilities. The ongoing operation of the Proposed Action would be well within the supply capabilities of the City of Manassas. The City would obtain the necessary permits for the extension of utility lines. New facilities would be built to current energy efficient building codes and would be designed to use less energy than similar existing facilities at the Airport. Sustainable design elements may be considered during the design of the Proposed Action to increase energy efficiency. For example, the proposed replacements and new structures could use light-emitting diode (LED) lighting through the facility, low flow plumbing fixtures, and energy efficient appliances, among other measures. For those reasons, the Proposed Action would not have a significant effect on energy supplies.

5.8.3.3 Mitigation and Best Management Practices

As previously described, the Proposed Action would be designed to current energy efficient code requirements and could also include sustainable design elements to reduce energy consumption. These elements may include energy efficient lighting and equipment. ACRP Synthesis 10, the Sustainable Aviation Guidance Alliance Database, and DOAV's *Virginia Airports Sustainability Management Plan* provide a wide range of sustainable elements that the selected design contractor could implement.

5.9 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

This section describes the significance threshold(s) pertaining to socioeconomics, environmental justice, and children's environmental health and safety risks. This section also describes methodologies used to determine the potential effects the Proposed Action compared to the No Action Alternative, and describes those potential effects.

5.9.1 Significance Threshold

The following sections describe the significance thresholds used to determine potential affects to socioeconomics, environmental justice, and children's environmental health and safety risks.

5.9.1.1 Socioeconomics

FAA Order 1050.1F does not provide a significance threshold for socioeconomics. It does provide a number of factors to consider in evaluating the context and intensity of potential environmental effects. Those factors to consider include the potential of the action to:

- Induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area)
- Disrupt or divide the physical arrangement of an established community
- Cause extensive relocation when sufficient replacement housing is unavailable
- Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities
- Disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities
- Produce a substantial change in the community tax base

5.9.1.2 Environmental Justice

FAA Order 1050.1F does not provide a significance threshold for environmental justice. It does provide a number of factors to consider include the potential of the action to have a disproportionately high and adverse impact to low-income or minority populations, due to:

- Significant impacts in other environmental impact categories
- Impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA determines are unique to the environmental justice population and significant to that population.

5.9.1.3 Children's Environmental Health and Safety Risks

FAA Order 1050.1F does not provide a significance threshold for children's environmental health and safety risks. It does provide a factor to consider in evaluating the context and intensity of potential environmental impacts. This is when the action would have the potential to lead to a disproportionate health or safety risk to children.

5.9.2 Methodology

The analysis in this EA, consistent with FAA requirements, considers the potential of the No Action Alternative and Proposed Action to:

- Move people from their homes
- Move people from their businesses
- Divide or disrupt established communities
- Change surface transportation patterns or traffic levels
- Disrupt orderly, planned development
- Create a notable change in employment.

5.9.3 Environmental Consequences

This section describes the potential socioeconomic, environmental justice, and children's environmental health and safety risk effects associated with implementation of the Proposed Action compared to the No Action Alternative.

5.9.3.1 No Action Alternative

Under the No Action Alternative, the west corporate development and east parcel development would not occur. The City would continue to operate the Airport and serve forecast aviation demands. The No Action Alternative would not differ from existing conditions with respect to socioeconomics, environmental justice, or children's environmental health and safety risks.

5.9.3.2 Proposed Action

The following paragraphs describe the potential socioeconomic, environmental justice, and children's health and safety risks that could result from implementation of the Proposed Action.

Socioeconomics

The following paragraphs describe the potential effects of the Proposed Action on population growth, housing, labor force and revenue, and surface transportation. This analysis assumes that there would be about 75 construction workers[5] based on the extent of the Proposed Action and about 30 new employees at the Airport for operation of the Proposed Action.

Population: The construction of the Proposed Action could cause the short-term employment of construction workers. Because construction associated with the Proposed Action would be temporary, this would not cause a shift in population growth or change population growth patterns.

The operation of the Proposed Action could increase employees at the Airport by about 30 people. It is reasonable to assume that these employees would be from the surrounding area and would not relocate from other areas. If all 30 people were to relocate, including their spouses and children, it would represent about a one percent increase in the population of the census tracts intersecting the project study area,

[5] The number of construction workers is estimated based on projects at other airports of similar size and extent, as well as the type of development proposed. The number of workers also takes into consideration that construction would occur in phases rather than at once; thereby reducing the number of construction workers on site at any given time.

and a less than 0.5% increase in population of the City of Manassas. Operation of the Proposed Action would not affect population growth or growth patterns.

Housing: It is likely that construction workers would be from the neighboring area and would not require temporary housing or increase housing demand in the area. In addition, the potential increase in employees at the Airport would not be significant and employees are likely to already reside in the area. If all anticipated new employees were to relocate to the area, there is adequate housing to accommodate them (see **Section 4.9**). Construction and operation of the Proposed Action would not place a strain on housing in the area.

Labor Force and Revenue: Construction workers would most likely be those already in the construction industry; therefore, construction of the Proposed Action would not materially affect the labor force in the area. In addition, the potential increase in employees at the Airport would not significantly affect the area's labor force. The Proposed Action would not require the relocation of any businesses and, therefore, would not decrease the existing employment base or local fiscal revenue.

Surface Transportation: This EA assumes there would be about 75 construction workers for the Proposed Action, with about 1.25 construction workers per vehicle (60 vehicles or 120 trips per day), including personal vehicles and construction vehicles. Construction vehicles would need to travel on local roads to access the project study area. Because construction-related traffic would likely occur before or after peak traffic times, construction-related traffic would not significantly affect the level of service of roadways around the Airport (Observation Road, Wakeman Drive, Harry J. Parish Boulevard). The City would phase construction in a way that allows Airport employees, tenants, and other users to have uninterrupted access to the Airport during construction-related activities. Potential traffic-related effects from construction would be temporary, lasting only as long as construction of the Proposed Action (five years).

The potential increase in tenant employees at the Airport would also increase the number of people traveling to the Airport. However, given the nature of operations at the Airport, it is unlikely that all tenant employees would travel to the Airport everyday (tenant employees would only travel to the Airport when needed for general aviation flights). In addition, the potential increase in employees (city and tenant) would not be significant. For those reasons, the Proposed Action would not significantly affect traffic in the area.

The Proposed Action does not include the permanent closure of any roads. As previously described, the intersection of Observation Road and Piper Lane would be modified to prevent flooding during precipitation events. Wakeman Drive would ultimately be realigned to allow for the development of the east parcel. These roadway realignments would not affect traffic patterns, and would ultimately improve access to the west side of the Airport during precipitation events, as well as continue to allow access to the east side of the Airport. The potential change in surface transportation activity by general aviation tenants/pilots to conduct aviation related activities on the west side of the Airport (e.g., recreational flying, maintain aircraft, or other activities) would be infrequent and dependent on a few factors (e.g., weather, fuel prices, personal time, etc.). The change in surface transportation is not expected to change the area roads level of service or road pavement conditions of Observation Road or Piper Lane. For these reasons,

an analysis of Piper Lane to handle additional minor and infrequent traffic, as recommended by Prince William County, was not conducted as part of this EA. According to the VDEQ October 2017 letter (see Appendix F), the Virginia DOT did not have any transportation-related concerns related to the project.

If during the design of the roadway improvements, it becomes apparent that a VDOT right of way would be affected, the City would coordinate with the VDOT to obtain the appropriate Land Use Permit. In addition, the City would coordinate with the appropriate local entities during the design and construction of the proposed roadway improvements.

Environmental Justice

Construction and operation of the Proposed Action would occur entirely on Airport property and would not require the relocation of residents or businesses. As described throughout this chapter, the Proposed Action would not cause significant environmental effects (e.g., air quality, water quality) and, therefore, the effects would not disproportionately affect any population surrounding the Airport.

Children's Environmental Health and Safety Risks

Construction and operation of the Proposed Action would not significantly affect surrounding communities. The Proposed Action would not increase exposure of environmental contaminants to children in the surrounding community. Overall, the Proposed Action would not affect children's environmental health and safety risks.

5.9.3.3 Mitigation and Best Management Practices

The Proposed Action would not have a significant socioeconomic, environmental justice, or children's environmental health and safety risks effect. Therefore, no mitigation or BMPs are proposed in association with the Proposed Action.

5.10 VISUAL EFFECTS

This section describes the significance threshold(s) pertaining to visual effects, the methodologies used to determine the potential visual effects of the Proposed Action compared to the No Action Alternative, and describes what those potential effects are.

5.10.1 Significance Threshold

FAA Order 1050.1F does not define a significance threshold for visual effects; however, Exhibit 4-1 of the Order provides a number of factors to consider in evaluating the context and intensity of potential environmental impacts.

For light emissions, these factors include the degree to which the action would have the potential to:

- "Create annoyance or interfere with normal activities from light emissions; and
- Affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources."

For visual resources/visual character, these include the extent the action would have the potential to:

- "Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;
- Contrast with the visual resources and/or visual character in the study area; and
- Block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations."

Potential aesthetic effects of an action are generally assessed by comparing the visual characteristics of the proposed development to existing development in the areas and to the environmental setting, and by determining if a jurisdictional agency considers this contrast objectionable. The visual effects resulting from constructing and operating the Proposed Action would result from physical changes to the visual character of the project study area, including existing development, landforms, vegetation, and water surfaces.

5.10.2 Methodology

Airport-related light emissions are of particular concern if light is directed towards a residential area or other sensitive site. Impacts from lighting associated with the Proposed Action are determined by evaluating the individual lighting systems to be developed at the Airport and assessing distance, light angle, and intensity as they relate to the surrounding light-sensitive land uses. These factors identify the potential for lighting to result in annoyance to local residents.

While the final appearance of the proposed development would be determined through a future design process, the analysis of visual effects uses the massing and layout of the proposed development to provide an indication of the Proposed Action's consistency with the visual character of the area.

5.10.3 Environmental Consequences

This section describes the potential visual effects associated with implementation of the Proposed Action compared to the No Action Alternative.

5.10.3.1 No Action Alternative

Under the No Action Alternative, the west corporate development and east parcel development would not occur. The City would continue to operate the Airport and serve forecast aviation demands. The No Action alternative would not differ from existing conditions.

5.10.3.2 Proposed Action

Construction activity is unlikely to occur during the nighttime hours; therefore, glare light emissions from construction activities is not expected. The Proposed Action would require lighting for safety and security reasons. Lighting would illuminate the interior and exterior of hangars and buildings, as well as line the roadways. Exterior illumination would be directional and focused lighting on vehicle and pedestrian movement areas. The existing vegetative buffers and the non-residential character of the surrounding off-Airport development further reduce the possibility that light emissions from the Proposed Action would create annoyance or interfere with normal activities.

The final build-out of the Proposed Action would be similar to the infrastructure and buildings at the Airport and would not alter the visual character of the area. The new development would be consistent in scale with the surrounding commercial development in the viewshed of the Proposed Action. Additionally, a vegetative buffer and off-Airport commercial development separates nearby land uses from the Airport, preventing a direct line-of-sight to the project study area.

5.10.3.3 Mitigation and Best Management Practices

The Proposed Action would not cause visual effects; however, BMPs to reduce possible glare could be implemented as appropriate. For example, shield hooding on lighting fixtures to direct light to specific areas could be used. In addition, specific landscaping and architectural treatments to complement the surrounding environment could be included in the design of the Proposed Action.

5.11 WATER RESOURCES

This section describes the significance threshold(s) pertaining to water resources, including wetlands, floodplains, surface water, and groundwater. This section also describes methodologies used to determine the potential effects the Proposed Action would have on those resources compared to the No Action Alternative, and describes those potential effects. As **Chapter 4** describes, there are no protected river segments in the project study area; therefore, this section does not discuss the resource category Wild and Scenic Rivers.

5.11.1 Significance Threshold

The following sections describe the significance thresholds used to determine potential effects to wetlands, floodplains, surface water, and groundwater.

5.11.1.1 Wetlands

FAA Order 1050.1F, Exhibit 4-1, defines the FAA's significance threshold for wetlands, which states, "The action would:

1. Adversely affect a wetland's function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers;
2. Substantially alter the hydrology needed to sustain the affected wetland system's values and functions or those of a wetland to which it is connected;
3. Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare (the term welfare includes cultural, recreational, and scientific resources or property important to the public);
4. Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands;
5. Promote development of secondary activities or services that would cause the circumstances listed above to occur; or
6. Be inconsistent with applicable state wetland strategies."

5.11.1.2 Floodplains

FAA Order 1050.1F, Exhibit 4-1 defines the FAA's significance threshold for floodplains, which states "The action would cause notable adverse impacts on natural and beneficial floodplain values."

5.11.1.3 Surface Water

FAA Order 1050.1F, Exhibit 4-1, defines the FAA's significance threshold for surface waters, which states, "The action would:

1. Exceed water quality standards established by Federal, state, local, and tribal regulatory agencies; or
2. Contaminate public drinking water supply such that public health may be adversely affected."

5.11.1.4 Groundwater

FAA Order 1050.1F, Exhibit 4-1, defines the FAA's significance threshold for groundwater, which states, "The action would:

1. Exceed groundwater quality standards established by Federal, state, local, and tribal regulatory agencies; or
2. Contaminate an aquifer used for public water supply such that public health may be adversely affected."

5.11.2 Methodology

This EA uses applicable laws and regulations to determine potential wetland impacts. The analysis includes data obtained during a wetland survey of the area, FEMA flood insurance rate maps, and information from the Virginia Department of Environmental Quality.

The potential impacts were assessed based on the location, preliminary planning, and intended function of the Proposed Action. The proposed disturbed areas and new impervious areas for the Proposed Action were analyzed to evaluate the potential short-term construction and long-term operational impacts. Possible impacts to groundwater recharge/discharge areas were investigated. Increases to potable water consumption and domestic wastewater treatment were also considered in regard to potential direct impacts or changes in operational activities.

5.11.3 Environmental Consequences

This section describes the potential wetland, floodplain, surface water, and groundwater effects associated with implementation of the No Action Alternative and the Proposed Action.

5.11.3.1 No Action Alternative

Under the No Action Alternative, the west corporate development and east parcel development would not occur. The City would continue to operate the Airport and serve forecast aviation demands. The No Action Alternative would not differ from existing conditions.

5.11.3.2 Proposed Action

The following paragraphs describe the effects of the Proposed Action in comparison with the No Action Alternative with respect to wetlands, floodplains, surface waters, and groundwater resources.

Wetlands

As **Chapter 4** describes, there are 4.84 acres of wetlands in the project study area. Of the identified wetlands, the proposed west corporate development could potentially affect 0.02-acre of palustrine emergent wetlands and 1.60-acres of palustrine forested wetlands on the west side of the Airport (see **Figure 5-1**). The impact to 1.60 acres of palustrine forested wetlands would be to meet floodplain mitigation requirements. These wetlands are considered non-tidal wetlands.[6] The development of the east parcel would not affect wetlands (see **Figure 5-2**). In total, the Proposed Action could potentially affect about 1.62-acre of wetlands. The approved mitigation ratio associated with the wetland permitting would take into account the appropriate amount of mitigation required to offset the impacts within the watershed, which includes the loss of wetland function in the watershed. Therefore, given the mitigation measures, the loss of wetland function associated with the Proposed Action would not have an overall effect on the watershed. It is anticipated that the impacts to the 1.60-acres of palustrine forested wetlands would require a minimum mitigation ratio of 2:1. Under those assumptions, the City would be required to purchase 3.2 credits for those associated wetlands, along with a 1:1 ratio for the 0.02 acre of palustrine emergent wetlands. This would lead to a total mitigation requirement of 3.22 credits that could be acquired through an invitation for bid process. As of December 15, 2017, there are over 20 banks that provide mitigation credits within the service area associated with the Proposed Action. There are currently over 70 credits available across that service area. These numbers will change and will not likely be the same when the time comes to make credit purchases. However, there does appear that the likelihood of credit availability will be high. This is also important when opened for a competitive bid process because the banks will have to compete for the opportunity to service the project.

The City would obtain an approved jurisdictional determination from the USACE, which remains valid for five years. The City would coordinate with the USACE, VDEQ, and Virginia Marine Resources Commission (VMRC) to determine the appropriate permit(s) and mitigation measures. During the preliminary design of the Proposed Action, a Joint Permit is likely to be required for potential wetland effects. Based on the potential effects, it is likely that an Individual Permit from the USACE would be required as well as a Virginia Water Protection General Permit 4 from VDEQ. Both of these permit processes are initiated via the submission of a non-tidal Joint Permit Application where the VMRC, USACE, and VDEQ would get a copy and have an opportunity to request further information if necessary.

In the west corporate area, the 0.02-acre palustrine emergent wetland impact cannot be avoided because the t-hangars cannot be expanded to the northeast due to FAA safety areas. There is not sufficient space north of the existing t-hangars for the expansion. In addition, there would be greater wetland impacts if the t-hangars were extended from the existing t-hangars to the south. The 1.60-acre palustrine forested wetland impact cannot be avoided because of the requirements for floodplain mitigation. The cut area for the floodplain mitigation cannot be located elsewhere. During the floodplain analysis, several locations upstream and downstream of the development were examined as potential sites for floodplain mitigation. The proposed mitigation site, adjacent to the project study area and on Airport property, achieved a "no-rise" condition of flood elevations required by the local floodplain authority, whereas other potential sites did not achieve a "no-rise" condition.

[6] Tidal wetlands are wetlands located in the VCP.

FIGURE 5-1
WETLANDS IN THE WEST CORPORATE DEVELOPMENT AREA

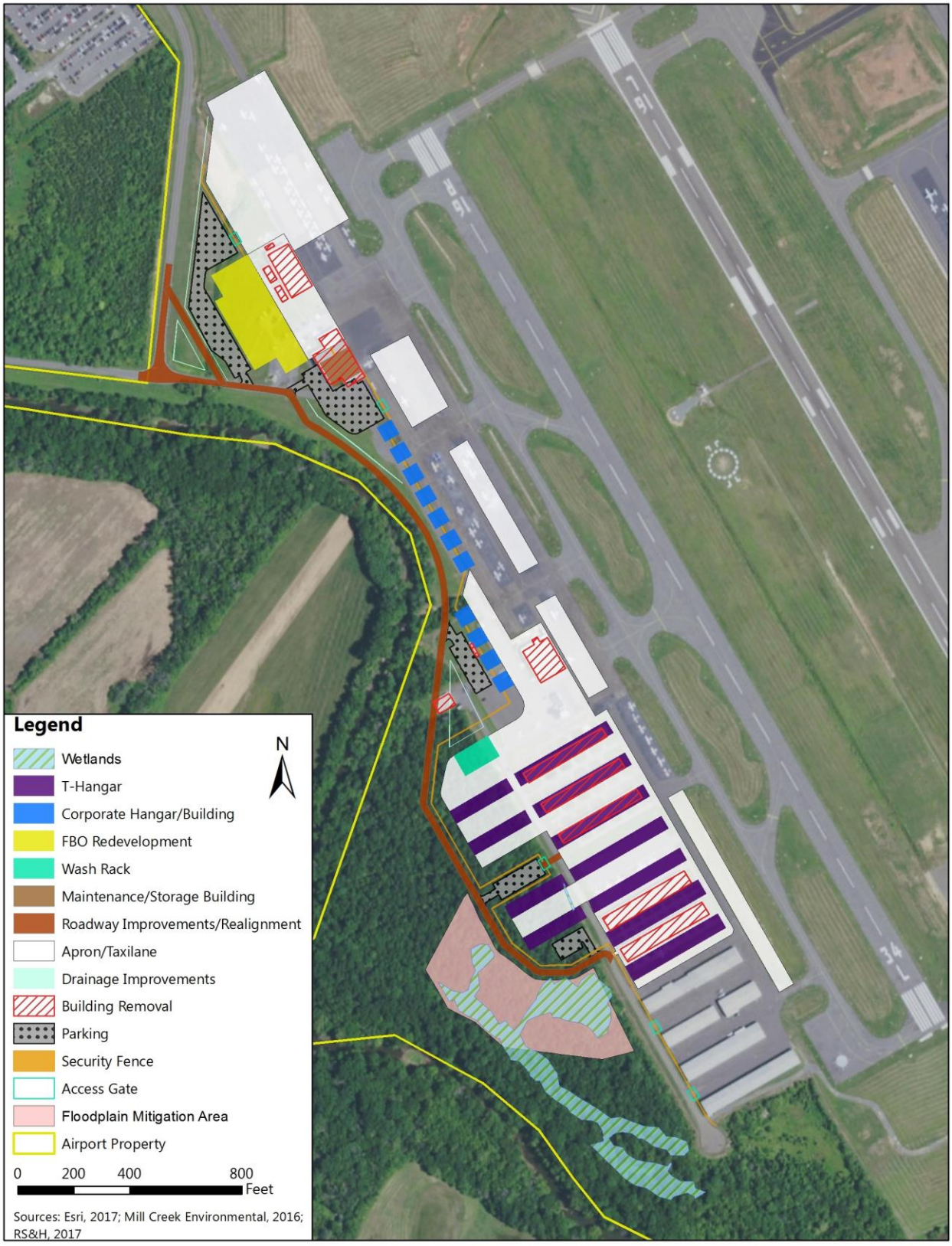


FIGURE 5-2
WETLANDS IN THE EAST PARCEL DEVELOPMENT AREA

The City would coordinate wetland mitigation with the appropriate entities (e.g., USACE, VMRC, and VDEQ) and obtain the necessary permits for wetland impacts prior to the start of ground disturbing activities associated with the Proposed Action. Potential mitigation strategies for unavoidable wetland impacts include, but are not limited to, wetland banking and in-lieu fees. Given the FAA's safety standards with regards to wildlife hazards and minimizing wildlife hazards on Airport property, the City could not create a wetland mitigation site on-Airport property.

Floodplains

About 2.7 and 19.9 acres of the proposed West Corporate Development are within the designated floodway and 100-year floodplain, respectively (see **Figure 5-3**). The proposed east parcel development would not affect the designated floodway or 100-year floodplain (see **Figure 5-4**). To comply with minimum floodplain standards required by the National Flood Insurance Program (NFIP) for new buildings in a Zone AE floodplain, new structures must be elevated to or above the base flood elevation (BFE). This could require placing fill in the floodplain. Additionally, the portion of the existing Airport access road within the designated floodway would be raised above the BFE to provide improved accessibility during flood events.

Placing fill in a base floodplain could adversely affect the floodplain's natural storage values and functions. This could result in loss of water storage during the one percent chance annual flood (100-year storm), raising the BFE, and causing flooding to areas outside the floodplain. Additionally, the floodplain provides the function of flood control by slowing flood flows and retaining water, thereby lessening the probability of upstream or downstream flooding. Placing obstructions in the floodplain could adversely affect the floodplain's flood control.

In compliance with USDOT Order 5650.2, Floodplain Management and Protection, a floodplain analysis was conducted using Hydrologic Engineering Center's River Analysis System (HEC-RAS). This analysis concluded that the Proposed Action would not result in an increase in the 100-year flood elevation (see **Appendix H**, Table 1) and would result in a change in flood boundaries on airport property only (see **Appendix H**). The Proposed Action would not affect aviation safety and Airport use or affect the likelihood of flood-induced spills of hazardous material stored at the Airport. Furthermore, it would not have substantial encroachment-associated costs or damage including interrupting service or loss of a vital transportation facility, nor result in notable adverse impacts on natural and beneficial floodplain values in or around the Airport. See Appendix H for the hydraulic report.

As **Chapter 3** describes, the floodplain impacts are unavoidable given the location of the Airport between Broad Run and Cannon Branch, the FAA safety area, and Airport property available for development. Mitigation would be required to minimize impacts of the Proposed Action on the existing floodplain boundaries and flood elevations. Mitigation measures include providing additional floodwater storage area(s) along Broad Run to convey floodwaters. Clearing & grubbing, excavation, other earthwork and ground stabilization are anticipated to complete the required mitigation.

FIGURE 5-3
FLOOD ZONES IN THE WEST CORPORATE DEVELOPMENT AREA

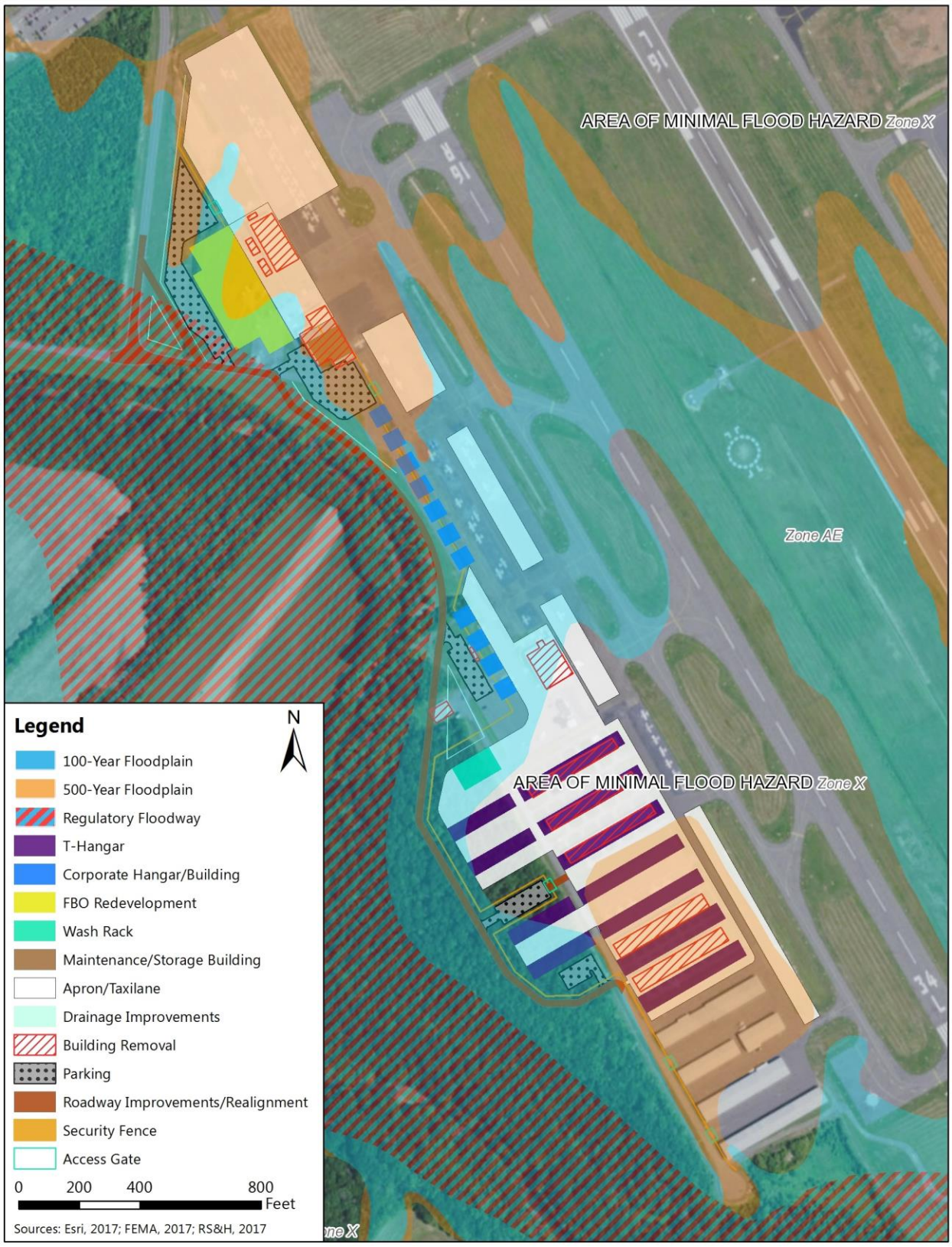
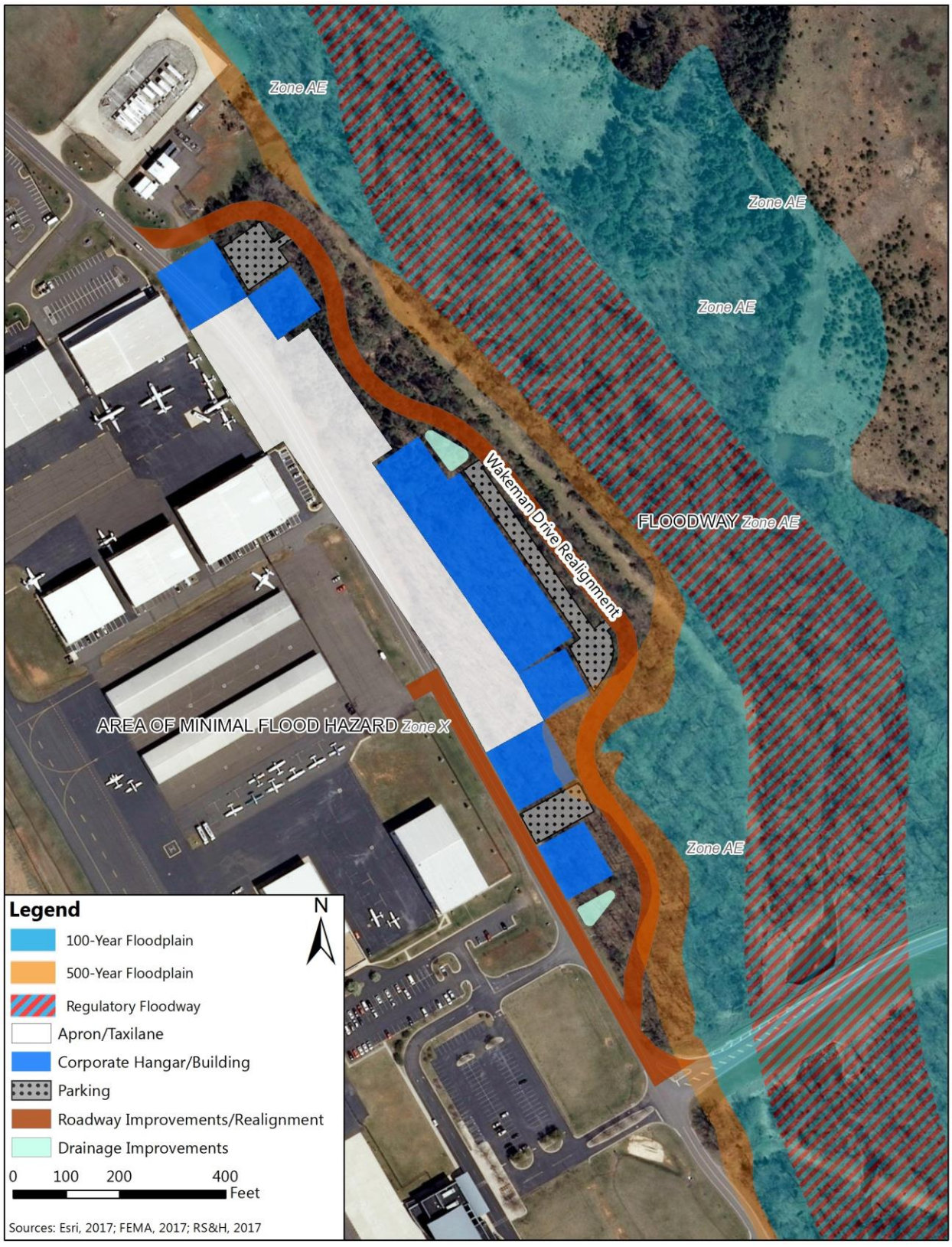


FIGURE 5-4
FLOOD ZONES IN THE EAST PARCEL DEVELOPMENT AREA



Efforts to minimize impacts on the floodway and 100-year floodplain were made during the design and grading of the proposed west corporate development. Observation Road was realigned to avoid the floodway to the maximum extent practicable at the intersection with Piper Lane. Roadway elevations were set at approximately the base flood elevation (BFE) as a safety measure to allow access to and from the Airport during a major storm event.

The City of Manassas and Prince William County have jurisdiction over the floodplain in the vicinity of the Airport. The City of Manassas and Prince William County reviewed hydrologic and hydraulic floodplain analyses and will not permit encroachment in the floodplain unless a "no-rise" condition is achieved or a Conditional Letter of Map Revision (CLOMR) is approved by FEMA. A CLOMR will be needed for the project because the Proposed Action is within the designated floodway. According to FEMA's CLOMR application instructions, the proponent (i.e., Airport) would need to submit proposed plans, certified by a registered Professional Engineer, for all the project elements. The Proposed Action is at a planning stage of development and proposed engineering plans are not ready to be developed. A CLOMR application cannot be submitted until more detail engineering plans of a facility are developed and ready for review. The information within this EA including the floodplains modeling and supporting documentation provides a significant portion of information to develop a FEMA CLOMR; when it is time to be completed. As such, a FEMA CLOMR application would need to be coordinated and completed prior to the initiation of construction of any improvement that effects a floodplain described under the Proposed Action.

Surface Water

The Proposed Action would increase impervious surface by about 25 acres. As previously described, the Proposed Action would affect wetlands, which are also considered surface waters, but would not directly affect other surface waters in the project study area (see **Section 4.11** for a description of those resources).

The implementation of the Proposed Action would permanently increase the amount of impervious surface by about 25 acres, which would increase stormwater runoff in the area. VDEQ regulates surface water quality and quantity through the Virginia Stormwater Management Program (VSMP). The Proposed Action would comply with *Virginia's Erosion and Sediment Control Law* (Virginia Code § 62.1-44.15:61) and *Regulations* (9 VAC 25-840-30 *et seq.*) and *Stormwater Management Law* (Virginia Code § 62.1-44.15:31) and *Regulations* (9 VAC 25-870-210 *et seq.*) as locally administered.

To meet VSMP requirements for water quality as identified in Virginia Administrative Code 9 VAC 25-870-66, the Proposed Action would include on-site stormwater management facilities for detention. Water quality compliance as identified in 9 VAC 25-870-65 requires that the Proposed Action include best management practices such as dry swales, bioretention, infiltration, and sheet flow to open space. In addition, the City would register for coverage under the Virginia Stormwater Management Program General Permit for Discharges of Stormwater from Construction Activities (9 VAC 25-870-1 *et seq.*) and would amend the Airport's VPDES Industrial Stormwater General Permit (VAR050985) for stormwater discharges associated with industrial activities. This update includes updating the Airport's SWPPP. The SWPPP is not expected to significantly change, but would be modified to reflect the Proposed Action and the associated outfalls.

Construction of the Proposed Action would have a less than significant effect on surface water. The City would be responsible for ensuring that a VPDES permit for construction activities is obtained prior to the start of ground disturbing activities. Under the VPDES, a SWPPP, specific to the construction of the Proposed Action, would be developed. The City would be responsible for ensuring that a project-specific erosion and sediment control plan is submitted to the City and County for review and approval prior to the start of ground disturbing activities. In addition, the selected construction contractor would be responsible for adhering to the VPDES permit requirements and implementation of BMPs during construction.

Construction and operation of the Proposed Action would not affect water quality in manner that would affect the quality of the public drinking water supply. In addition, the Proposed Action would not increase the use of public water supplies in a manner that would affect the overall supply of public water. The extension of utilities, including water and sewer lines, associated with the Proposed Action would be coordinated with, and verified by, the local utility entities.

Groundwater

The construction and operation of the Proposed Action could potentially affect groundwater due to the increase in impervious surface. In total, the Proposed Action would increase impervious surface by about 25 acres. As previously described, the City would be responsible for obtaining a VPDES permit prior to the start of ground disturbing activities, and would also be responsible for updating the existing VPDES general permit for the Airport to reflect the Proposed Action. Compliance with the requirements of the VPDES permit would prevent significant groundwater effects.

5.11.3.3 Mitigation and Best Management Practices

With regards to wetlands, the City would obtain and comply with the provisions of the applicable federal, state, and local permits. The selected construction contractor would be required to comply with these permit provisions. If mitigation is required, potential mitigation strategies for unavoidable wetland impacts include, but are not limited to, wetland banking and in-lieu fees. As stated in the February 28, 2018 VDEQ letter, the selected construction contractor may also implement the following BMPs to minimize unavoidable impacts to wetlands:

- Operate machinery and construction vehicles outside of stream-beds and wetlands.
- Preserve the top 12 inches of trench material removed from wetlands for use as wetland seed and root-stock in the excavated area
- Design erosion and sedimentation controls in accordance with the most current edition of the Virginia Erosion and Sediment Control Handbook.

In terms of floodplains and as previously described, mitigation measures for potential floodplain impacts could include providing additional floodwater storage area(s) along Broad Run to convey flood waters. Mitigation for floodplain compensation due to placement of fill from the proposed west corporate development were analyzed during the floodplain analysis. Potential floodplain compensation was modeled at three different locations along Broad Run in the hydraulic model. Compensation sites were located upstream, adjacent to, and downstream of the proposed west corporate development. The hydraulic model computed increases in BFEs for Broad Run when analyzing the compensation areas

upstream and downstream of the proposed west corporate development. Regulations governing the Airport require that potential west corporate development result in a no-rise to the BFEs from existing to proposed conditions. A combination of upstream and downstream mitigation also resulted in a rise to the BFEs. The proposed mitigation site, on Airport property, achieved a "no-rise" condition to the Broad Run BFEs required by the local floodplain authority.

As previously described, compliance with the VPDES construction and general permit would minimize potential water quality effects from construction and operation of the Proposed Action. The City would update the Airport's SWPPP, which outlines erosion and sediment control practices and methods for waste disposal and spill prevention. This include measures to reduce the possibility of accidental spills, improve response times if a spill does occur, and reduce safety hazards. Examples of these measures include, but are not limited to:

- Neat and orderly storage of any chemical or fuels being stored at the site.
- Regular garbage and waste disposal.
- Prompt cleanup of any spills of hydraulic fluids, liquid, or dray materials.
- Performance of regular preventative maintenance on all equipment to prevent leaks.

In addition to the above listed measures, the selected construction contractor may flag or clearly mark all non-impacted surface waters that are within 50 feet of any clearing, grading, or filling activities for the life of the construction activity within that area, as suggested in the February 28, 2018 VDEQ letter (see **Appendix I**)

As recommended in the VDEQ's October letter (see **Appendix F**), the City could consider utilizing permeable paving for walkways and parking areas, where appropriate, to reduce potential stormwater runoff effects. The selected construction contractor could also revegetate denuded areas promptly following construction work.

5.12 CUMULATIVE IMPACTS

This section describes the significance threshold(s) pertaining to cumulative effects. This section also describes the methodologies used to determine the potential for the Proposed Action to contribute to potentially significant cumulative impacts when considered with those of other past, present and reasonably foreseeable future actions.

5.12.1 Significance Threshold

The thresholds of significance in FAA Order 1050.1F, Exhibit 4-1 for each individual resource category apply to cumulative as well as direct and indirect impacts.

5.12.2 Methodology

The CEQ regulations require the analysis and disclosure of the Proposed Action's potential cumulative effects (40 CFR §§ 1508.25(a)(2) and (3)). This disclosure informs the public if the Proposed Action, when considered with other past, present, and reasonably foreseeable future actions would contribute to significant environmental effects.

Section 4.12 identifies past, present, and reasonably foreseeable actions that might contribute to cumulative effects. Cumulative effects are only possible for those resources that the Proposed Action would affect, specifically: air quality, biological resources, climate, coastal resources, hazardous materials, and water resources. The Proposed Action would not cause cumulative effects to resources that the Proposed Action would not affect (e.g., historic resources, visual effects). Each past, present, and reasonably foreseeable future action was cumulatively analyzed for its potential to affect the same environmental resources affected by the Proposed Action.

5.12.3 Environmental Consequences

This section describes the potential cumulative effects of the Proposed Action when considered with past, present, and reasonably foreseeable future actions.

5.12.3.1 No Action Alternative

The No Action Alternative has no effects that could contribute to potentially significant cumulative impacts.

5.12.3.2 Proposed Action

Implementation of the Proposed Action would cause less than significant environmental effects related to construction-related air emissions; biological resources; climate; coastal resources; hazardous materials, solid waste, and pollution prevention; natural resources and energy use; and water resources.

Air Quality

Construction emissions for the Proposed Action are below *de minimis* levels established in the Clean Air Act Amendments of 1993. In creating the *de minimis* emission level, EPA sought to limit the need to conduct conformity determinations for actions with minimal emission increases. General Conformity Regulations generally do not require the analysis of cumulative impacts of several projects. If that were required, all projects with *de minimis* emissions would be potential contributors to cumulative impacts. For that reason, construction of the Proposed Action would not contribute to cumulative emissions with respect to General Conformity. The fact that construction emissions would be *de minimis* limits the possibility that the Proposed Action, when considered in combination with other future projects could contribute to exceedance of a NAAQS.

As described in **Section 5.1**, operation of the Proposed Action would not increase emissions compared to the No Action Alternative. For this reason, operation of the Proposed Action would not contribute to cumulative air quality impacts.

Biological Resources

Past, Present, and reasonably foreseeable future actions and the Proposed Action could affect biological resources. The cumulative projects described in **Section 4.12** have not caused, or are not expected to cause, significant effects to biological resources. Given the potential effects of the Proposed Action that **Section 5.2** describes, the Proposed Action in addition to past, present, and reasonably foreseeable future actions is not anticipated to cause significant effects to biological resources.

Climate

The cumulative impact of the Proposed Action on the global climate when added to other past, present, and reasonably foreseeable future actions is not currently scientifically predictable. Aviation has been calculated to contribute about three percent of global CO_2 emissions; this contribution may grow to five percent by 2050. Actions are underway within the U.S. and by other nations to reduce aviation's contribution through such measures as new aircraft technologies to reduce emissions and improve fuel efficiency, renewable alternative fuels with lower carbon footprints, more efficient air traffic management, market-based measures and environmental regulations including an aircraft CO_2 standard. The U.S. has ambitious goals to achieve carbon-neutral growth for aviation by 2020 compared to a 2005 baseline, and to gain absolute reductions in GHG emissions by 2050. At present, there are no calculations of the extent to which measures individually or cumulatively may affect aviation's CO_2 emissions. Moreover, there are large uncertainties regarding aviation's impact on climate. The FAA, with support from the U.S. Global Change Research Program and its participating federal agencies (e.g., NASA, NOAA, USEPA, and U.S. Department of Energy), has developed the Aviation Climate Change Research Initiative in an effort to advance scientific understanding of regional and global climate impacts of aircraft emissions, with quantified uncertainties for current and projected aviation scenarios under changing atmospheric conditions.[7]

Coastal Resources

Past, present, and reasonably foreseeable future actions and the Proposed Action could affect coastal resources. However, work within the VCP requires coordination with the County and Commonwealth. VDEQ determines if a project is consistent with the VCP during the environmental permitting process. The cumulative projects are not anticipated cause significant adverse effects to the VCP.

Hazardous Materials, Solid Waste, and Pollution Prevention

Review of available information for past and present projects did not reveal any significant effects to hazardous materials and solid waste. Reasonably foreseeable future projects could potentially include facilities that store or handle waste. However, those projects would be required to follow federal, state, and local rules and regulations regarding the handling, storage, and use of hazardous materials. Additionally, projects at the Airport have been and/or would be included under the Airport's VPDES permit for the Airport. The City would amend, if needed, the procedures for managing solid waste at the Airport should the amount of solid waste generated exceed what can currently be managed. For those reasons, the Proposed Action in addition to past, present, and reasonably foreseeable future actions, is not anticipated to cause a significant cumulative effect to hazardous materials, solid waste, or pollution prevention.

Natural Resources and Energy Supply

The past, present, and reasonably foreseeable future actions and the Proposed Action could cause an increase in the use of natural resources and energy demand. However, the projects listed in **Section 4.12** and the Proposed Action does not require the use of unusual materials or materials that are in short

[7] Brown, N., M. Gupta, R. Jefferies, L. Maurice (2010), *The US. Strategy for Tackling Aviation Climate Impacts*, 27th International Congress of the Aeronautical Sciences, http://www.icas.org/ICAS_ARCHIVE/ICAS2010/PAPERS/690.PDF, accessed March 2016.

supply. Additionally, the utility provider for the area is expected to have sufficient capacity to handle the increase in energy supply.

Water Resources

The past, present, and reasonably foreseeable future actions and the Proposed Action could affect wetlands, floodplains, surface water, and groundwater.

With regard to wetlands and floodplains, the past, present, and reasonably foreseeable future actions have, or could have, wetland and/or floodplain impacts. On-Airport projects require that the City obtain any necessary permits from the appropriate state and/or federal agency (e.g., USACE, VDEQ, VMRC, FEMA) prior to the start of ground disturbing activities. In some instances, mitigation would be necessary to account for the permanent loss of wetland habitat or floodplains. If mitigation is not required (e.g., if wetland/floodplain impacts are below the mitigation threshold established by the overseeing agency such as USACE, VDEW, VMRC, or FEMA), the selected construction contractor would be required to adhere to permit provisions to further minimize potential impacts. Similarly, off Airport projects undertaken by the City or County would require wetland and/or floodplain permits and/or mitigation for wetland and/or floodplain impacts. For the reasons described in this paragraph, the Proposed Action, when considered in conjunction with other actions, would not cause a significant cumulative effect to wetlands or floodplains.

With regards to surface water and groundwater, each project that has or will disturb over one acre of land would require a VPDES construction permit. In addition, various water quality standards and regulations implemented at the federal and state level require development to address the increase in impervious surface and potential pollutants found in subsequent stormwater runoff. Compliance with permit requirements would preclude potentially significant impacts to surface water or groundwater. For the reasons described in this paragraph, the Proposed Action, when considered in conjunction with other actions, would not cause a significant cumulative effect to surface water or groundwater.

5.13 ANTICIPATED PERMITS

As described throughout Chapter 5, the City would be required to obtain various permits for implementation of the Proposed Action. **Table 5-3** lists the permits that are required regardless of potential environmental effects, as well as the permits that are dependent on factors that can only be determined after the final design.

TABLE 5-3
ANTICIPATED PERMITS FOR THE PROPOSED ACTION

Permit Name	Permit Entity	Environmental Resource Category (EA Section)	Required/Conditional
VPDES construction permit	VDEQ	Hazardous Materials, Pollution Prevention, and Solid Waste (5.6)	Required for construction activities
VPDES Industrial Stormwater General Permit	VDEQ	Water Resources (5.11)	Required for anticipated effects (update to existing permit)
Joint Permit	USACE / VDEQ / VMRC	Water Resources (5.11)	Required for anticipated effects
Permits for New and Modified Sources	VDEQ	Air Quality (5.1)	Conditional upon use of generators during construction
Utility Extension Permits	City of Manassas / Prince William County	Natural Resources and Energy Supplies (5.8)	Required for anticipated effects
Land Use Permit	VDOT	Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks (5.9)	Conditional upon final roadway design
Conditional Letter of Map Revision	FEMA	Water Resources (5.11)	Required for anticipated effects
Letter of Map Revision	FEMA	Water Resources (5.11)	Required for anticipated effects

CHAPTER 6

AGENCY AND PUBLIC INVOLVEMENT

This Page Intentionally Left Blank

The EA coordination process described in this chapter provide interested agencies and the public the opportunity to comment on the potential effects of the construction and operation of the Proposed Action.

As NEPA and FAA Order 1050.1F require, a public involvement process will be conducted. This process provides the opportunity for public and agency input regarding the Proposed Action analyzed in this Environmental Assessment (EA). The public and agency involvement process will:

- Provide information about the Proposed Action's purpose and need and the alternatives the EA discusses.
- Obtain feedback about the above information from the public and agencies interested in and affected by the Proposed Action (i.e., interested parties).
- Inform those interested that the EA will provide a full and fair discussion of project related environmental effects.
- Provide timely public notices to the interested parties so that they may submit comments and participate in public open meetings concerning the Proposed Action.
- Record comments received from interested parties.

6.1 PUBLIC INVOLVEMENT AND AGENCY COORDINATION APPROACH AND PROCESS

Pertinent federal statutes, regulations, executive orders, and guidance are considered when conducting the public involvement process. **Table 6-1** lists the agencies that were sent an initial coordination letter providing details on the components of the Proposed Action, and provided the opportunity to comment (see **Appendix A**). The agency comments received in response to the initial the initial coordination letters are reflected in the application sections of **Chapter 4** (Affected Environment) and **Chapter 5** (Environmental Consequences). Copies of the agency response letters are included in **Appendix A**.

As part of the VDEQ Federal Consistency Certification process, VDEQ invited the public to participate in the review of the Proposed Action. Public notice was published in the Office of Environmental Impact Review Program Newsletter and on the VDEQ website from May 3, 2017 to June 2, 2017. No public comments were received as part of the VDEQ Federal Consistency Certification Process.

6.2 DISTRIBUTION OF DRAFT EA

The City published a notice of availability for the Draft EA in the Fauquier Times | Prince William Times | Gainesville Times (see **Appendix I**). The Draft EA was made available for a 30-day review (30-days after the notice of availability advertisement) at the Airport's administrative office during normal business hours, on the Airport's projects website (http://www.manassasregionalairportprojects.com/), and at a local library (see **Table 6-2**).

Electronic copies were sent to agencies who requested a copy of the Draft EA for review. A public workshop was held on February 20, 2018 from 5:00 pm to 7:00 pm Eastern Standard Time, in the Manassas Regional Airport Administrative Office Lobby and Conference Room 1. No agency/organization

representatives attended the meeting. Three individuals of the public attended the meeting, but did not provide written comments. Agency comments on the Draft EA are addressed, as appropriate, in this Final EA. Responses to each comment received are included in **Appendix I**. **Table 6-3** lists the agencies that were sent a copy of the Draft EA and which agencies provided comments.

6.3 FINAL EA

The Final EA and the FAA's decision are available at the Airport's administrative office.

TABLE 6-1
EARLY AGENCY COORDINATION

Agency	Coordination Method	Date Initiated	Response Date
USEPA	Letter	October 21, 2016	November 28, 2016
FEMA	Letter	October 21, 2016	No Response
U.S. Department of Interior	Letter	October 21, 2016	No Response
U.S. Department of Agriculture	Letter	October 21, 2016	No Response
U.S. Army Corps of Engineers	Letter	October 21, 2016	No Response
National Oceanic and Atmospheric Administration	Letter	October 21, 2016	No Response
USFWS	Letter	October 21, 2016	October 30, 2016
VDEQ	Letter	October 21, 2016	November 10, 2016
VDHR	Letter	October 21, 2016	No Response
VDGIF	Letter	October 21, 2016	October 27, 2016
VDCR	Letter	October 21, 2016	October 31, 2016
Virginia Department of Health	Letter	October 21, 2016	November 14, 2016
Virginia Department of Aviation	Letter	October 21, 2016	No Response
Virginia Department of Transportation	Letter	October 21, 2016	November 9, 15, & 22, 2016
City of Manassas	Letter	October 21, 2016	No Response
Prince William County	Letter	October 21, 2016	December 9, 2016

Source: RS&H, 2017

TABLE 6-2
DRAFT EA AVAILABLE LOCATIONS

Location Name	Address
Manassas Regional Airport Administrative Office (hardcopy)	10600 Harry J. Parish Blvd. Manassas, VA 20110
Manassas Regional Airport Website (electronic copy)	http://www.manassasregionalairportprojects.com/
Central Community Library (hardcopy)	8601 Mathis Ave. Manassas, VA 20110
City Hall	9027 Center Street Manassas, VA 20110

Source: RS&H, 2017

TABLE 6-3
DRAFT EA DISTRIBUTION

Agency	Draft EA Format	Date Initiated	Response Date
USEPA	Hardcopy / CD	January 26, 2018	March 2, 2018
FEMA	Hardcopy / CD	January 26, 2018	No Response
U.S. Army Corps of Engineers	Hardcopy / CD	January 26, 2018	No Response
VDEQ	Hardcopy / Electronic Submittal	January 26, 2018	February 28, 2018 / March 2, 2018
Virginia Department of Aviation	Hardcopy / CD	January 26, 2018	Response included with VDEQ March 2, 2018 letter
Prince William County	Hardcopy / CD	January 26, 2018	No Response

Source: RS&H, 2018

This Page Intentionally Left Blank

CHAPTER 7

LIST OF PREPARERS

This Page Intentionally Left Blank

7.1 LEAD AGENCY

The FAA is the lead agency for the preparation of this EA. Responsibility for review and approval of this EA rests with the FAA. The following FAA staff members were involved in the preparation of this EA:

Susan Stafford. Environmental Protection Specialist

7.2 PRINCIPAL PREPARERS

Responsibility for preparation of this EA rests with the City. Listed below are the persons responsible for the preparation of this EA.

7.2.1 Manassas Regional Airport

Juan Rivera. Airport Director

Jolene Berry. Senior Airport Operations

7.2.2 RS&H, Inc.

David Alberts. B.A., Geography. 18 years of experience. Responsible for contractual oversight of the EA preparation, project management, technical analysis, and client coordination.

Natalie Heath, AICP. M.S.P., Urban and Regional Planning. Five years of experience. Responsible for research and technical writing.

William "Bill" Willkie. M.S., City Planning. 35 Years of experience. Responsible for quality control/quality assurance of the EA.

Julie Barrow. M.S., Environmental Science. Nine years of experience. Responsible for research and technical writing.

Nick Kozlik. B.S., Environmental Studies. Seven years of experience. Responsible for air quality and climate analyses.

7.2.3 Mill Creek Environmental Consultants, LTD

Matt Neely. Senior Environmental Scientist, PWD. Responsible for the biological, hazardous materials, and wetland surveys. Responsible for coordination with USACE regarding preliminary wetland determination. Mr. Neely holds a M.S. in Environmental Sciences and Policy from The Johns Hopkins University, is a certified Professional Wetland Delineator in the state of VA (VA PWD), and has over 10 years of experience conducting field studies all over the commonwealth.

7.2.4 Elizabeth Anderson Comer / Archaeology

Elizabeth Comer. Project Archaeologist. Responsible for archaeological survey and data analysis.

Tery Harris. Project Archaeologist. Responsible for archaeological surveys and data analysis.

This Page Intentionally Left Blank

CHAPTER 8

REFERENCES

This Page Intentionally Left Blank

CEQ. (1997, December 10). *Environmental Justice - Guidance Under the National Environmental Policy Act*. Retrieved July 2016, from Agency Guidance Related to Environmental Justice and NEPA: https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf

CEQ. (2014, 24 December). *Revised Draft Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews*. Retrieved from Federal Register: https://energy.gov/sites/prod/files/2014/12/f19/CEQ%20Guidance%20on%20Greenhouse%20Gas%20Emissions%20-%20Revised%20Draft%20for%20Public%20Comment2014-30035.pdf

City of Manassas. (2013a). *The 2023 Comprehensive Plan: Manassas Next.* Manassas: City of Manassas.

City of Manassas. (2013b). *West Corporate Redevelopment Study.* Manassas: City of Manassas.

City of Manassas. (2015). *Annual Water Quality Report - Water Testing Performed in 2015*. Retrieved February 2017, from Water Quality Reports: http://www.manassascity.org/DocumentCenter/View/27831

City of Manassas. (2016). *Economic Development Strategic Plan 2016.* Manassas: City of Manassas.

City of Manassas. (2017). *Electric Department*. Retrieved February 2017, from Utilities: http://www.manassascity.org/616/Electric-Department

FAA. (2012). *Order 1050.1E, Change 1, Guidance Memo #3, Considering Greenhouse Gases and Climate under the National Environmental Policy Act (NEPA): Interim Guidance.* Washington, D.C.: FAA.

FAA. (2016b). *Report to Congress National Plan of Integrated Airport Systems 2017-2021.* Washington, D.C.: FAA. Retrieved October 2016, from National Plan of Integrated Airport Systems (NPIAS) Report: https://www.faa.gov/airports/planning_capacity/npias/reports/

FAA. (2017, January). *Terminal Area Forecast*. Retrieved October 2016, from APO Terminal Area Forecast Detail Report HEF: http://taf.faa.gov/Home/RunReport

FEMA. (2016, April 27). *Floodway*. Retrieved March 2017, from Definitions: https://www.fema.gov/floodway

GAO. (2009). *Aviation and Climate Change: Aircraft Emissions Expected to Grow, but Technologicals and Operational Improvements and Government Polices Can Help Control Emissions.* Washington, DC: GAO. Retrieved February 2016, from http://www.gao.gov/news.items/d09554.pdf

Maurice, L. Q., & Lee, D. S. (2007). Aviation Impacts on Climate. In Interactional Civil Aviation Organization, *Final Report of the Interactional Civial Aviation Ogranization Committee on Aviation and Environmental Protection Workshop* (pp. 25-32). Washington, DC and Manchester: U.S. Federal Aviation Administration and Manchester Metroplotian University. Retrieved February 2016

Melrose, A. (2010). European ATM and Climate Change Adaptation: A Scoping Study. In ICAO Environmental Branch, *ICAO Environmental Report 2010: Aviation and Climate Change* (pp. 195-198). Montreal: ICAO. Retrieved February 2016, from http://www.icao.int/environmental-protection/Documents/Publications/ENV_Report_2010.pdf

Metropolitan Washington Air Quality Committee. (2013). *Washington, DC-MD-VA 1997 PM2.5 Maintenance Plan.* Washington, D.C.: Metropolitan Washington Air Quality Committee. Retrieved February 2017, from https://www.mwcog.org/documents/2013/5/22/washington-dc---md---va-1997-pm-25-maintenance--plan-air-quality-fine-particles/

Metropolitan Washington Council of Goverments. (2017). *Builders Recycling Guide*. Retrieved June 2017, from Recycling and Solid Waste: https://www.mwcog.org/environment/planning-areas/recycling-and-solid-waste/builders-recycling-guide/builders-recycling/

Metropolitan Washington Council of Governments. (2007). *Plan to Improve Air Quality in the Washington, DC-MD-VA Region.* Washington, D.C.: Metropolitan Washington Air Quality Committee. Retrieved February 2017, from https://www.mwcog.org/documents/2007/05/23/plan-to-improve-air-quality-in-the-metropolitan-washington-dc-md-va-region-state-implementation-plan-sip-for-8-hour-ozone-standard-air-quality/

Prince William County. (2017). *County Landfill*. Retrieved June 2017, from Trash and Recycling: http://www.pwcgov.org/government/dept/publicworks/trash/pages/county-landfill.aspx

Prince William County. (2017). *County Mapper*. Retrieved February 2017, from Zoning Overlay Districts: http://gisweb.pwcgov.org/webapps/countymapper/

Prince William County. (2017). *Resource Protection Area Requirements*. Retrieved February 2017, from Environmental Services: http://www.pwcgov.org/government/dept/publicworks/environment/pages/resource-protection-area-requirements.aspx

U.S. Census Bureau. (2010). *2010 Census - Urbanized Area Reference Map - Washington, D.C. -- VA --MD*. Retrieved February 2017, from Urban Areas, Urban Clusters: http://www2.census.gov/geo/maps/dc10map/UAUC_RefMap/ua/ua92242_washington_dc--va--md/DC10UA92242.pdf

USEPA. (2009, December 7). *Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act.* USEPA, Climate Change Division. Washington, DC: USEPA. Retrieved February 2016, from http://www3.epa.gov/climatechange/Downloads/endangerment/Endangerment_TSD.pdf

USEPA. (2016, November 14). *NEPAssist*. Retrieved February 2017, from USEPA: https://nepassisttool.epa.gov/nepassist/nepamap.aspx?wherestr=manassas+regional+airport

USEPA. (2017, January 18). *Criteria Air Pollutants*. Retrieved February 2017, from USEPA: https://www.epa.gov/criteria-air-pollutants

VDEQ. (2017). *Virginia CZM Program Goals*. Retrieved February 2017, from Coastal Zone Management: http://www.deq.virginia.gov/Programs/CoastalZoneManagement/DescriptionBoundary/Goals.aspx

Virginia Department of Aviation. (2011). *Virginia Airport System Economic Impact Study.* Richmond: Virginia Department of Aviation.