
CHAPTER SEVEN

Environmental Overview

One of the major products of this planning process will be the Capital Development Plan. The potential environmental effects of the improvements proposed by this plan will be reviewed in accordance with FAA Order 5050.4B, *Airport Environmental Handbook*. The following sections present a preliminary overview of these effects, which will be considered with respect to the environmental impact categories identified in the *Handbook*. This review comprises an integral part of the recommended development plan.

This chapter is not intended to be an Environmental Assessment (EA) or Environmental Impact Statement (EIS) of the Master Plan projects. However, *Chapter Seven, Environmental Overview* is intended to provide information on environmental concerns. The information from this chapter will serve as a factor when evaluating alternatives and identifying National Environmental Policy Act (NEPA) requirements for Master Plan projects. Further documentation and analysis (e.g., Documented Categorical Exclusions, Environmental Assessments, and/or Environmental Impact Statements) must be accomplished for all proposed projects prior to implementation.

7.1 AGENCY COORDINATION

At the beginning of this study, an initial review of available environmental documentation from previous studies was conducted in order to determine potential issues with respect to individual natural resources. This resulted in the development of a list of Federal and State agencies with potential concerns. A letter, created to explain the purpose of the Master Plan, solicited input on environmental concerns from each of the respective agencies.

Input was requested from:

- United States Corps of Engineers
- United States Fish and Wildlife Service
- Virginia Department of Environmental Quality
- Virginia Department of Environmental Quality – Environmental Enhancement Division
- Henrico County Planning Department
- Virginia Department of Agriculture
- Virginia Department of Health
- Virginia Department of Game and Inland Fisheries
- Virginia Department of Historic Resources
- Virginia Marine Resources Commission
- Virginia Department of Conservation and Recreation – Natural Heritage Commission
- Virginia Department of Conservation and Recreation - Soil and Water Conservation Division

Responses were received from the following agencies:

- United States Fish and Wildlife Service
- Virginia Department of Conservation and Recreation Division of Natural Heritage
- Virginia Department of Historic Resources
- Virginia Marine Resources Commission

Copies of the relevant correspondence and the agency responses are included as **Appendix F** to this report.

7.2 AREAS OF INTEREST

7.2.1 *Noise and Compatible Land Use*

One of the most common impact categories to consider with all Master Planning efforts is the combination of noise and compatible land use. This is the first issue that people living and working in and near an airport notice and speak about passionately.

RIC has long recognized this issue and has prepared and included noise analyses in its planning processes for years. These planning efforts have documented the noise levels associated with airport operations. The noise environment is described in terms of noise contours that plot lines of equal noise around the airport. The noise contours are in terms of a noise metric known as Day Night Noise Level and is abbreviated DNL. DNL is used throughout the U.S. and required by the FAA as part of airport master plans and airport environmental documents. **Appendix G** contains a detailed description of DNL and the DNL contours for RIC for existing and future conditions.

For any recommended project, which results in an increase of noise over a sensitive receptor, such as a residence, church, school, or similar place of public assembly, it will be necessary to prepare a noise analysis in accordance with FAA requirements to document potential impacts and identify required mitigation. Typical projects that could cause such an increase include new runways, runway extensions, runway upgrades, etc.

It is expected that the proposed development from this planning effort will not materially change the existing noise patterns in the airport's environs. Any project proposed by this planning effort will result in a separate environmental clearance and approval process. It will further document any potential noise impacts and set forth mitigation efforts that will require FAA approval prior to the development's implementation.

7.2.2 *Social Impacts*

Potential social impacts for the Master Plan development projects include:

- Relocation or disruption of communities
- Alteration of surface transportation patterns
- Disruption of established communities
- Interference with orderly and planned development
- Creation of appreciable changes in employment

Any proposed project in the development plan must be examined to determine if it impacts any of the above-mentioned issues. With the exception of obstruction removal for safety purposes and the proposed new air carrier runway 16R/34L, all of the planned improvements documented by this plan are expected to occur within the existing airport boundaries. It is envisioned that these projects may require the acquisition of an ownership interest (either in fee title or via easement purchase). Projects that require land acquisition will be carried out in accordance with the Federal requirements for Land Acquisition and Relocation (49 CFR Part 24). Furthermore, land acquisition required in support of the new runway will be thoroughly examined and vetted via a separate environmental analysis process (e.g., an environmental assessment or an environmental impact statement).

7.2.3 *Historic, Architectural, Archeological, and Cultural Resources*

The Virginia Department of Historic Resources is the agency responsible for the oversight of Historical and Cultural resources within the State of Virginia. Consequently, this planning effort consulted with and received comments from DHR, which responded that the RIC site is “an area that experienced considerable military operations during the American Civil War. There are known earthworks, battlefield landscapes, and archaeological sites associated with the War on and adjacent to airport property.” They further opined that the types of projects contemplated do have the potential to affect historic properties listed in, or eligible for listing in, the National Historic Register. Consequently, pursuant to Section 106 of the National Historic Preservation Act, it will be necessary for the FAA to take this into consideration as it analyzes and approves these projects.

As projects that have the potential to impact/disturb properties on and around the airport, consultation of the agency’s archive files and site maps should be undertaken in order to document any sites that might be affected by the proposed project. Additionally, the Department recommended consultation with other agencies as future planning continues and the projects become ready for implementation. This includes any federally recognized Indian tribes that may have an affiliation with the area, the National Park Service at the Richmond National Battlefield Park, the Henrico County Historical Society, and the Virginia Council on Indians.

As with any construction effort, emergency discovery procedures will apply to any project implemented at the airport. If any archeological remains — such as concentrations of shell, ceramics, worked stone, or bone — were to be observed during construction, it would be necessary to immediately stop work and notify the State Historic Preservation Officer of the State of Virginia Department of Historic Resources, so that the archaeological remains could be documented and dealt with accordingly.

7.2.4 *Department of Transportation Act, § 4(f)*

Section 4(f) of the *Department of Transportation Act* provides that the Secretary of Transportation shall not approve any program or project that requires the use of any publicly owned park or other protected resource, unless there is no feasible and prudent alternative to the use of such land, and that such a program or project include all possible planning to

minimize any adverse effects resulting from the use of the land. Section 4(f) lands include public parks; recreation areas; wildlife and waterfowl refuges; and lands of national, state, or local significance as determined by the officials having jurisdiction. If there is no physical taking of such public land, but there is a possibility of adverse impacts, such as increased noise or air pollution, the FAA will determine whether any increase in activity associated with the project is compatible with the normal activity associated with the land.

It is not expected that the Master Plan development projects will affect Section 4(f) land. But if any such land would be affected, the airport would act in accordance with Section 4(f) to determine its proper course of action.

7.2.5 Air Quality

According to the Richmond Area Metropolitan Planning Organization (MPO) *2031 Long-Range Transportation Plan (LRTP)*¹, Henrico County is included in the 8-hour Maintenance area for the region. The primary sources of ozone in the region are stationary emission points (e.g., factories) and surface transportation, rather than the airport itself. This classification typically dictates that any federally-funded airport improvement project may be subject to the State's general conformity regulations.

The LRTP for the Richmond area meets the requirements of emissions budgets tests for critical emissions {Volatile Organic Compounds (VOC) and Nitrogen Oxides (NO_x)} and is found to be in conformity with the 8-hour ozone maintenance State Implementation Plan (SIP). As this plan presents, a balanced, multi-modal transportation system works well at reducing harmful pollutants and emissions.

As projects in the Airport Master Plan are implemented, it will be necessary for the airport to continue its coordination efforts with the MPO to ensure that the development is included in the SIP.

7.2.6 Water Quality

The *Federal Water Pollution Control Act* (the Clean Water Act) requires that airport operators establish water quality standards and control discharges into surface and sub-surface waters. Particular concerns include the preservation of existing drainage; the protection of aquifers from fuel spills, aircraft washing, and deicing runoff; and the control of sedimentation and erosion during construction.

Industrial plant operations, including airports, are required to obtain stormwater permits under the 1987 amendments to the Clean Water Act. A National Pollutant Discharge Elimination System (NPDES) permit requires (1) submission of information regarding existing programs to control pollutants and (2) field monitoring of major outfalls to detect improper discharges. All stormwater runoff discharge must be identified and characterized, including those containing deicing fluids, liquid fuels, and chemicals used for maintenance. Any discharge to waters of Virginia may also require a Virginia Pollutant Discharge Elimination System permit in addition to the NPDES permit.

¹ Final Draft Richmond Metropolitan Planning Organization's *2031 Long Range Transportation Plan, Chapter 15*

Potential impacts to water quality and the water supply that could result from the development plan projects relate to runoff from new paved surfaces or structures. Pollutants that could possibly affect surface waters as a result of the development plan include oils and greases that build up on the airport's roadways, parking surfaces, aircraft parking aprons, taxiways and runways. The impact of the development plan on groundwater may include potential sedimentation and erosion during construction, as well as leakage or seepage of fuels and lubricants during airfield operations.

According to the Master Drainage Study for RIC (completed by Chiang Patel & Yerby), stormwater drainage at RIC is facilitated by a complex system that has been constructed, expanded and otherwise modified over a period of several decades. Major portions of the drainage system date back to the 1940's, when the airport served as a military base, although some older drainage components predate the 1940's. The existing drainage infrastructure includes several independent storm sewer systems (including inlets, collection lines and major trunk lines), open channels, culverts, detention and treatment impoundments, above-ground ponding areas, weirs, outlet structures and other runoff control and conveyance facilities.

On-site drainage within the airport reflects the land use, cover and soil characteristics, consisting primarily of impervious pavements, structures, grassed open space and some wooded areas near the edges of the property. Overland slopes, pipe slopes and channel slopes are relatively flat (a typical characteristic of airports), and the existing storm sewer systems and ditches divide the Airport into discrete drainage basins that drain offsite at several locations. A majority of the Airport drains to White Oak Swamp (located east of the Airport and White Oak Swamp Creek (a tributary of White Oak Swamp located south of the Airport). White Oak Swamp is a tributary of the Chickahominy River. A small area located in the northern portion of the Airport drains to tributaries of Gillies Creek, which is a tributary of the James River. Maps and discussions of the individual systems that comprise the drainage infrastructure are provided in subsequent sections of this report.

All engineering performed for the Airport is completed in accordance with the Airport's standard operating procedures utilizing best management practices during design and construction. Any additional pavement/impervious surfaces will be accommodated by the Airport's drainage infrastructure with improvements implemented on a per project basis to comply with regulatory and environmental requirements.

7.2.7 Wetlands

Wetlands are defined in Executive Order 11990, *Protection of Wetlands*, as "those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction." A combination of this Executive Order and DOT Order 5660.1A, *Preservation of the Nation's Wetlands*, implements wetlands protection for the nation. The Executive Order requires federal agencies to avoid, to the extent possible, the adverse effects associated with the destruction or modification of wetlands wherever there is a practical alternative.

If deposition or redistribution of dredged or fill material occurs in a wetland, then a permit under Section 404 of the Clean Water Act must be obtained from the Department of the Army Corps of Engineers.

From historical data and reports, the Corps has identified that there are Jurisdictional Wetland areas on airport property. These areas are located on various sites around the facility, and the airport is in the midst of updating its wetland delineation in coordination with the Corps. As the projects identified in this development plan are implemented, it will be necessary to continue the on-going coordination with the Corps to further determine potential impacts and required mitigation.

7.2.8 Floodplains

Executive Order 11988, *Floodplain Management*, defines floodplains as “the lowlands and relatively flat areas adjoining inland and coastal waters, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.” This is the equivalent of a 100-year flood standard. DOT Order 5650.2 contains DOT’s policies in regard to floodplains. These two orders, taken together, establish a policy that activities taken in a 100-year floodplain should be avoided, wherever practicable.

According to the Henrico County Vision 2026 Plan, two primary flood prone areas in Henrico County are associated with the Chickahominy and James Rivers. The Chickahominy River originates as a relatively narrow, defined valley to a point near U.S. 1. From this point eastward, the channel spreads out into a wide, flat, marshy area described as a flood basin. Because of this terrain, even a small rise in elevation of the water will cause the river to overflow its banks for hundreds of feet on either side. With regard to the James River, maximum accumulation of floodwaters normally occurs 2-3 days after the cessation of heavy rain fall over the basin. The Chickahominy River is approximately 4.6 miles northeast of Runway 2 and the James River is approximately 5 miles west of Runway 2.

While these areas are in proximity to the Airport environs, all airport drainage is and will be accommodated on airport property and within the existing stormwater facilities. As specific design programs are finalized, additional storage and treatment facilities will be incorporated as demand dictates. Based on the information available and responses to inquires, no impacts to floodplains (as a result of the proposed airport development plan) were identified through this environmental coordination effort.

7.2.9 Coastal Zone Management and Coastal Islands

The Virginia Marine Resources Commission has jurisdiction over any encroachments in, on, or over the beds of the bays, ocean, rivers, streams, or creeks that are the property of the Commonwealth of Virginia. In its response to the Solicitation of Views, the Commission responded that if any portion of the proposed development involves any encroachments channelward of ordinary high water along natural rivers and streams above the fall line or mean low water below the fall line, permits may be required from the Commission. None of

the projects is expected to impact these areas; however, as planning and design progress, if any potential encroachments are identified, the agency should be contacted and required permit applications filed in accordance with the applicable regulations.

7.2.10 Wild and Scenic Rivers

No rivers have been identified that are classified as wild and scenic within the vicinity of RIC, so these regulations are not applicable.

7.2.11 Biotic Communities and Endangered and Threatened Species of Flora and Fauna

Under federal law, impacts to wildlife habitat or endangered or threatened species must be coordinated with the proper authorities. The United States Fish & Wildlife Service determined that there would be no significant impact to threatened or endangered species from the typical development identified in the solicitation letter.

Because the majority of the Master Plan projects would be in areas that have been in the airport's use for many years, no adverse effects upon biotic communities are expected. The United States Fish and Wildlife Service provided a listing of species that have been documented in and/or near Henrico County. In its response, it acknowledged that the Virginia Departments of Conservation and Recreation, Division of Natural Heritage (DNR) and Game and Inland Fisheries should also be contacted for input. Correspondence with these agencies resulted in no response from the Game and Inland Fisheries Department. The DNR's search of its databases did not document any resources in the project area.

Its response documented that the project area may be outside of a designated County Resource Protection Area or Resource Management Area; however the only way to confirm this is for the proponent (the airport) to file a complete and comprehensive application packet (including engineered site plans) for review and approval. This should be accomplished during a subsequent environmental review in conjunction with the design and implementation planning for the project element.

7.2.12 Farmland

There are open, undeveloped areas adjacent to the airport. However, they generally do not have the potential to be used for agricultural purposes as they are surrounded by commercial and residential uses. Development of these properties is not anticipated as a result of this planning effort.

7.2.13 Energy Supply and Natural Resources

The effects of airport development on energy and natural resources are generally related to the amount of energy required for aircraft, ground support vehicles, airport lighting, and terminal and other facilities. While it is too early to definitively state that implementation of the recommended development plan will not materially increase demands on the energy supply of the region, at this time, no material increases are expected. Additionally, it is

anticipated that the construction of any recommended projects would consume conventional building materials that are not scarce and therefore would not be problematic.

7.2.14 Light Emissions

In accordance with the Environmental Handbook, FAA Order 5050.4A, light emissions should be considered if they create an annoyance among people in the vicinity of the installation. Relocation of or establishment of new runway lighting could cause a change in lighting patterns, but these potential changes would not be expected to create any significant impact on the surrounding community.

7.2.15 Solid Waste Impact

Solid waste impacts are monitored for projects that significantly increase solid waste production, such as significant terminal expansions, large manufacturing facilities, etc. Any proposed projects that create a significant amount of solid waste will need to be analyzed for impacts in this category; however, no significant impacts are anticipated at this time.

7.2.16 Hazardous Waste

Hazardous waste impacts at airport facilities can be found in numerous situations ranging from sanitary landfills to abandoned underground storage tanks (UST). USTs are probably the most commonly found source of hazardous waste impacts at airports. No known issues associated with hazardous waste have been documented to date, and no significant impacts are expected at this time.

7.2.17 Construction Impacts

Implementation of the recommended development plan will potentially result in construction-related impacts, but they are not expected to be significant so long as all activities are carried out in accordance with best management practices. Construction impacts are not generally considered to be significant because they (1) result solely from construction operations and (2) are limited to specific construction periods. Their impacts would primarily result from the associated noise, dust, and construction vehicle exhaust emissions.

The Virginia Department of Conservation and Recreation, Division of Natural Heritage, documented in its response letter that any project involving land-disturbing activities greater than 10,000 square feet, or equal to or greater than 2,500 square feet in all areas subject to the Chesapeake Bay Preservation Act, must comply with the Virginia Erosion and Sediment Control Law. Projects disturbing areas greater than one acre (or equal to or greater than 2,500 square feet in all areas subject to the Chesapeake Bay Preservation Area Designation and Management Regulations) must also comply with the Virginia Storm Water Management Act and the Virginia Storm Water Management Program Permit Regulations. The airport will need to apply for all required permits prior to implementing construction of projects meeting these criteria.