

NORFOLK  
AIRPORT  
AUTHORITY



# *EXECUTIVE SUMMARY*

JUNE 2020

## ***Introduction***

Every 10-years, the Airport Master Plan for the Norfolk International Airport (ORF) is reviewed so the Norfolk Airport Authority (NAA) can effectively prepare for and accommodate growing demand at the Airport, thus keeping airport users, tenants, employees, and customers safe and ensuring a pleasant experience while at the Airport.

The NAA began the Master Plan Update process in September 2017 to address the need for and improvement of facilities at the Airport over the next 20 years or until annual passenger enplanements reach 2.8 million. When the Study began, annual passenger enplanements were 1.6 million.

This Executive Summary is intended to provide an overview of the findings and recommendations, as well as the processes and methodologies used in developing the recommendations, at ORF in the short-, medium-, and long-term.

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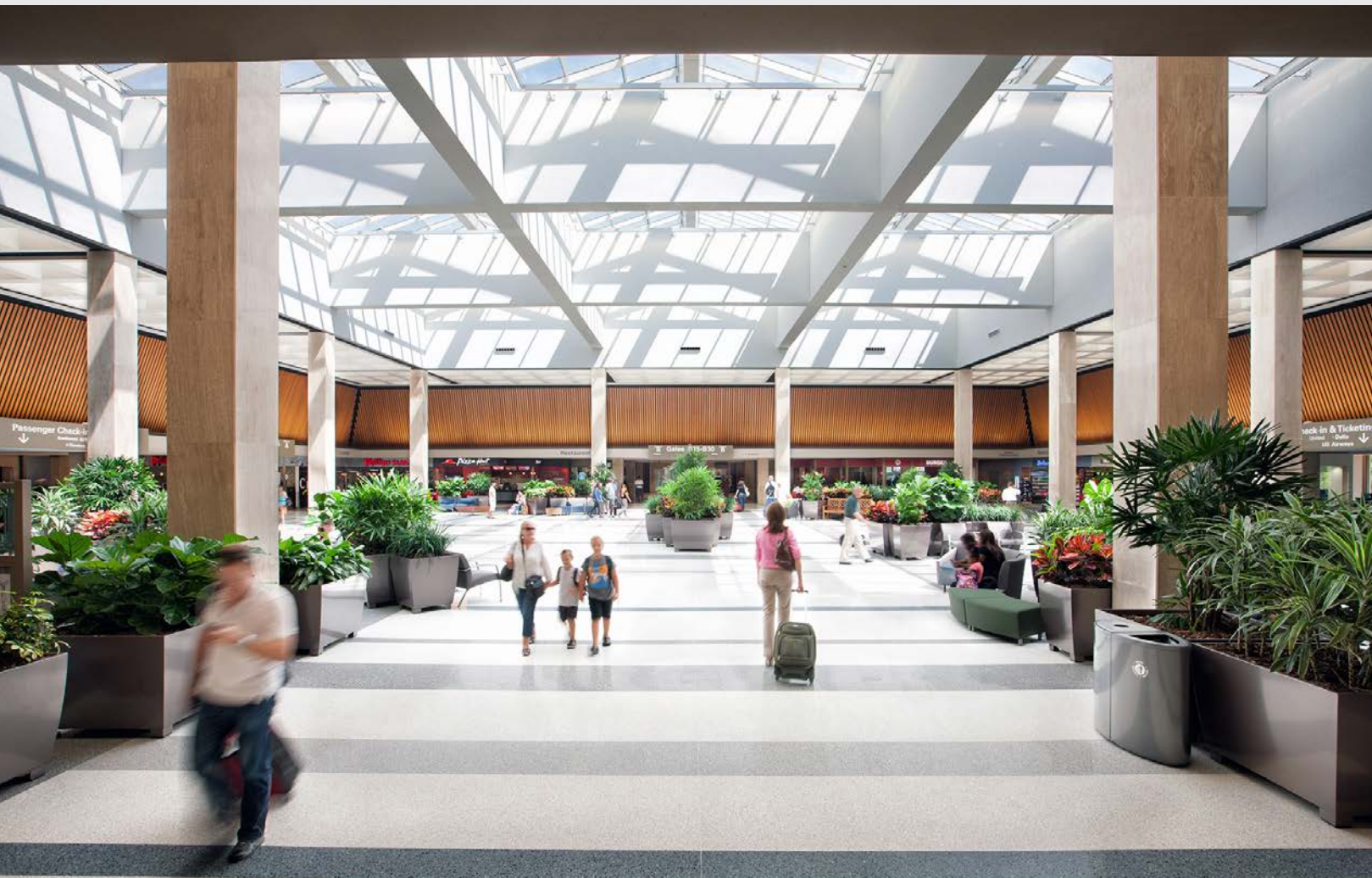
## 1 Background

Norfolk International Airport began operating in the 1920s during World War I. Since its beginning, the Airport has grown from only providing air taxi services to be a small-hub airport that is essential to the nation's air transportation system.

When the Study commenced, the Airport supported services to 23 non-stop domestic destinations via six airlines: Allegiant Air, American Airlines, Delta Air Lines, Frontier Airlines, Southwest Airlines, and United Airlines. During the Study, the Airport saw incredible growth, adding eight new service destinations with the Airport now serving 31 total year-round and seasonal routes.

ORF also supports several types of air cargo activities including small freight operations (belly cargo), dedicated freight operations [cargo integrators (i.e., UPS, FedEx)], and other all-cargo freight forwarding services.

General Aviation (GA) activity is also present and is primarily handled through the Airport's Fixed-Base Operator, Signature Flight Support.



## 2 Goals and Objectives

During the development of the Master Plan Update, goals were set, and recommendations provided, to assist the Authority in meeting the initial objectives. The NAA's goals support their objective to keep airport users, tenants, employees, and customers safe while operating at or using the Airport's various facilities, whether it be the airfield facilities or the terminal building. During the course of the Study, the Authority wanted to be sure that the overall Master Plan Update will ensure the airfield complies with safety standards, that the runway and taxiway systems meet the long-term needs of users, that roadway access and parking accommodations adequately serve users, and that the terminal building is functional, safe, secure, and aesthetically pleasing. It was also important to the Authority that the goals and objectives be sustainable, economical, environmentally friendly, and financially feasible.

The following actions were completed with respect to meeting the goals of the Master Plan Update:

- An inventory of the existing physical conditions and operational characteristics of the Airport and its surrounding area was developed to give the NAA an overview of the Airport's current status in terms of airfield and terminal facilities, tenants, and services offered (i.e. non-stop air service routes, concessions, etc.).
- Historic and current airport operations, industry trends, and economic conditions within ORF's market area were evaluated, followed by the production of activity demand forecasts through 2038.
- Using the preferred aviation activity forecasts, the airport facility needs were determined, which then formed the basis of the development concepts.
- An environmental overview was conducted to draw attention to environmental issues that may arise and that may require additional analysis. The area surrounding the Airport was also evaluated to determine if the uses of the properties are compatible with the operations at ORF.
- The Airport Capital Improvement Program (ACIP), along with financial projections in regard to the recommendations made within the Master Plan Update, were developed.

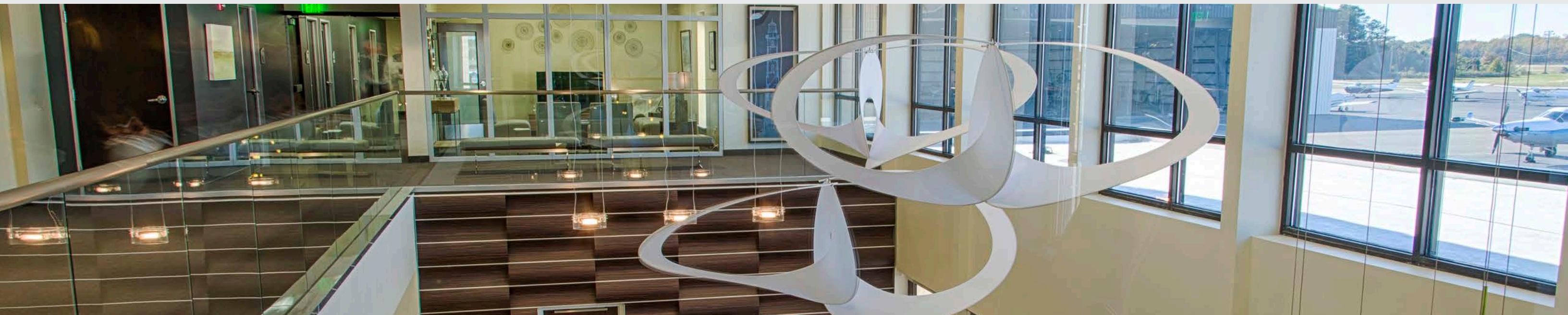
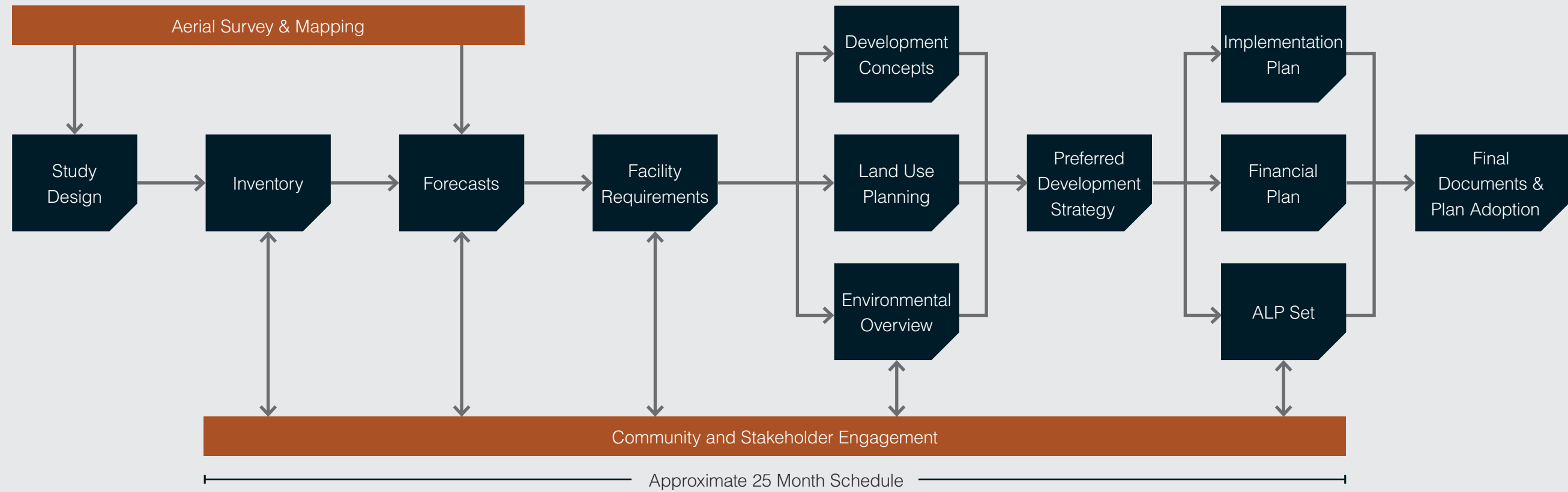




### 3 Master Planning Process

The process, methods, and ultimate products are consistent with guidance contained in Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*.

Efforts were made throughout the process to share information, engage, and collaborate with stakeholders, which included the airport sponsor, airlines, tenants, users and travelers, local businesses, military interests, residents, resource agencies, elected and appointed officials, and the general public.



## 4 What is a Master Plan?

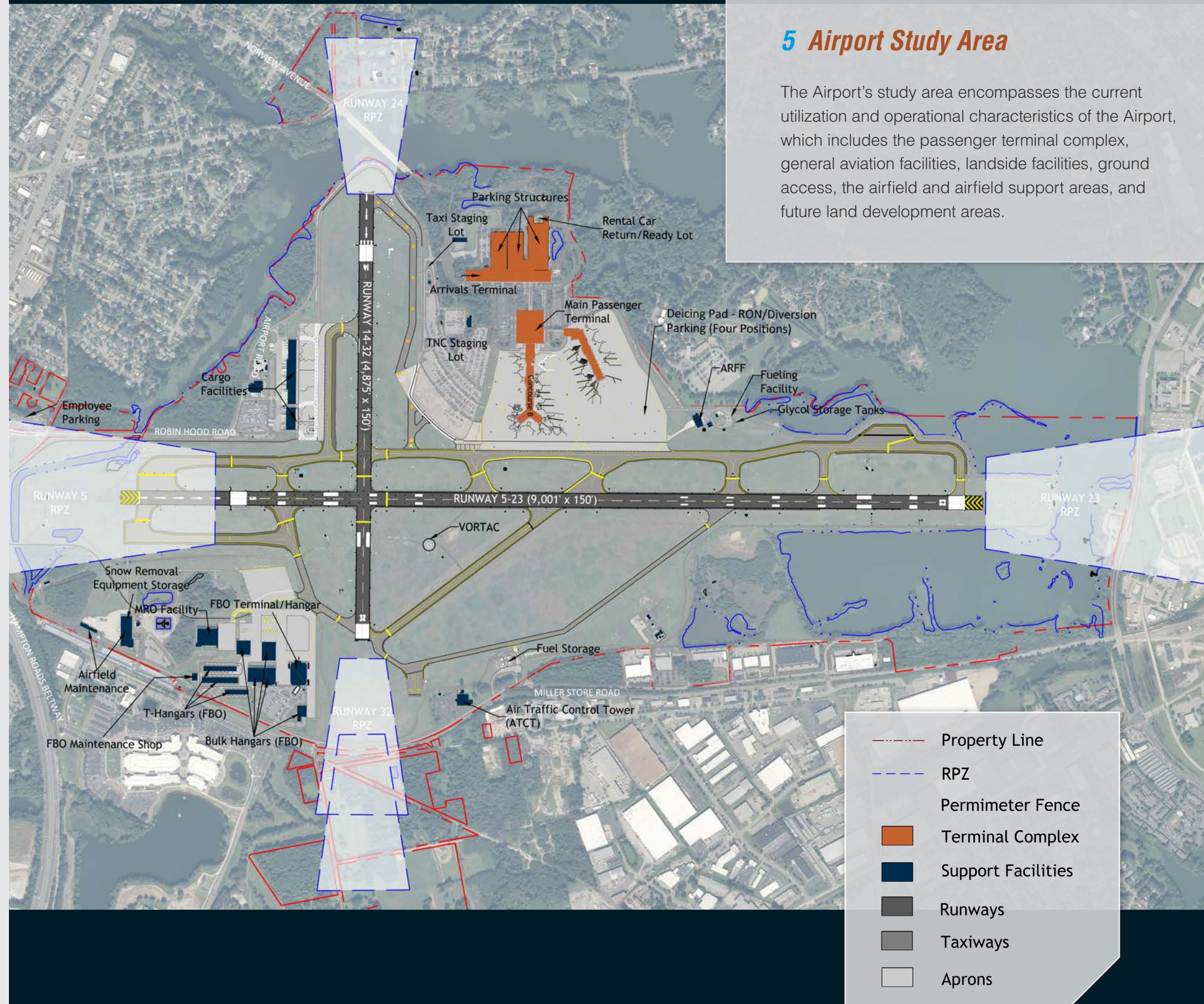
Air transportation is a vital component to the Hampton Roads community. As such, a comprehensive Airport Master Plan for the Norfolk International Airport (ORF) was conducted to outline and identify strategic long-term plans. During the master planning process, a detailed approach to evaluating each component of the Airport's existing infrastructure was examined along with the development of projected airport activity. Ultimately, it is the Master Plan's goal to maximize use of the Airport's assets while ensuring long-term development remains cohesive with the community and existing stakeholders. It is essential for the long-term sustainability of the Airport to reserve adequate resources to meet the identified needs detailed as part of this Master Plan Update. The ORF Airport Master Plan is the community's concept of the long-term development of its airport. The long-term strategic plans are prepared to support the modernization of the Airport.

To identify anticipated demand, an Airport Master Plan addresses the development needs spanning a 20-year period. Updates are often necessary as the dynamic conditions of the industry are reflected within user activity. As part of this effort, the master planning process provided opportunities for political entities as well as the public to participate in the Study's development, provide feedback regarding potential development goals, and identify the recommended on-airport improvements which foster sustainable operation within the Airport's 20-year planning period. This Study provides a framework for individual airport development programs that meet the needs of the short-term growth opportunities, while maintaining the goals and vision for long-term economic viability and growth.

While this Master Plan covers a 20-year planning horizon, it is also important for it to consider possible needs and improvements beyond that timeframe so that the Authority has the means to continue to grow and improve ORF well into the future.

## 5 Airport Study Area

The Airport's study area encompasses the current utilization and operational characteristics of the Airport, which includes the passenger terminal complex, general aviation facilities, landside facilities, ground access, the airfield and airfield support areas, and future land development areas.



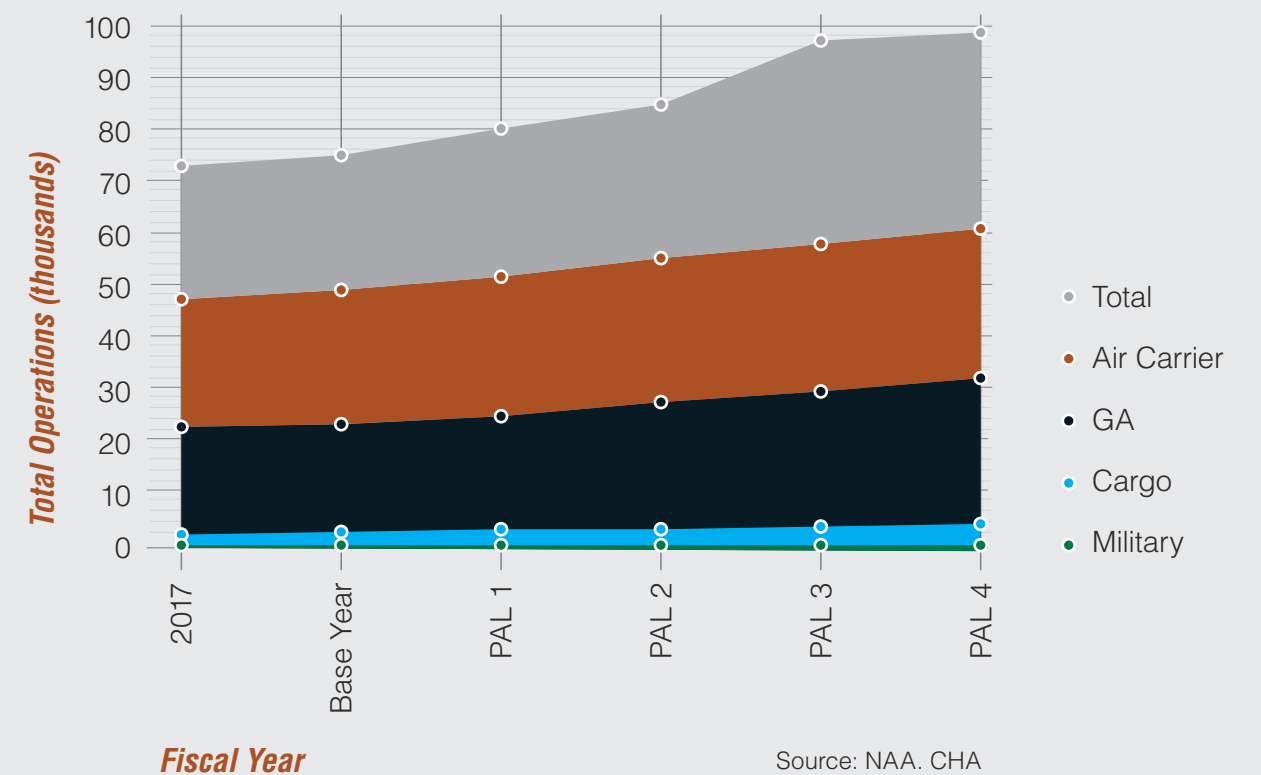
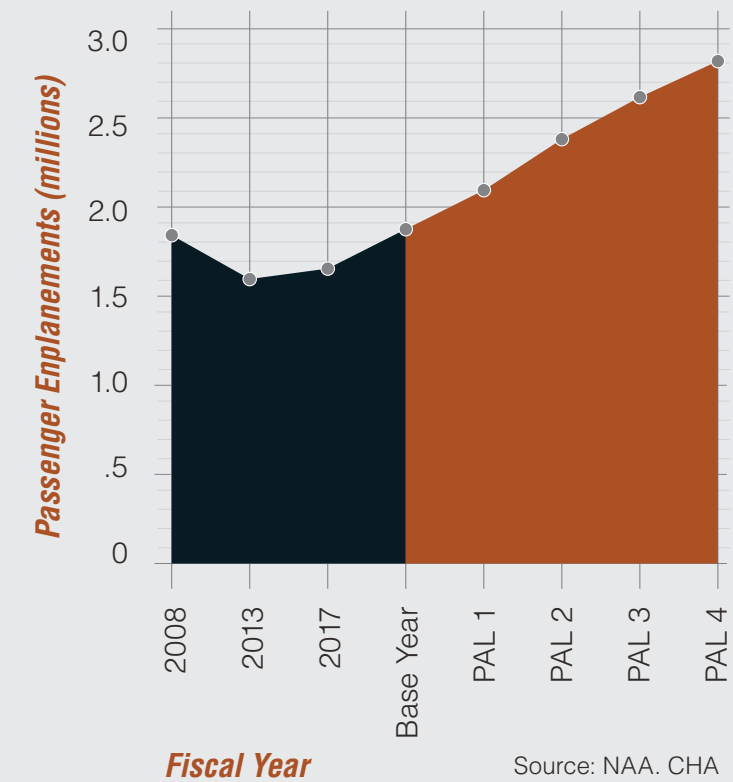


## 6 Forecasts of Aviation Demand

A significant part of the Master Plan Update is forecasting aviation activity. Timing of demand can vary; therefore, Planning Activity Levels (PALs), rather than calendar years, were established to identify significant demand thresholds for facility enhancement projects. The PALs used for this Study correspond with the base year of 2018 and the planning horizon years 2023, 2028, 2033, and 2038. The two key components of the aviation demand forecasts are projected passenger enplanements and aircraft operations.

Enplanements refer to the number of passengers boarding a departing aircraft. In 2017, there were 1.6 million enplanements at ORF, which is forecast to grow to 2.8 million enplanements by PAL 4. Operations are the number of arriving and departing flights. ORF had 47,195 airline operations in 2017, which is expected to increase to 61,430 operations by PAL 4. Together, commercial, general aviation (GA), cargo, and military activities at ORF totaled nearly 72,590 operations in 2017, which are expected to grow to about 97,980 total annual operations in PAL 4.

Projected increases in enplanements and aircraft operations also increase the demand on airfield and support facilities, terminal facilities, and automobile parking; therefore, these needs were also evaluated and are included within the Master Plan Update.





## 7 Airport Development Concepts

During the Master Plan Update, evaluations were conducted to ensure that ORF's airfield, passenger terminal and aircraft gates, support facilities [i.e., GA facilities and Maintenance, Repair & Overhaul (MRO) facilities], and surface and transportation related facilities are able to adequately accommodate existing and anticipated activity levels. Based on these evaluations, numerous development concepts were created and reviewed for the various components of the Airport. The concepts deemed most reasonable to support the long-term operational sustainability of the Airport formulate the Recommended Development Plan.

### Improving and Maintaining Runway 5/23

- Add pavement to both sides of the runway to meet the FAA's 25-foot shoulder requirement
- Grade the Runway Safety Areas (RSAs) and widen where necessary
- Consider relocating the glideslope shelter and antenna outside of the Runway 5/23 Runway Object Free Area (ROFA)
- Widen the blast pads at each end of Runway 5/23 or seek an FAA Modification of Standards (MOS)

### Improving and Maintaining Runway 14/32 (Until Decommissioned)

- Add 25-foot shoulders
- Acquire an FAA MOS for roadways (Robin Hood Road and the airport access road) within the Runway's ROFA

### Airside Development

- Close Runway 14/32
- Initial Runway Development: New ARC C-III runway (5,000' x 100') parallel to Runway 5/23 with an EMAS at each runway end
- Ultimate Runway Development: Extend the new runway to 9,001' and widen to 150', thus eliminating the need for an EMAS at either runway end
- Realignment of Taxiway 'C', 'F', and 'G'

### Passenger Terminal Facility Development

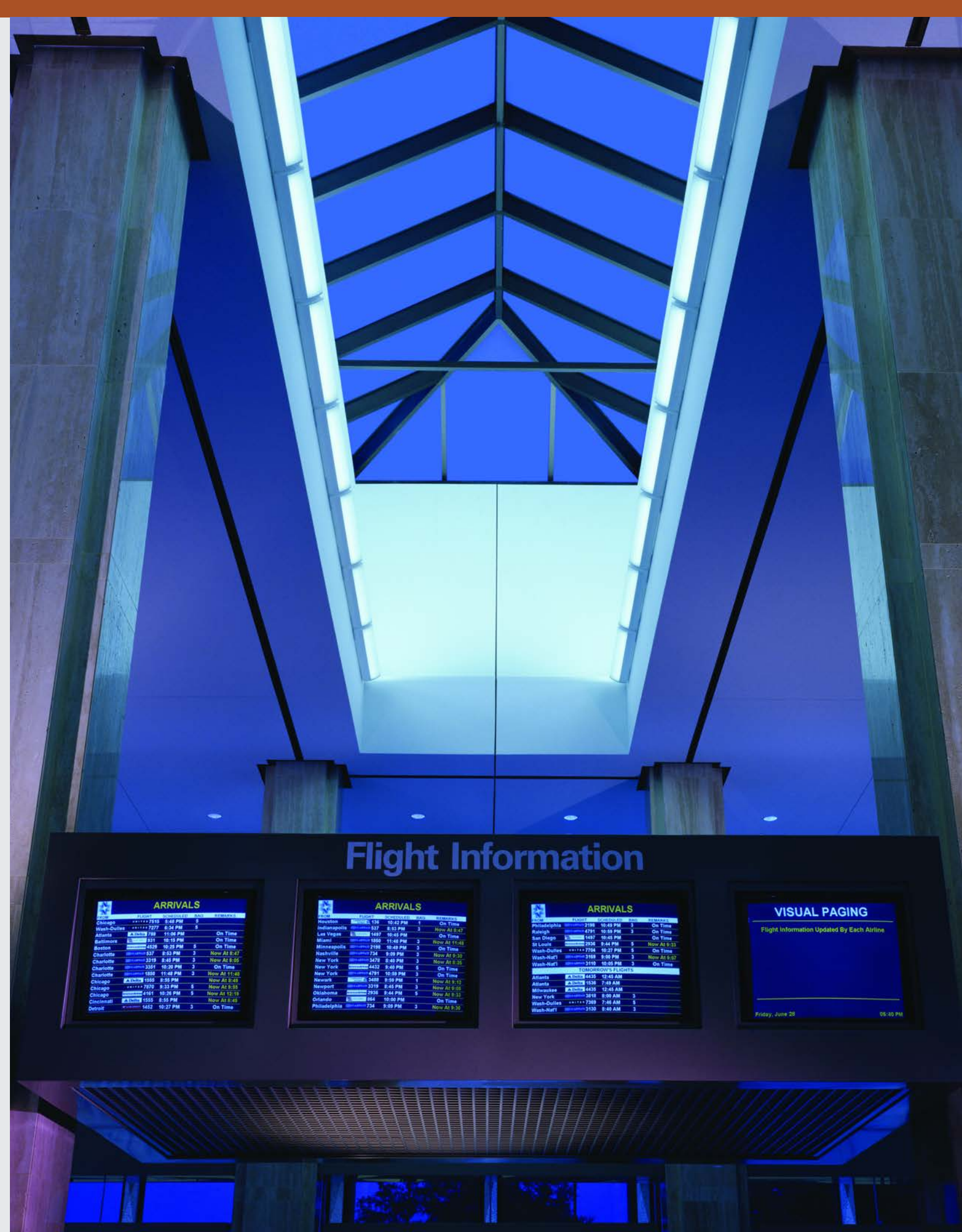
- Combine the split ticketing halls and relocate to the west side of the departures building
- Reconfigure and shorten the departure roadways with an efficient alignment with the arrival building's curbside
- Expand outbound baggage make-up facilities
- Consolidate passenger security into a single checkpoint

### Landside Commercial Development or Airfield Maintenance Relocation

- Land made available through the closure of Runway 14/32 can be developed for either commercial or aeronautical use

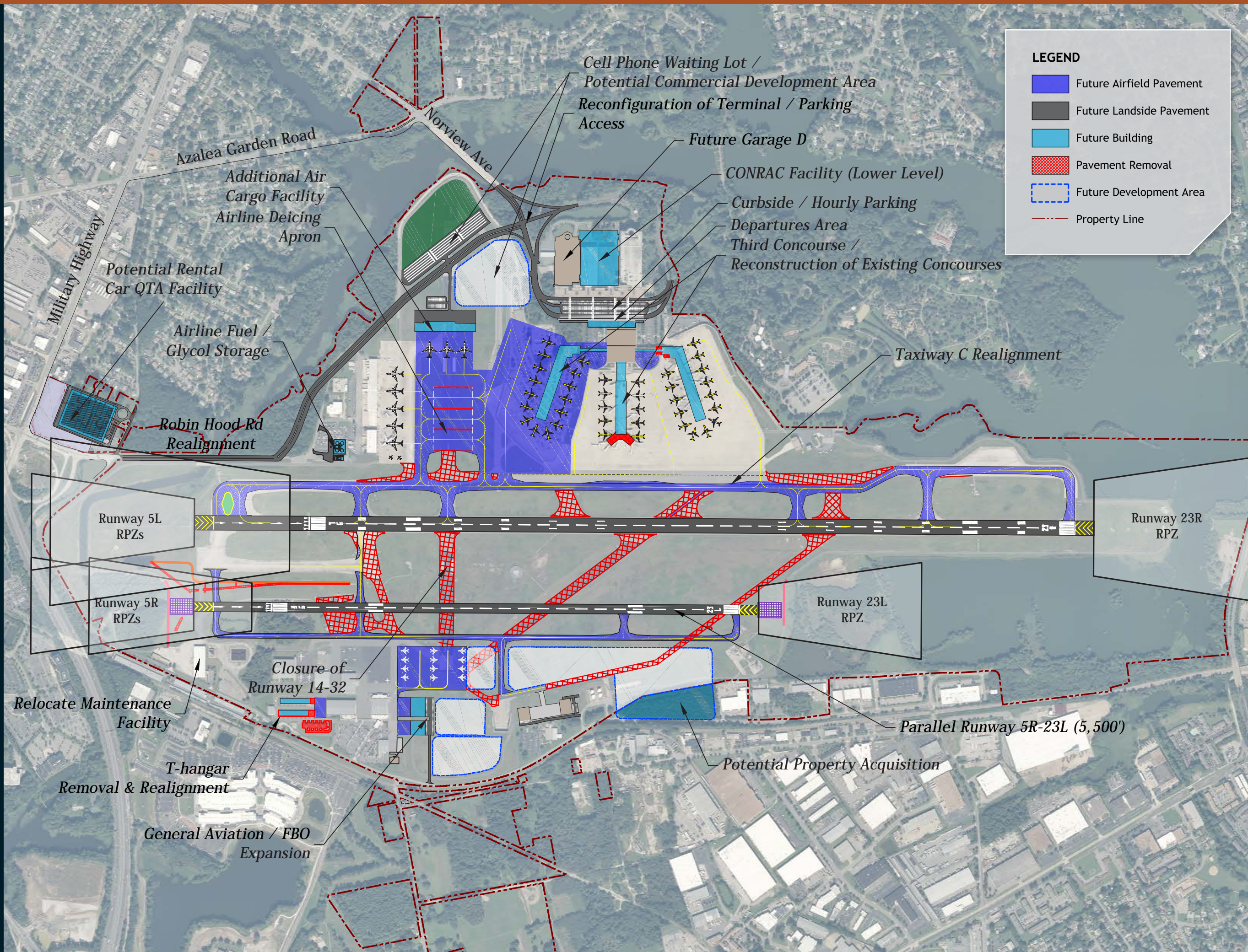
### Support Facilities Development

- Short- to Medium-term: Repurpose the existing employee lot for use as a consolidated quick turnaround (QTA) facility
- Long-Term: A new CONRAC facility in place of the lower level of Parking Garages B and C
- New cargo facility with a landside area dedicated to loading and unloading of cargo, as well as for parking of ground-cargo vehicles and vehicles belonging to cargo operator employees.
- Expand the general aviation apron
- Construct two additional bulk hangars (150 ft. x 200 ft.)
- Decommission and demolish the current fuel farm
- Construct a new fuel farm facility in the previous rental car overflow lot
- Develop a remote terminal apron to support deicing operations and RON aircraft





# 8 Recommended Development Plan



**LEGEND**

- Future Airfield Pavement
- Future Landside Pavement
- Future Building
- Pavement Removal
- Future Development Area
- Property Line

Cell Phone Waiting Lot /  
Potential Commercial Development Area  
Reconfiguration of Terminal / Parking  
Access

Future Garage D

CONRAC Facility (Lower Level)

Curbside / Hourly Parking

Departures Area  
Third Concourse /  
Reconstruction of Existing Concourses

Taxiway C Realignment

Azalea Garden Road

Additional Air  
Cargo Facility  
Airline Deicing  
Apron

Potential Rental  
Car QTA Facility

Airline Fuel /  
Glycol Storage

Robin Hood Rd  
Realignment

Military Highway

Norview Ave

Runway 5L  
RPZs

Runway 23R  
RPZ

Runway 5R  
RPZs

Runway 23L  
RPZ

Closure of  
Runway 14-32

Relocate Maintenance  
Facility

Parallel Runway 5R-23L (5,500')

T-hangar  
Removal & Realignment

Potential Property Acquisition

General Aviation / FBO  
Expansion



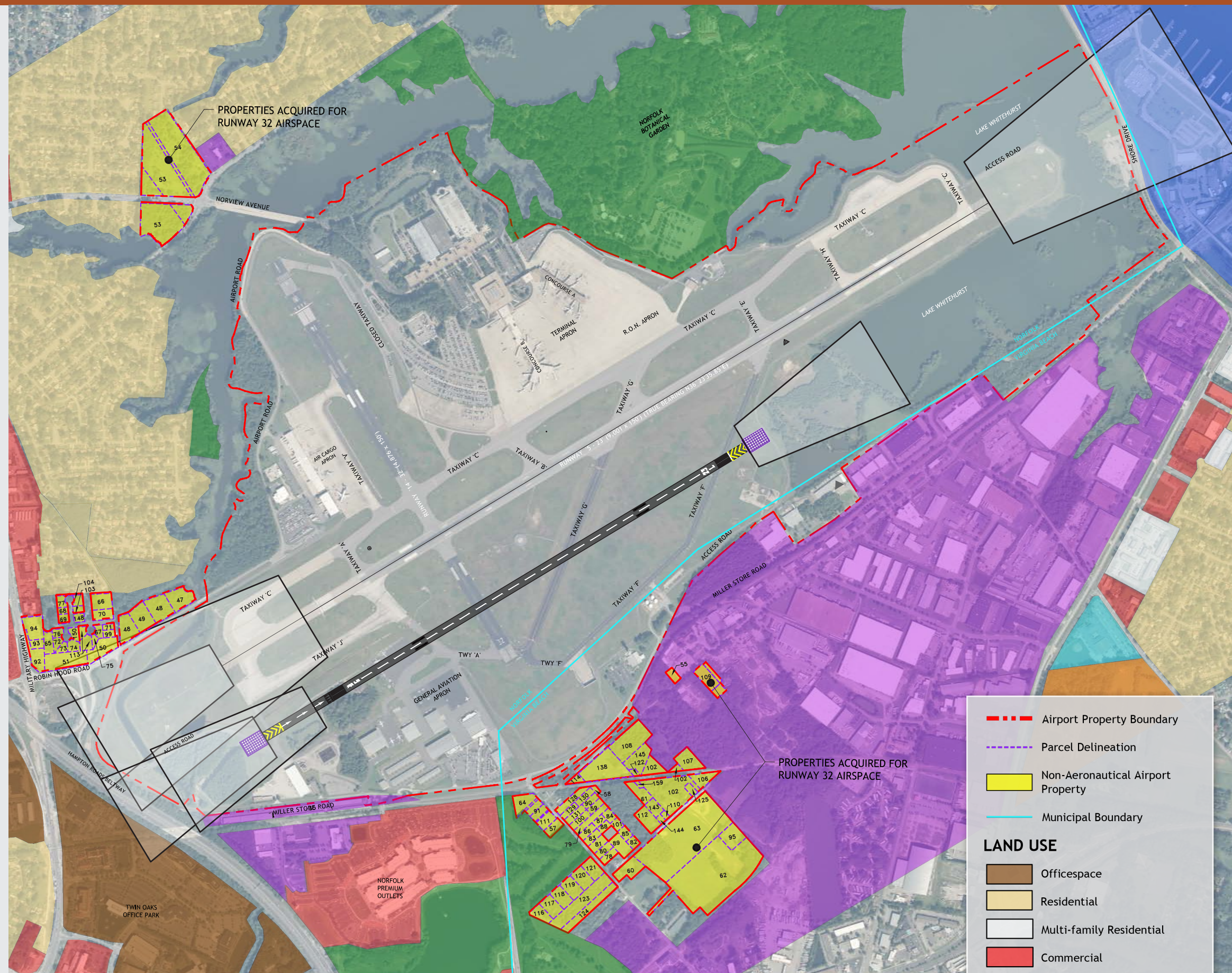
## 9 Environmental Overview

During the Master Plan Update, environmental resources capable of affecting future development of the Airport were identified, as well as the environmental issues requiring additional environmental analysis prior to implementing future projects. Environmental impact categories evaluated included the following: air and water quality, resources (i.e., historic, archaeological, and cultural resources), biotic communities, threatened and endangered species, wetlands, floodplains, coastal zone management program, prime and unique farmlands, wild and scenic rivers, solid waste, and hazardous waste.

Once project details are available, if appropriate under NEPA, Categorical Exclusion(s) or Environmental Assessment(s) will be prepared in accordance with FAA guidance. Based on past studies and the types of projects recommended in the Master Plan, it is anticipated that impacts can be successfully mitigated, thus allowing implementation of the recommended plan.

### Land Use and Zoning

Further evaluation was necessary in regard to land use and zoning at and around the Airport. As shown, the primary airport property includes a contiguous area of over 1,000 acres and contains the Airport's airfield, terminal area, and other aeronautical facilities. All of this property is critical to the airport and is retained in the airport recommended plan. Three additional areas of airport property were acquired more recently, specifically to protect the critical airspace and the Runway Protection Zones against incompatible land use.



### Non-Aeronautical Airport Property



## 10 Financial Plan Summary

All airports receiving federal Airport Improvement Program (AIP) funding are required to maintain a current Capital Improvement Program (CIP) with the FAA. The purpose of the CIP is to prioritize projects to properly accommodate the forecasted aviation demand, setting a timeframe in which projects should be accomplished.

The CIP is funded through federal, state, and local entities. Federal funds are provided through entitlement grants, which are distributed by a formula based on the number of enplanements by individual airports, and through discretionary grants. State grants allocate taxes from transportation fuels for distribution to airports. In Virginia, funds allocated by the Commonwealth Transportation Board are given to the Virginia Aviation Board (VAB) who then allocates funds to any airport in Virginia that is available for public use. Local funds consist of passenger facility charge (PFC) revenue, customer facility charges (CFC), and Authority funds.

NAA may need additional grants, PFCs, CFCs, and Authority funds to fund the ACIP. The Authority's financial metrics are strained in PAL 3 and PAL 4 based on assumptions presented in the Master Plan Update; therefore, the Authority should continue to monitor its financial situation to determine which projects should be undertaken and when.

Year	Project Costs	Funding Sources												Total
		AIP Grants			State		Third Party	Authority						
		Entitlement		Discretionary	Entitlement	Discretionary		PFCs		CFC	General Reserve			
		Passenger	Cargo					Pay-Go	GARBs		GARBs	Direct Expense (a)		
									Amort in Rate Base	Non-Rate Base				
2020	\$10,535.00	\$4,972.50	\$0.00	\$0.00	\$1,864.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,338.00	\$2,360.00	\$10,535.00
2021	\$50,400.00	\$15,345.00	\$0.00	\$0.00	\$12,860.00	\$383.00	\$0.00	\$0.00	\$0.00	\$166.67	\$13,000.00	\$6,325.33	\$2,320.00	\$50,400.00
2022	\$52,500.00	\$5,000.00	\$0.00	\$10,000.00	\$2,000.00	\$5,000.00	\$0.00	\$3,400.00	\$18,000.00	\$0.00	\$0.00	\$9,100.00	\$0.00	\$52,500.00
2023	\$63,500.00	\$5,000.00	\$0.00	\$10,000.00	\$2,000.00	\$5,000.00	\$0.00	\$8,000.00	\$30,500.00	\$0.00	\$0.00	\$3,000.00	\$0.00	\$63,500.00
<b>Total PAL 1</b>	<b>\$176,935.00</b>	<b>\$30,317.50</b>	<b>\$0.00</b>	<b>\$20,000.00</b>	<b>\$18,724.50</b>	<b>\$10,383.00</b>	<b>\$0.00</b>	<b>\$11,400.00</b>	<b>\$48,500.00</b>	<b>\$166.67</b>	<b>\$13,000.00</b>	<b>\$19,763.33</b>	<b>\$4,680.00</b>	<b>\$176,935.00</b>
2024	\$35,500.00	\$7,700.00	\$0.00	\$10,000.00	\$2,000.00	\$5,000.00	\$0.00	\$8,000.00	\$0.00	\$0.00	\$0.00	\$2,800.00	\$0.00	\$35,500.00
2025	\$60,200.00	\$0.00	\$1,539.60	\$0.00	\$2,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$56,160.40	\$500.00	\$0.00	\$60,200.00
2026	\$81,500.00	\$7,000.00	\$0.00	\$0.00	\$2,000.00	\$0.00	\$0.00	\$0.00	\$70,000.00	\$0.00	\$0.00	\$2,500.00	\$0.00	\$81,500.00
2027	\$14,500.00	\$0.00	\$0.00	\$0.00	\$2,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12,000.00	\$0.00	\$500.00	\$0.00	\$14,500.00
2028	\$43,200.00	\$10,000.00	\$0.00	\$0.00	\$2,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30,700.00	\$500.00	\$0.00	\$43,200.00
<b>Total PAL 2</b>	<b>\$234,900.00</b>	<b>\$24,700.00</b>	<b>\$1,539.60</b>	<b>\$10,000.00</b>	<b>\$10,000.00</b>	<b>\$5,000.00</b>	<b>\$0.00</b>	<b>\$8,000.00</b>	<b>\$70,000.00</b>	<b>\$12,000.00</b>	<b>\$86,860.40</b>	<b>\$6,800.00</b>	<b>\$0.00</b>	<b>\$234,900.00</b>
<b>Total</b>	<b>\$411,835.00</b>	<b>\$55,017.50</b>	<b>\$1,539.60</b>	<b>\$30,000.00</b>	<b>\$28,724.50</b>	<b>\$15,383.00</b>	<b>\$0.00</b>	<b>\$19,400.00</b>	<b>\$118,500.00</b>	<b>\$12,166.67</b>	<b>\$99,860.40</b>	<b>\$26,563.33</b>	<b>\$4,680.00</b>	<b>\$411,835.00</b>
			<b>\$86,557.10</b>		<b>\$44,107.50</b>			<b>\$137,900.00</b>			<b>\$99,860.40</b>	<b>\$31,243.33</b>		
											<b>\$131,103.73</b>			

(a) Capital expenditures in the airfield and terminal are included in the airline rate through amortization.





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