CHAPTER 5
IMPLEMENTATION PLAN

5.1 INTRODUCTION

The preceding chapters of this Master Plan Update identified aviation demand factors, existing facilities, and future facility needs. The recommendations of this report are based on the analysis conducted in **Chapter 3, *Facility Requirements***, and **Chapter 4*, Identification and Evaluation of Alternatives***. The key factors driving the Implementation Plan are increasing safety, sustainability, and economic development, as well as adding long-term capacity and constructing projects in a phased and affordable manner.

The facility requirements section of this Master Plan Update addressed the ability of existing facilities to accommodate the forecast demand and the Airport's strategic vision. The airport functional areas recommended for improvement during the planning period and coordinated through the implementation chapter are the airfield and associated aeronautical facilities, sustainable initiatives, terminal building facilities, ground transportation elements, and ancillary facilities to accommodate additional hangar development. To that end, this chapter will document:

- The Implementation Process
- Sustainability Performance and Monitoring
- Development Phases/Constructability
- Master Plan Capital Improvement Plan

5.2 IMPLEMENTATION PROCESS

In broad terms, each project implemented by the Airport must follow specific steps to be properly realized. In some cases, preparing for a facility improvement may start as many as five years before that facility is actually needed, in order to coordinate the funding, environmental documentation, design, and then finally construction. Below is the sequence of events necessary to complete a complex airport project. As each development phase (short-, intermediate-, and long-term) is examined in Section 5.4 Development Phases, the major implementation steps and planning level cost estimates are identified for each core objective within that specific phase.

Four Years Prior To Construction

- Identify the project in the approved Airport Layout Plan
- Verify the project has or is expected to reach the implementation trigger point
- Validate project justification and funding eligibility
- Determine the level of environmental review. (If an Environmental Impact Statement is required, planning may need to begin much earlier)
- Identify if flight procedures modification will be required
- Coordinate with local officials and airport users

Three Years Prior To Construction

- Identify funding sources
- Determine if a benefit/cost analysis is necessary
- Determine if a reimbursable agreement is necessary for affected NAVAIDs
- Assemble all necessary land for the project

Two Years Prior To Construction

- Refine project scope and cost estimates
- Initiate reimbursable agreements and coordinate any NAVAID requirements with the FAA
- Submit requests for new/modified flight procedures with the FAA
- Submit a request for airspace review of projects under non-rulemaking authority (NRA)
- Begin benefit/cost analysis if determined to be necessary
- Submit Environmental Assessment or Categorical Exclusion documentation for FAA review and funding.
- Coordinate with local officials and Airport users on refined project scope and schedule

One Year Prior To Construction

- Complete airspace study
- Complete significant environmental documentation
- Complete 90 percent design, plans, and specifications after FAA environmental findings are made
- Execute reimbursable agreements to support NAVAIDs, if relevant
- Prepare and coordinate Construction Safety Phasing Plan
- Secure all necessary local funding
- Secure environmental and other necessary permits
- Submit Benefit/Cost Analysis
- Coordinate Safety Risk Management Panel with FAA-ATO or FAA-ARP, as necessary
- Finalize construction bidding, grant application, and acceptance schedules

Year of Construction

- Complete 100 percent design, plans, and specifications
- Advertise and secure bids according to acceptance schedules
- Accept federal grants
- Coordinate with local officials and airport users on the progress and schedule
- Issue notice-to-proceed
- Monitor environmental mitigation requirement during construction

After Construction

- Submit final report and close any accepted federal grants
- Monitor environmental mitigation measures

5.3 INTEGRATING SUSTAINABILITY

In addition to those general implementation steps, the Airport is committed to planning and development that embraces economic, environmental, and operational sustainability. In recent years, the Peninsula Airport Commission has been seeking and participating in sustainable opportunities at the Newport News/Williamsburg International Airport. This section will review the existing sustainable performance of the airport and the proposed monitoring program to track continued success.

5.3.1 Existing Sustainability Performance

In September of 2010, an American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Level 1 Energy Audit was completed at Newport News/Williamsburg International Airport to evaluate utility usage, observe how the energy using systems are operated and maintained, and to develop no cost/low cost recommendations to improve efficiency and reduce utility consumption at the airport. Examples of the ASHRAE Level 1 Energy Audit no cost/low cost utility conservation opportunities for Newport News/Williamsburg International Airport included:

- Adjusting the air conditioning systems to maintain proper temperature and humidity.
- Installing occupancy sensors and photo cells to control lighting in the office areas.
- Installing low flow aerators on the restroom lavatory faucets.
- Reducing domestic hot water temperature from 140F to 120F.
- Changing incandescent lamps to compact florescent lights.

In August 2011, The Peninsula Airport Commission implemented “Project Green Skies”, which established economic, environmental, and operational sustainability guidelines. An important element of these guidelines was the application of sustainable design into all projects that are undertaken at Newport News/Williamsburg International Airport. To promote both sustainability and economic viability, Project Green Skies presented three tiers:

- Tier 1: Required sustainable measures that have environmental benefit, but represent small additional capital costs (e.g., water efficient landscaping and alternative fuel vehicle parking priority).
- Tier 2: Voluntary sustainable measures that encourage developers to have increased environmental benefit, but also higher development costs than those included in Tier 1 (e.g., electric charging stations and vegetative roofs).
- Tier 3: Voluntary sustainable measures that have the greatest environmental benefit, but also the highest development costs (e.g., refrigerant management).

In addition to the existing sustainable studies and guidelines at Newport News/Williamsburg International Airport, several cities, county, air carriers, and tenants that service the airport have sustainability policies that contribute to a sustainable environment.

- **City of Newport News** – The Newport News City Council identified sustainability as a strategic priority and it is the focus of many initiatives throughout the city. The City's sustainability projects include a landfill gas to energy project to capture methane gas from the Denbigh Landfill and fuel boilers at Mary Passage Middle School; incorporation of green building components into the construction of the new Denbigh Community Center; and planning for a multimodal transportation center (*Framework for the Future 2030*, Transportation Goal 1). Sustainability programs currently underway in the City include business recycling services; residential recycling services; and the City of Newport News Environmental Management System (EMS) helping to ensure that environmental considerations are built into the existing management framework of the City's departments.[1]

- **City of Williamsburg** – In 2008, the Williamsburg City Council passed City Council Resolution #08-17, *Setting Forth an Environmental Sustainability Policy for the City of Williamsburg*. This resolution is to improve the environmental practices of the City of Williamsburg by minimizing human impacts through actions such as conservation, restoration, and recycling; supporting land use and transportation planning and practices that reduce greenhouse gas emissions; and educating employees on environmental sustainability. Among some of the City's sustainability practices, the City encourages use of the Business Recycling Program and the Residential Curbside Recycling Program, provides water conservation information, and in 2012 the Williamsburg City Council voted to go paperless with the use of Apple iPads.[2]

- **York County** – York County has a number of green initiatives including equipping new and renovated facilities with energy efficient fluorescent lighting, constructing park facilities with geothermal heating and air conditioning systems, implementing water conservation practices, and encouraging residents and businesses to recycle.[3]

- **Delta Air Lines -** Delta Air Lines has a comprehensive in-flight recycling program that collects and diverts aluminum cans, plastic beverage cups, plastic bottles, newspaper, and magazines to recycling facilities. Passengers, flight attendants, catering staff, and cabin services successfully recycled approximately 1,108,000 pounds of material in 2010 and donated $35,797 through Delta's Force for Global Good to Habitat for Humanity. Delta also participates in a carbon offset program in which the airline partners with The Nature Conservancy to offer passengers the opportunity to voluntarily offset the carbon emissions they incur on their flight through an online calculator accessible when they purchase tickets.4

- **US Airways** - US Airways also supports sustainable initiatives through the adoption of Leadership in Energy and Environmental Design (LEED) standards in its corporate headquarters building and through hazardous waste management practices and disposal protocols. The airline is considering fuel alternatives such as biodiesel – a blend of

[1] NNgreen, Projects and Programs, http://www.nngov.com/nngreen/pages/projects, accessed November 2012.
[2] City of Williamsburg, Green Government, http://www.williamsburgva.gov/Index.aspx?page=971, accessed November 2012.
[3] York Clean and Green, http://www.yorkcounty.gov/Default.aspx?tabid=17957, accessed November 2012.
[4] http://www.delta.com/about_delta/global_good/environment/index.jsp

soybean oil (upwards of 20 percent) and diesel fuel, which produces fewer emissions, uses less petroleum in manufacturing and extends the life of the engine. US Airways is currently replacing older diesel or gasoline-powered ground support equipment (GSE), such as tugs and belt loaders, with alternative-fueled equipment that uses electric, natural gas, and propane. To date, 15 percent of their motorized GSE fleet has been replaced with alternative-fuel versions. In April 2011, U.S. Airways switched all paper products in the lavatories on mainline flights – including tissue paper, toilet paper and paper towels – with Environmental Protection Agency-approved recycled products. The airline also recycles aluminum cans and donates some of the proceeds to local charities and to The Pegasus Project, which provides short-term emergency grants for employees of U.S. Airways.[5]

- **Frontier Airlines -** Frontier Airlines in recent years has been upgrading its fleet of aircraft with newer and more fuel-efficient aircraft and has also partnered with The Wilderness Society. The company's fuel conservation committee expects to reduce projected fuel consumption and, therefore, emissions by over 2 percent. Of every 10 aluminum cans that are used on Frontier Airlines aircraft, 8 are collected at its hub facilities for recycling. In addition, the airline encourages its passengers to pack smart and pack light. Packing lighter reduces the airline's CO2 footprint from travel. Depending on the aircraft, Frontier saves about one pound of CO2 emissions per pound reduced on a 1,000 mile flight.[6]

- **Hertz and Enterprise Rent-A-Car -** Hertz and Enterprise Rent-A-Car include hybrid vehicles such as the Nissan Altima and Toyota Prius as part of their respective fleets (if available). This is another sustainable measure aimed at reducing carbon emissions at the airport.

5.3.2 Sustainability Monitoring Program

A successful approach to a Sustainability Monitoring Program is to first establish metric baselines. The Airport initiated measuring the effectiveness of sustainable measures by completing an ASHRAE Level 1 Energy Audit. As described previously, the Energy Audit was conducted, in part, to evaluate existing utility usage at the airport. A Sustainability Monitoring Program will be formulated by using the data collected from the Energy Audit to establish a baseline, then identify short-term and long-term goals, prioritize and select actions to achieve those goals, and establish processes for measuring, evaluating, and communicating progress.

Prior to developing and implementing a full-blown Sustainability Monitoring Program, the Airport will develop a pilot program that would test an approach and determine how the approach may be modified to meet the Airport's specific needs and resources. Based on the Energy Audit, the Airport will initiate a pilot Sustainability Monitoring Program for sustainable practices associated with the reduction of electricity and water use at the airport.

[5] http://www.usairways.com/en-US/aboutus/pressroom/gogreen/green.html

[6] http://www.frontierairlines.com/who-we-are/company-info/corporate-responsibility/sustainability

A pilot program for sustainability monitoring will include several steps including:

- Conduct an initial assessment (energy audit – competed in 2010);
- Determine strategic goals (reduce the consumption of electricity and water per enplanement);
- Identify and rank opportunities (install CFLs, automatic photocell operation, aerators or waterless and/or dual flush toilets);
- Monitor (compare monthly consumption of electricity and water bills to enplanement totals);
- Evaluate (how much water or electricity are being saved); and
- Communicate (posting the results on the Airport's webpage);

The Energy Audit documented that in the one-year period from July 1, 2009 to June 30, 2010, Newport News/Williamsburg International Airport consumed approximately 6 million gallons of water and nearly 5.6 million kWh of electricity. For this one-year period, the Airport spent $298,350 for electricity, $59,585 for natural gas, and $45,115 for water, for a total utility cost of $403,050. The annual enplanements at the airport for July 1, 2009 and June 30, 2010 were 514,871.[7] Based on the total utility cost and enplanement levels during the baseline year, Newport News/Williamsburg International Airport spent approximately $0.78 per enplanement on utilities.

By continuing to implement sustainable measures at the airport, monitoring utility usage, and cost and assessing the monthly cost per enplanement, The Peninsula Airport Commission can track and publish the results of the savings on their website to show the ongoing effectiveness of their program at a low operational cost. As more sustainability measures are implemented and become more complex, the Peninsula Airport Commission may invest in a web-based sustainable dashboard to view, compare, and share the Airport's energy and water, waste/recycling, transportation, and products information.

[7] Newport News – Williamsburg International Airport, 2010

5.4 DEVELOPMENT PHASING PLAN

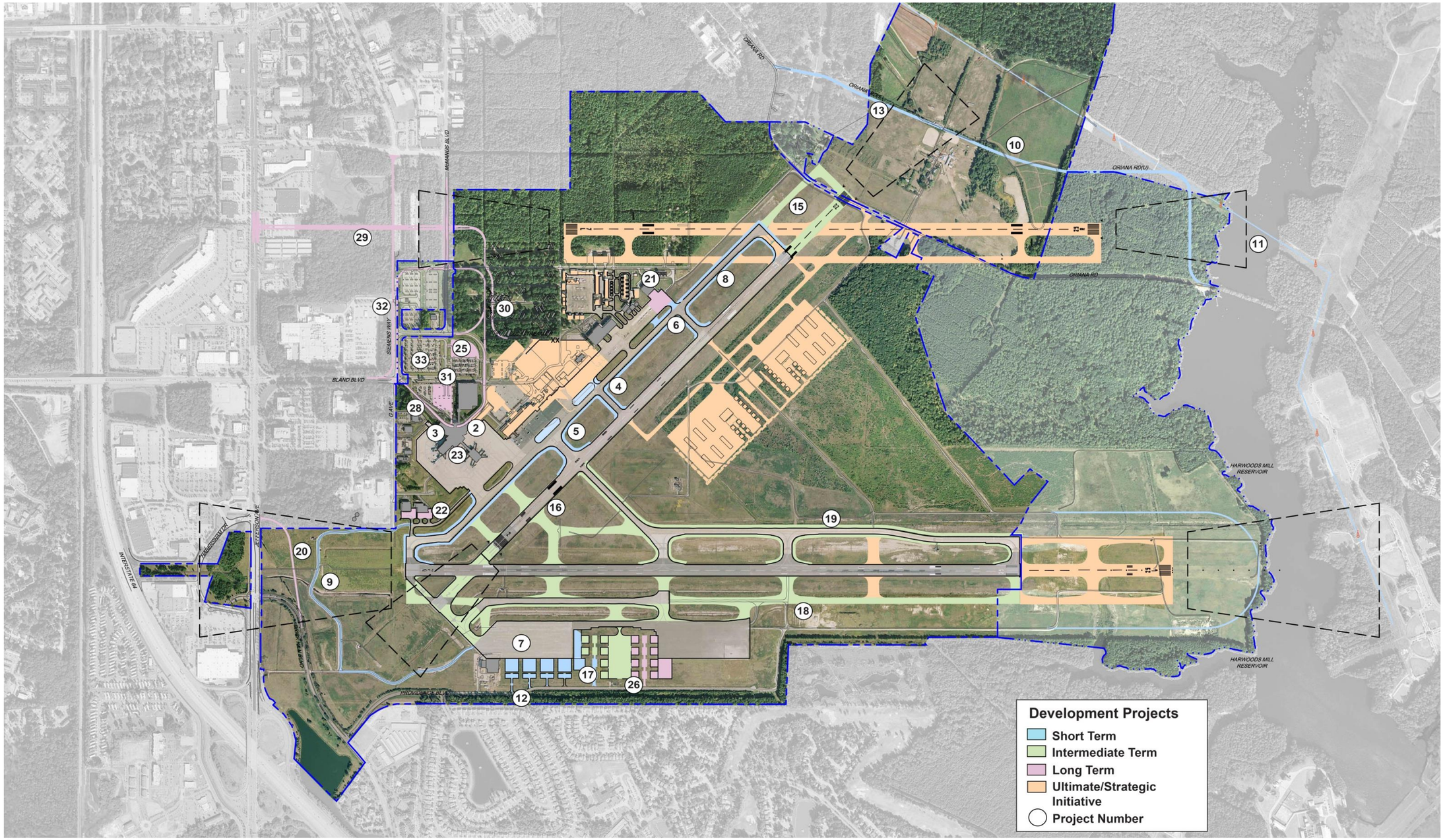
This section presents the three development phases of the Master Plan's capital improvement program. These phases are represented by the 5-year short-term (2013-2018), 10-year intermediate-term (2019-2023), and 20-year long-term (2024-2033). This section will present specific projects, trigger points, and key implementation steps necessary to accomplish the objectives identified in previous chapters. Furthermore, major steps from the Implementation Process (identified in Section 5.2 for a complex airport project) are highlighted in appropriately complex project descriptions. Figure 5-1 provides an illustration of all the major capital projects within the Airport's Development Plan.

Planning-level cost estimates are provided for each project. Planning-level for this purpose is an order of magnitude cost estimate that considers gross areas multiplied by a realistic unit cost factor, plus contingencies and design. The intent is to budget enough funding for each project of the program and to evaluate the feasibility of each project. The detailed planning-level cost estimates for each project are available in **Appendix G, *Detailed Cost Estimates***.

The environmental processing for projects within each development phase will need to be completed in advance of the design and construction to allow for project completion in accordance with applicable federal rules and regulations. In the short- and intermediate-term, a five-year developmental environmental assessment may be appropriate to analyze the potential environmental consequences associated with the proposed action prior to construction beginning. Within each specific phase, the appropriate environmental documentation and associated projects will be addressed further.

These identified capital improvement projects are programmed over the course of the 20-year planning horizon to facilitate systematic development of the airport. The appropriate time for development should be reviewed periodically and adjusted to account for changing circumstances.

Page Left Blank Intentionally



Source: Reynolds Smith and Hills, Inc., 2013

Figure 5-1
Overall Airport Development Plan

5.4.1 Short-term Development Projects

Short-term (Federal Fiscal Year 2013 – 2018) capital improvements include those development projects that are expected to begin within the next five years. Table 5-1 provides a summary of each project within the short-term. Within each project summary, information such as project description, cost, trigger point, key implementation steps, sustainability measures, and a thumbnail sketch are provided. The priority within the short-term development phase is to fulfill one or more of these three objectives:

- Safety
- Capacity
- Sustainability

The implementation of these objectives will need to be closely coordinated with the FAA because AIP funding and environmental documentation may be required. As each objective is discussed further, the Airport should consider the typical project procurement and execution responsibilities discussed in the previous section. Key implementation steps that may cause delay or added complication to the project being properly realized will be discussed along with each objective.

It is important to note that there are a few projects within this development phase listed in the Capital Improvement Plan that are not discussed in detail in this section. These remaining projects are necessary to support the day-to-day operations of the airport, but do not fit within the core objective of this phase. An example of such a project is pavement maintenance, which should occur when the PCI value of the pavement segment reaches 50 or less.

A five-year developmental environmental assessment is expected and will analyze the potential environmental consequences associated with all airfield apron access and taxiway improvements, and enabling projects that allow for the relocation of Runway 2/20s Threshold.

5.4.1.1 Safety

Safety is the most critical aspect of operating the airport. The projects listed below are necessary to increase the safety margin of the airport and the efficiency of the taxiway system. These projects consist of modifications to the taxiway geometry, aircraft access to the runways, and apron areas. In addition, improved taxiway lighting, signage, and nomenclature will enhance the pilot's situational awareness and improve the overall safety of the airfield. These bundled projects have an estimated total cost of $5.2 million in 2012 dollars.

The implementation steps for the on-airport safety projects will be generally straightforward; however, coordination with on-airport users will be essential.

- Apron Access Improvements, Taxiway C
- Apron Access Improvements, Taxiway D
- Apron Access Improvements, Taxiway B
- Taxiway A Lighting and Shoulder Construction

- Perimeter road around Runway 2 and 7 ends

The safety concerns created by the intersection of Runway 2-20 and 7-25 will begin to be corrected within this development phase and be completed within the intermediate-term. FAA airport design standards recommend avoiding runway intersection geometry like that at the Airport. The recommended solution would be to shift Runway 2-20 northward by 1,113 feet, which would result in reduced risk, enhance runway safety, and meet airport design standards. This design change would require analysis by an FAA Safety Risk Management Panel. The project could proceed if the panel concludes the project would enhance safety. In preparation of this project, several enabling projects must occur first.

- Power Line Relocation
- Oriana Road Realignment
- Obstruction Removal

These bundled projects have an estimated total cost of $16.4 million in 2012 dollars. The key implementation steps for this safety project will be extensive coordination with the cities, counties, local utility companies, and affected landowners. In addition, significant capital planning with multiple entities is critical to secure the necessary funding at the required times.

5.4.1.2 Capacity

Capacity is the second objective. Several project groups fall within this objective.

- Passenger Terminal Security Screening Improvements
- Passenger Terminal Baggage Claim Expansion

The passenger terminal security screening improvements should consolidate the two checkpoints into one when peak hour passengers are in the range of 390 to 510, or when annual passengers are between 504,000 and 616,000. The baggage claim expansion, will install an additional baggage claim device, a baggage service office, and additional passenger queuing area. These bundled projects have an estimated total cost of $20.2 million in 2012 dollars. Figure 5-2 and Figure 5-3 provide an illustration of these two terminal projects. The key implementation step for a terminal project will be coordination with tenants and users within the terminal building. These projects will improve the functionality of key terminal spaces, improve passenger circulation, and generally improve levels of service for passengers using the airport.

The second capacity improvement project expected to occur within this development phase is to accommodate additional growth in based aircraft. The South Corporate Apron has sufficient room to accommodate up to 26 based corporate jet aircraft. Site preparation, aprons, and a possible water main enlargement will be required in order to accommodate five large conventional hangars (approximately 100’ by 100’). These projects have an estimated total cost of $18.7 million in 2012 dollars. The key implementation step for this project will be coordination with on-airport users.

- South Corporate Area Development Phase I, Aprons and Two Hangars
- South Corporate Area Development Phase II, Site Preparation and Three Hangars

Figure 5-2
Passenger Terminal Security Screening Improvements

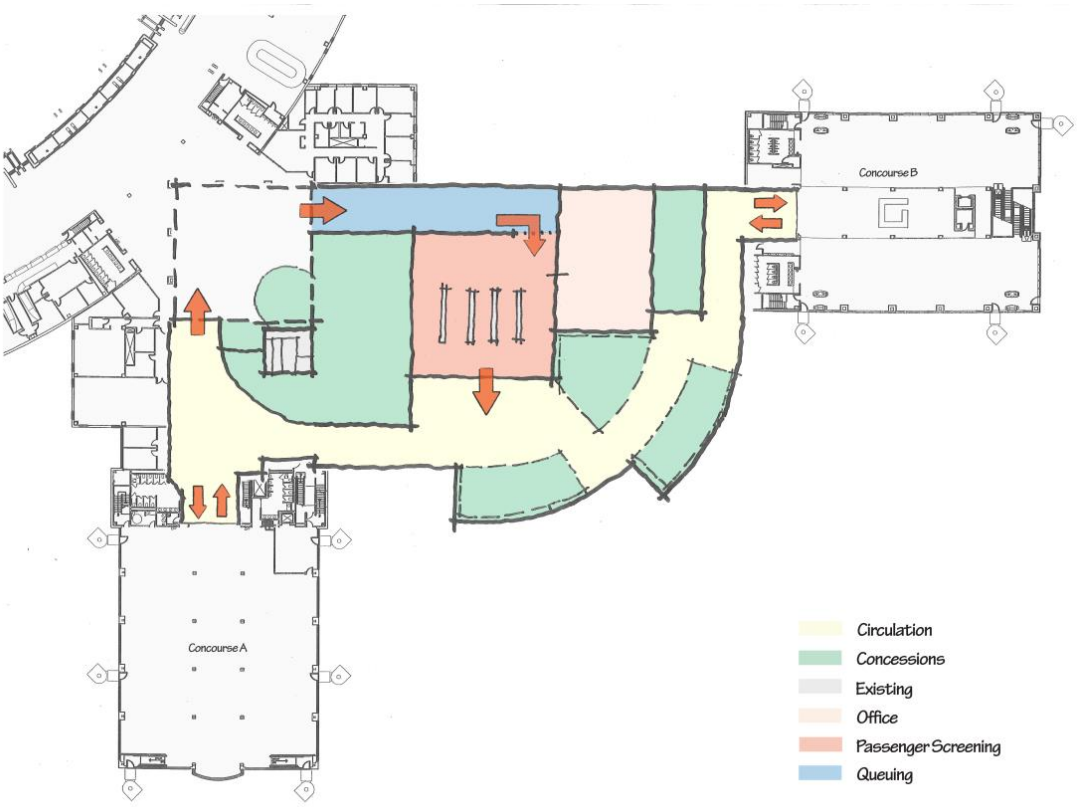
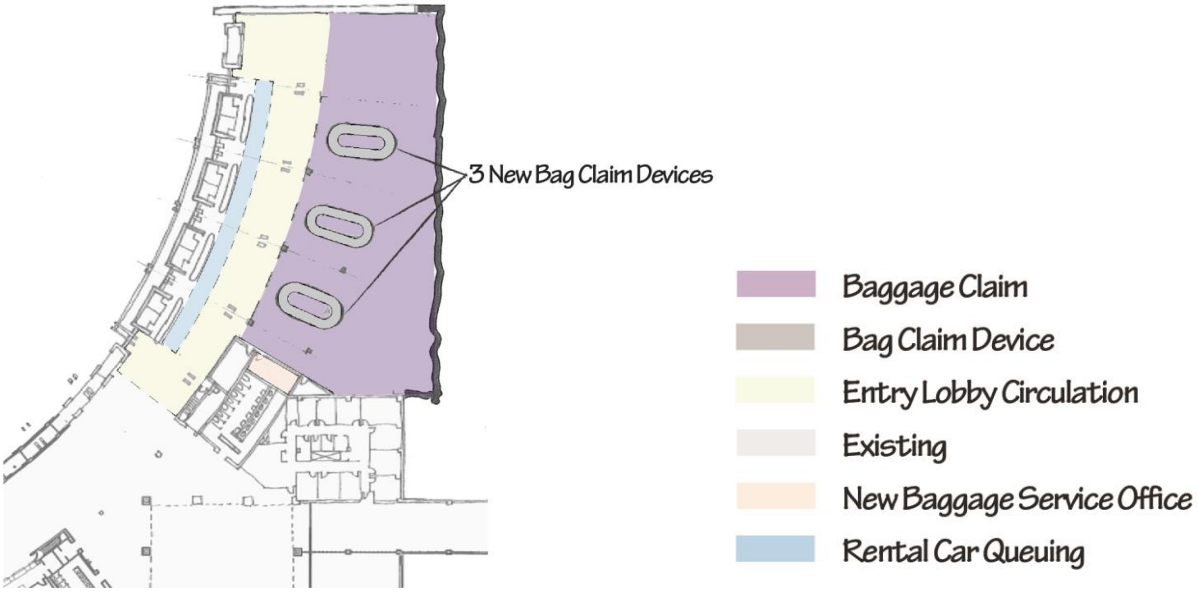


Figure 5-3
Passenger Terminal Baggage Claim Expansion



5.4.1.3 Sustainability

All short-term projects will follow the PHFs *Project Green Skies* design guidelines. Table 5-1 includes recommended sustainable initiatives specific to each project. These recommended initiatives are intended to address the following environmental issues including, but are not limited to:

- Air emissions
- Potable water use
- Storm water runoff
- Electricity use
- Construction waste

In order to assess the reduction of greenhouse gas (GHG) emissions at the airport, the Peninsula Airport Commission will conduct an air quality analysis of implementing airfield improvements or other "green" projects (e.g., taxiway improvements, using natural gas powered GSE) that shorten taxi times, reduce fossil fuel consumption and lower emissions. The Airport is located in an Environmental Protection Agency designated "maintenance" zone for ozone (8-hour); therefore, Newport News/Williamsburg International Airport is eligible to participate in the Voluntary Airport Low Emission (VALE) program. VALE is designed to reduce all sources of airport ground emissions and helps airport sponsors meet their state-related air quality responsibilities under the Clean Air Act. Through VALE, Newport News/Williamsburg International Airport can use FAA Airport Improvement Program funds and Passenger Facility Charges to finance low-emission vehicle refueling and recharging stations, low-emission vehicles for airport use, gate electrification, and air quality improvements, including the requirement in construction specifications to use energy efficient vehicles for airport projects.

Funding for other sustainable measures could be a combination of federal, state, local, or other partnerships. Various government agencies, such as the Environmental Protection Agency and the Department of Energy, offer grant programs in which the Airport may potentially be eligible. Further, partnerships could be developed with the City of Newport News or the Commonwealth of Virginia and other various organizations to promote sustainability. Association with these organizations would enhance the Peninsula Airport Commission's efforts to achieve the sustainable goals and objectives, as well as potentially strengthen the Airport's competitive position for future funding opportunities. New sustainability funding sources would also be continually explored by the Airport.

Monitoring of these initiatives should be achieved within sustainability tracking plans or sustainable dashboards specific to the construction and operation of the short-term projects.

Table 5-1
Short-Term Project Descriptions

Project Title	Short-Term Five Year Environmental Assessment	**No.**	**Short 1**
Description	An environmental assessment study will be conducted analyze the potential environmental consequences associated with all airfield apron access and taxiway improvements, and enabling projects that allow for the relocation of Runway 2/20s threshold.		
Cost	$500,000		

No Image Available

Trigger Point

The conclusion and approval of the 2013 Airport Master Plan report

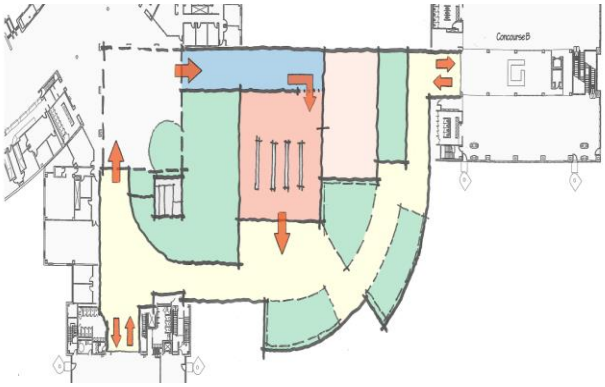
Sustainability Initiative

• Initiate public outreach to the residents and business owners within the airport's service area.

Key Implementation Steps

• Coordinate environmental documentation with construction phasing related to the Runway 2-20 threshold relocation and other associated projects.

Project Title	Passenger Terminal Security Screening Improvements	**No.**	**Short 2**
Description	The security screening checkpoint will be consolidated from the current two checkpoints to a single checkpoint to improve passenger processing during peak periods. Areas will also be constructed adjacent to the checkpoint for required TSA offices, screening rooms, and containment areas.		
Cost	$10,200,000		



Trigger Point

Peak Hour Enplaned Passenger in a range of 390 - 510 or annual passengers between 504,000 and 616,000.

Sustainability Initiative

- Consider materials (i.e., glass) that allow for day lighting.
- Use compact fluorescent lights (CFLs).
- Use LED-lit signage.
- Install occupancy sensors to control lighting in areas that are intermittently occupied.
- Coordinate electrical lighting scenarios with daylight strategies.
- Conduct a waste composition study (an audit of waste streams) to identify the most common types and amount of waste collected at the security checkpoint.
- Recycle aluminum, glass, and plastics at the security checkpoint.
- Provide liquid collection stations, at security checkpoints where full beverage bottles and other liquids are disposed of, to minimize landfill bound waste.
- Install hydration stations after security checkpoints so that passengers can refill their beverage containers after dumping out liquids to pass through security.

Key Implementation Steps

- Coordination with the TSA, tenants and users within the terminal building

Project Title	Terminal Expansion for Baggage Claim	**No.**	**Short 3**
Description	The baggage claim area will be expanded to allow for an additional baggage claim device and provide space for a future fourth claim unit.		
Cost	$10,000,000		

Trigger Point

Peak Hour Deplaning Passengers in a range of 390 to 510 or annual passengers of approximately 504,000 to 616,000.

Sustainability Initiative

- Implement a policy for Energy Star Compliance with equipment purchases.
- Use Forest Stewardship Council certified wood products and resources.
- Coordinate electrical lighting scenarios with day lighting strategies.
- Use compact fluorescent lights in place of incandescent lighting.
- Use materials (i.e., glass) that allow for day lighting.
- Use occupancy sensors to control lighting in areas that are intermittently occupied.
- LED lighting in signage.

Key Implementation Steps

- Coordination with the TSA, airline tenants and users within the terminal building

Project Title	Apron Access Improvements, Taxiway C at Taxiway A	**No.**	**Short 4**
Description	A 100' by 300' unpaved island will be provided to prevent direct access from the GA aprons, across Taxiway A to Runway 2/20. A new apron connector will be constructed approximately 100 feet north of the intersection of Taxiway A and C.		
Cost	$200,000		

Trigger Point

Needed as soon as possible to improve safety, meet FAA standards, and Engineering Brief No. 75 recommendations.

Sustainability Initiative

- Implement stormwater management practices during and after construction.
- Recycle construction and demolition aggregate material.
- Minimize areas of ground disturbing activities and leave vegetation intact when feasible.
- Locate material stockpile areas and lay-down areas in locations that will be disturbed or paved as part of construction.
- Conduct an air quality analysis to assess the potential reduction in GHG emissions as a result of decreased taxi times.

Key Implementation Steps

- Coordination with on-airport users
- Environmental documentation

Project Title	Apron Access Improvements, Taxiway D at Taxiway A	**No.**	**Short 5**
Description	A 100' by 500' unpaved island will be provided to prevent direct access from the GA aprons, across Taxiway A to Runway 2/20. Modifications to the existing taxiway access point between Taxiway A and the General Aviation apron adjacent to Taxiway D. These modifications will discourage a pilot from taxing an aircraft directly from the apron onto an active runway.		
Cost	$400,000		

Trigger Point

Needed as soon as possible to improve safety, meet FAA standards, Engineering Brief No. 75 recommendations, and help offset the need for additional runway capacity.

Sustainability Initiative

- Implement stormwater management practices during and after construction.
- Recycle construction and demolition aggregate material.
- Minimize areas of ground disturbing activities and leave vegetation intact when feasible.
- Locate material stockpile areas and lay-down areas in locations that will be disturbed or paved as part of construction.
- Conduct an air quality analysis to assess the potential reduction in GHG emissions as a result of decreased taxi times.

Key Implementation Steps

- Coordination with on-airport users
- Environmental documentation

Project Title	Apron Access Improvements, Taxiway B at Taxiway A	**No.**	**Short 6**
Description	The existing taxiway connector between Taxiway A and the general aviation apron adjacent to Taxiway B will be removed. A new apron connector will be constructed approximately 300' to the south. These modifications will discourage a pilot from taxing an aircraft directly from the apron onto an active runway.		
Cost	$600,000		

Trigger Point

Needed as soon as possible to improve safety, meet FAA standards, Engineering Brief No. 75 recommendations.

Sustainability Initiative

- Implement stormwater management practices during and after construction.
- Recycle construction and demolition aggregate material.
- Minimize areas of ground disturbing activities and leave vegetation intact when feasible.
- Locate material stockpile areas and lay-down areas in locations that will be disturbed or paved as part of construction.
- Conduct an air quality analysis to assess the potential reduction in GHG emissions as a result of decreased taxi times.

Key Implementation Steps

- Coordination with on-airport users
- Environmental documentation

Project Title	South Corporate Area Development - Phase I, Aprons and Two Hangars	**No.**	**Short 7**
Description	Development of the South Corporate Apron Area will continue to grow from west to east. Phase I includes site preparation, utility extensions, taxiway extensions, and the marketing of individual lease lots.		
Cost	$7,700,000		

Trigger Point

Based jet aircraft grow from 19 to 23.

Sustainability Initiative

- Use Forest Stewardship Council Certified wood products and resources.
- Implement a policy on ENERGY STAR compliance with equipment purchases.
- Use LED lighting for signage.
- Install metering/monitoring devices and energy management control systems.
- Use compact fluorescent lights in place of incandescent lighting.
- Consider materials (i.e. glass) that allow for day lighting.
- Consider the use of automatic low-flow faucets and aerators in bathroom.
- Xeriscape, plant native flora, and avoid planting toxic exotics.
- Encourage vegetative roofing.
- Use mulching and composting around plant root zones to increase water retention.
- Plant drought-resistant vegetation that does not attract wildlife.
- Chip heavy vegetation for use in landscaped areas as mulch, compost vegetation and grass clippings to reduce solid waste generation, and develop an on or off-site composting facility.
- Plant drought-resistant vegetation that does not attract wildlife.

Key Implementation Steps

- Environmental documentation
- Coordination with on-airport users and future tenants

Project Title	Taxiway A lighting Upgrade and Shoulder Construction	**No.**	**Short 8**
Description	Taxiway A lighting will be upgraded to more efficient lighting and paved shoulders will be construction along both sides of Taxiway A.		
Cost	$2,500,000		

Trigger Point

Needed as soon as possible to improve safety, meet FAA standards.

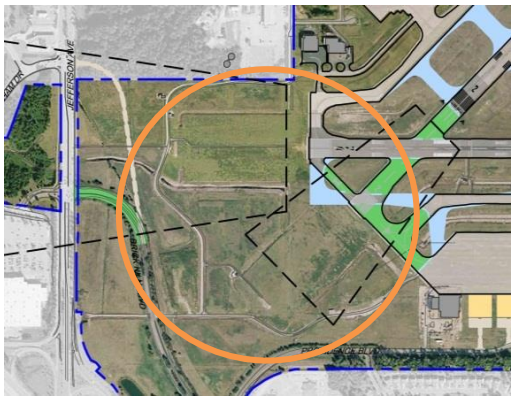
Sustainability Initiative

- Implement stormwater management practices during and after construction.
- Recycle construction and demolition aggregate material.
- Minimize areas of ground disturbing activities and leave vegetation intact when feasible.
- Locate material stockpile areas and lay-down areas in locations that will be disturbed or paved as part of construction.

Key Implementation Steps

- Coordination with on-airport users
- Environmental documentation

Project Title	Perimeter Road Around Runway 2 And 7 Ends	**No.**	**Short 9**
Description	Approximately one mile of perimeter road will be improved around the Runway 2 and 7 ends.		
Cost	$1,500,000		



Trigger Point

Needed as soon as possible to improve safety, and meet the recommendations from the RSAT team.

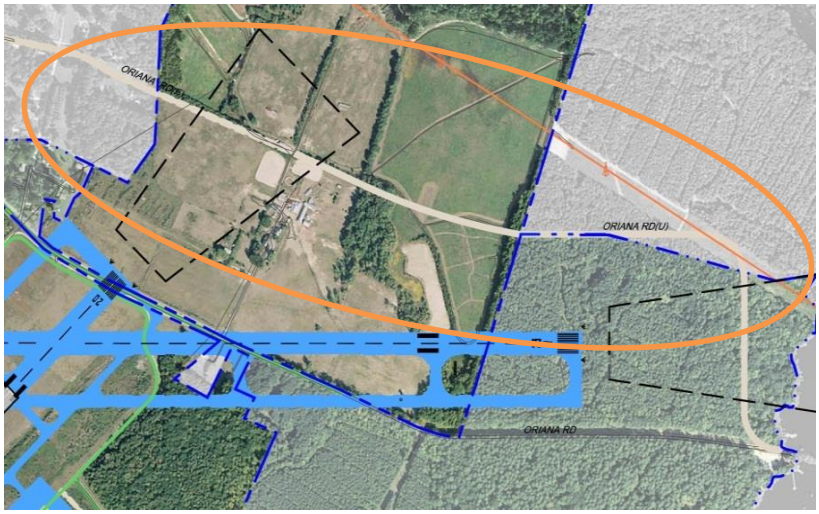
Sustainability Initiative

- Recycle construction and demolition aggregate material.
- Modify roadway design without adding a significant amount of new impervious surfaces on the landside to maintain the PHF's overall storm water runoff.

Key Implementation Steps

- Coordination with on-airport users
- Environmental documentation

Project Title	Oriana Road Realignment/Relocation	**No.**	**Short 10**
Description	Approximately four miles of Oriana will be relocated in order to clear the Runway Object Free Area for the Runway 2/20 shift to the north.		
Cost	$6,600,000		



Trigger Point

Enabling project for the Runway 2/20 Threshold Relocation Project

Sustainability Initiative

• Recycle construction and demolition aggregate material.
• Modify existing roadway design without adding a significant amount of new impervious surfaces on the landside to maintain the PHF's overall storm water runoff.

Key Implementation Steps

• Coordinate environmental documentation and construction phasing with triggering project
• Extensive coordination with the city, county, VDOT, and affected landowners
• Significant capital planning with multiple entities

Project Title	Power Line Relocation	**No.**	**Short 11**
Description	Approximately three miles of overhead electrical transmission line will be relocated in order to provide sufficient airspace clearance for the Runway 2/20 1,113' shift to the north and Runway 7/25 2,000' extension to the east.		
Cost	$8,700,000		

No Image Available

Trigger Point

Enabling project for the Runway 2/20 Threshold Relocation Project.

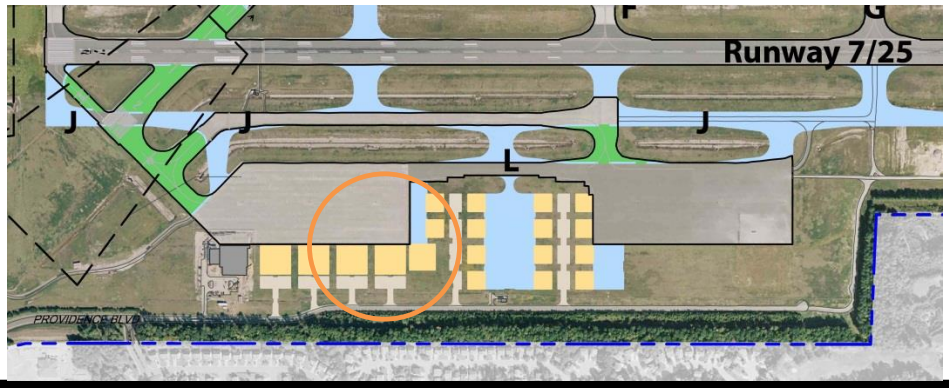
Sustainability Initiative

• Recycle construction and demolition aggregate material.

Key Implementation Steps

• Coordinate environmental documentation and construction phasing with Runway 2/20 Threshold Relocation Project.
• Extensive coordination with the city, county, local utility companies, and affected landowners
• Significant capital planning with multiple entities

Project Title	South Corporate Area Development - Phase II, Site Preparation, Utilities, Roadway Improvements, Aprons	**No.**	**Short 12**
Description	Phase II includes additional site preparation, utility extensions, taxiway extensions, and the construction of three large conventional hangars.		
Cost	$11,000,000		



Trigger Point

Based jet aircraft grow from 19 to 23.

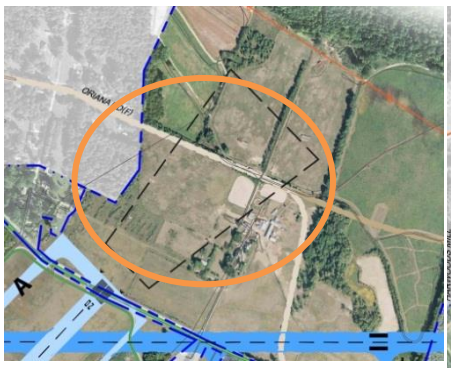
Sustainability Initiative

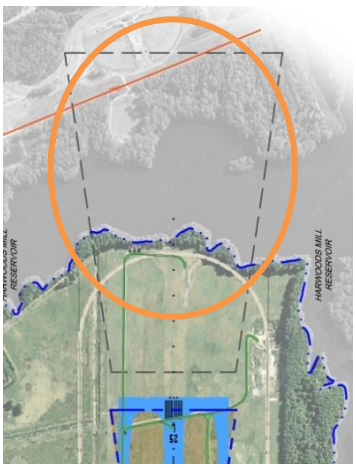
- Use Forest Stewardship Council Certified wood products and resources.
- Implement a policy on ENERGY STAR compliance with equipment purchases.
- Use LED lighting for signage.
- Install metering/monitoring devices and energy management control systems.
- Use compact fluorescent lights in place of incandescent lighting.
- Consider materials (i.e. glass) that allow for day lighting.
- Consider the use of automatic low-flow faucets and aerators in bathroom.
- Xeriscape, plant native flora, and avoid planting toxic exotics.
- Encourage vegetative roofing.
- Use mulching and composting around plant root zones to increase water retention.
- Plant drought-resistant vegetation that does not attract wildlife.
- Chip heavy vegetation for use in landscaped areas as mulch, compost vegetation and grass clippings to reduce solid waste generation, and develop an on or off-site composting facility.
- Plant drought-resistant vegetation that does not attract wildlife.

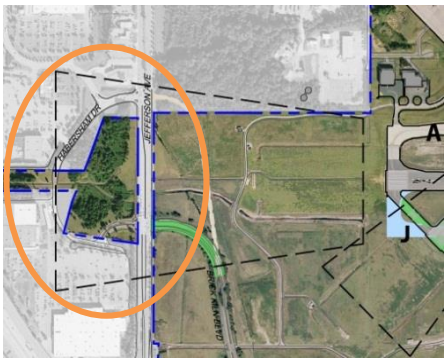
Key Implementation Steps

- Environmental documentation
- Coordination with on-airport users and future tenants

Project Title	Obstruction Removal On The Runway 20 And 25 End	No.	Short 13
Description	Approximately 50 acres and over 400 isolated tree located beyond the Runway ends of 20, 25, and 7 penetrate FAR Part 77 imaginary surfaces and will be removed.		
Cost	$1,000,000		







Trigger Point

Supportive project for the Runway 2/20 Threshold Relocation Project

Sustainability Initiative

- Relocate native vegetation, recycle and chip vegetated debris for landscaping purposes.
- Start an off-site composting for chipped and vegetative debris.

Key Implementation Steps

- Coordinate environmental documentation and construction phasing with triggering project.
- Coordination with the FAA, city, county, and affected landowners

Page Left Blank Intentionally

5.4.2 Intermediate-Term Development Projects

Intermediate-term (Federal Fiscal Year 2019 – 2023) capital improvements include those development projects that are expected to begin within the second five-year planning period. Table 5-2 provides a summary of each project within the intermediate-term. Within each project summary, information such as project description, cost, trigger point, key implementation steps, sustainability measures, and a thumbnail sketch are provided. The priority within the Intermediate-term development phase is to fulfill these three objectives:

- Safety
- Capacity
- Sustainability

The implementation of these projects will be undertaken when demand warrants, rather than with a predefined schedule; however, based on the forecast, and assigned trigger points, it can be anticipated that these projects will occur during this intermediate time frame. As each project is discussed further, the Airport should consider the typical procurement and execution responsibilities discussed in Section 5.2 Development Phasing Plan. Key implementation steps that may cause delay or added complication to the project being properly realized will be discussed along with each objective.

The environmental processing anticipated within this development phase is similar to the short-term. A five-year developmental environmental assessment is expected, which will evaluate the potential environmental consequences associated with the relocation of Runway 2-20's threshold and adjacent airfield improvements.

Similar to the short-term, there are a few projects within this development phase listed in the Capital Improvement Plan that are not discussed in detail in this section. These projects are necessary to support the day-to-day operations of the airport such as the realignment of Brick Kiln Boulevard.

5.4.2.1 Safety

Continuing on the efforts started in the short-term development phase, once their enabling projects are complete, these safety improvement projects are necessary.

- Improvements to Taxiways A, D, and J
- Taxiway J Extension and Connectors
- Taxiway D Rehabilitation
- Runway 2-20 Threshold Relocation

The key implementation steps for these safety projects will be extensive coordination with the cities, counties, local utility companies, and affected landowners. Along with an environmental assessment for shifting the runway, a reimbursable agreement for the modification to the NAVAIDs may be required. These bundled projects have an estimated total cost of $38.3 million in 2012 dollars.

5.4.2.2 Capacity

Within the capacity improvement objective, additional growth is expected in based aircraft during this time frame. This growth in based aircraft is expected to occur in turboprop and jet aircraft therefore, the South Corporate Apron will need to be expanded. The construction of three large (approximately 100' x 100') conventional hangars within the South Corporate Apron will occur to accommodate expected growth from 26-30 jet aircraft.

- South Corporate Area Development Phase III, site preparation, taxilane and apron extensions and hangar construction

In order to accommodate this expected growth, additional site preparation, utilities and taxilane extension will be required. These bundled projects have an estimated total cost of $15.1 million in 2012 dollars. The key implementation step for these projects will be coordination with on-airport users and future tenants.

5.4.2.3 Sustainability

All intermediate-term projects will follow the Airport's *Project Green Skies* design guidelines. Table 5-2 includes recommended sustainable measures specific to each project. These recommended measures include, but are not limited to the reduction of:

- Water Use
- Ground Disturbing Activities
- Electricity Use
- Stormwater Runoff

As described in Section 5.4.1 Short-term Development Projects, funding for other sustainable measures could be a combination of federal, state, local, or other partnerships. Various government agencies, such as the EPA and the DOE, offer grant programs in which the Airport may potentially be eligible. These and other sustainability organizations would enhance the promotion of the Airport's efforts to achieve the sustainable goals and objectives. In addition, new sustainability funding sources would be explored by the Airport if and when these grant programs become available.

Monitoring of these measures should be achieved within sustainability tracking plans or sustainable dashboards specific to the construction and operation of the intermediate projects.

Implementation of these sustainable initiatives can assist the Airport in meeting its environmental goals. Proactively protecting water resources and maximizing water efficiency should occur by reducing the use of potable water by using reclaimed water and using stormwater runoff for irrigation, process water, and building flush systems. Implementation of the intermediate projects could reduce the amount of solid waste from construction/demolition and incorporate the use and/or reclamation of recyclable materials where feasible.

Table 5-2
Intermediate-Term Project Descriptions

Project Title	Mid-Term Five Year Environmental Assessment	**No.**	**Intermediate 14**
Description	The environmental processing anticipated within this development phase is similar to the short-term. A five-year developmental environmental assessment is expected, which will evaluate the potential environmental consequences associated with the relocation of Runway 2-20's threshold and adjacent airfield improvements.		
Cost	$500,000		

No Image Available

Trigger Point

Enabling project for the Intermediate-term development projects.

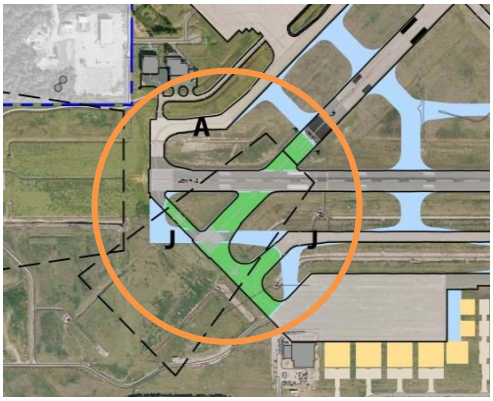
Sustainability Initiative

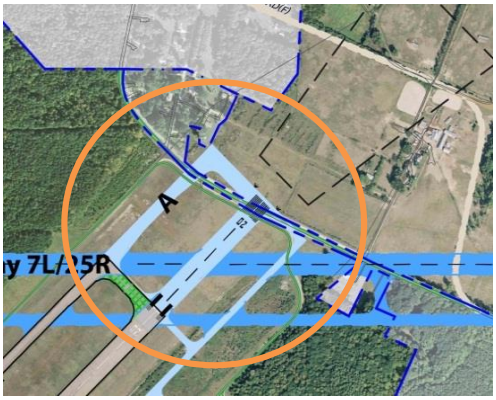
- Initiate public outreach to the residents and business owners within the airport's service area.

Key Implementation Steps

- Coordinate environmental documentation with construction phasing for Intermediate-term projects.

Project Title	Runway 2/20 Threshold Relocation	**No.**	**Intermediate 15**
Description	Runway 2/20 will be shifted along its centerline 1,113 feet to the north. Runway pavement south of the new Runway 2 threshold will be removed. Taxiways A and J will be reconfigured to provide efficient aircraft movement to the new ends of Runway 2/20.		
Cost	$12,000,000		





Trigger Point

A formal SRMD is prepared and a Safety Risk Management panel concludes shifting Runway 2/20 northward 1,113 feet is an effective means for reducing risk.

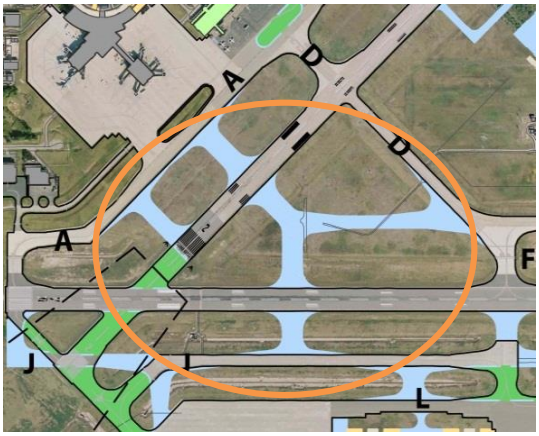
Sustainability Initiative

- Implement stormwater management practices during and after construction.
- Minimize the extent and duration of bare ground surface exposure.
- Recycle construction and demolition aggregate material.
- During construction, ensure that the specified recycled content materials are installed and quantify the total percentage of recycled content materials installed.
- Minimize areas of ground disturbing activities and leave vegetation intact when feasible.
- Locate material stockpile areas and lay-down areas in locations that will be disturbed or paved as part of construction.
- Bus construction employees into the construction site to reduce security checkpoint delays (and reduce emissions from individual riders and vehicle idling).
- Require the contractor(s) to develop a plan to protect existing vegetation during all construction activities to maintain existing tree and vegetation population.

Key Implementation Steps

- Extensive coordination with the city, county, and affected landowners
- Significant capital planning with multiple entities
- Conduct environmental assessment
- Reimbursable agreement for modification to NAVAIDs • Conduct FAA airspace review study

Project Title	Taxiways A, D, J Improvements	**No.**	**Intermediate 16**
Description	New taxiway access is provided to the terminal apron and to taxiway J from extending Taxiway D to the southwest. This project also includes taxiway renaming and signage updates between Runway 7 and 2.		
Cost	$7,900,000		



Trigger Point

Needed as soon as possible to improve safety, meet FAA standards, Engineering Brief No. 75 recommendations, and help offset the need for additional runway capacity.

Sustainability Initiative

- Implement stormwater management practices during and after construction.
- Recycle construction and demolition aggregate material.
- Minimize areas of ground disturbing activities and leave vegetation intact when feasible.
- Locate material stockpile areas and lay-down areas in locations that will be disturbed or paved as part of construction.
- Conduct an air quality analysis to assess the potential reduction in GHG emissions as a result of decreased taxi times.

Key Implementation Steps

- Coordination with on-airport users
- Environmental documentation

Project Title	South Corporate Area Development - Phase III, Site Preparation, Utilities, Roadway Improvements, Aprons and Three Hangars	**No.**	**Intermediate** **17**
Description	Phase III will include additional site preparation, utility extensions, taxilane extension, and the construction of three additional large conventional hangars.		
Cost	$15,100,000		

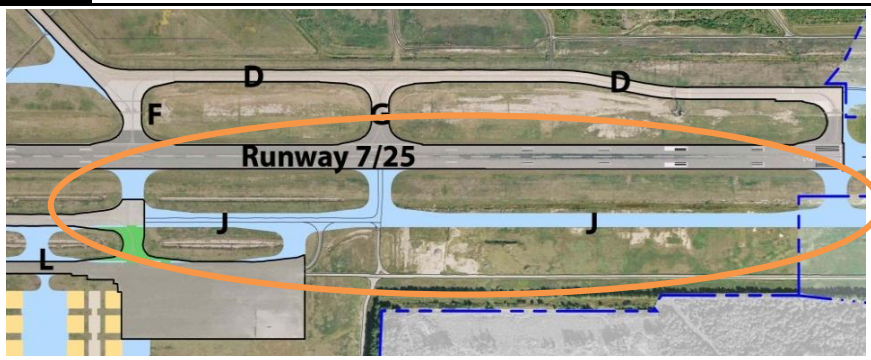
Trigger Point

Based jet aircraft grow from 26 to 28.

Sustainability Initiative

• Implement stormwater management practices during and after construction.
• To prevent erosion, minimize the extent and duration of bare ground surface exposure.
• Recycle construction and demolition aggregate material.
• During construction, ensure that the specified recycled content materials are installed and quantify the total percentage of recycled content materials installed.
• Leave vegetation intact when feasible.
• Locate material stockpile areas and lay-down areas in locations that will be disturbed or paved as part of construction.
• Reduce the use of potable water by using reclaimed water and stormwater runoff for irrigation, process water, and building flush systems during the construction phasing.
• Encourage vegetative roofing.
• Bus construction employees into the construction site to reduce security checkpoint delays (and reduce emissions from individual riders and vehicle idling).
• Require the contractor(s) to develop a plan to protect existing vegetation during all construction activities.
• Protect vegetation from damage due to run-off or spillage during mixing and placement of construction materials.
• Incorporate renewable energy sources into new construction.

Project Title	Taxiway J Extension and Connectors	**No.**	**Intermediate 18**
Description	Taxiway J will be extended (4,550') to provide a full parallel taxiway on the south side of Runway 7/25. Several taxiway connectors are included between Runway 7/25, Taxiway J, and the South Corporate Apron.		
Cost	$7,700,000		



Trigger Point

Supportive accessibility project providing access between the RWY 25 end, the South Corporate Apron, and the RWY 7 end.

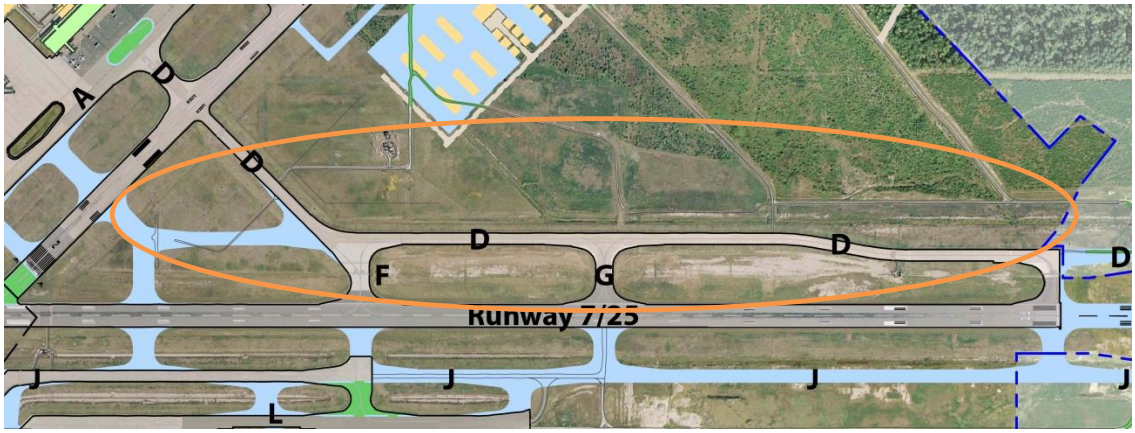
Sustainability Initiative

- Implement stormwater management practices during and after construction.
- Recycle construction and demolition aggregate material.
- Minimize areas of ground disturbing activities and leave vegetation intact when feasible.
- Locate material stockpile areas and lay-down areas in locations that will be disturbed or paved as part of construction.
- Conduct an air quality analysis to assess the potential reduction in GHG emissions as a result of decreased taxi times.

Key Implementation Steps

- Coordination with on-airport users
- Environmental documentation

Project Title	Taxiway D Rehabilitation from 2/20 to the Existing 25 end	**No.**	**Intermediate 19**
Description	Taxiway D between Runway 2/20 and the existing Runway 25 end will require pavement rehabilitation. The taxiway area is approximately 66,000 square yards.		
Cost	$10,750,000		



Trigger Point

The PCI of paved surface indicates pavement condition is at 55.

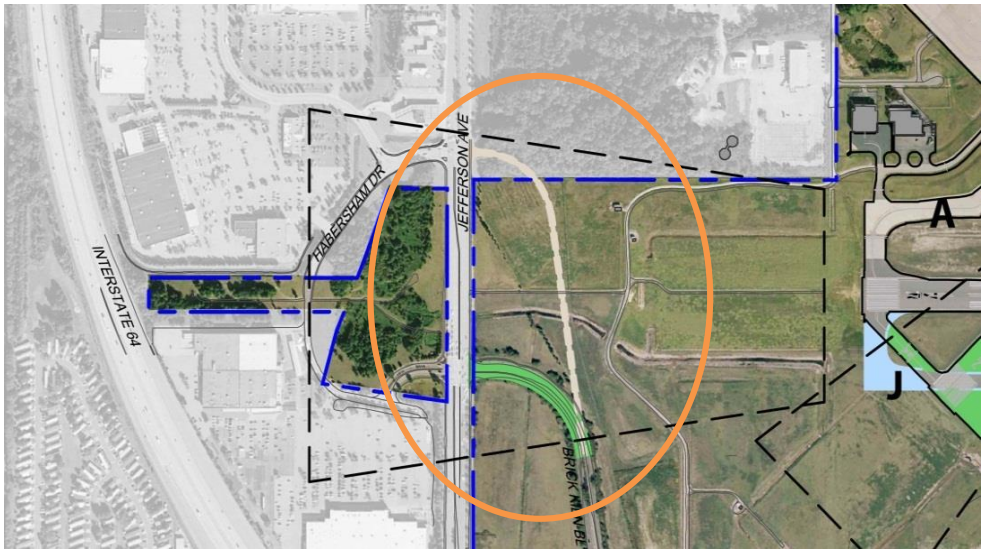
Sustainability Initiative

- Recycle taxiway pavement.
- During construction, ensure that the specified recycled content materials are installed and quantify the total percentage of recycled content materials installed.
- Minimize areas of ground disturbing activities and leave vegetation intact when feasible.

Key Implementation Steps

- Coordination with on-airport users
- Environmental documentation

Project Title	Brick Kiln Boulevard Realignment	**No.**	**Intermediate 20**
Description	A segment of Brick Kiln Boulevard will be realigned to intersect Jefferson Avenue at a point north of the existing intersection to improve auto traffic flow and reduce congestion.		
Cost	$1,300,000		



Trigger Point

Level of service at intersection decrease from a D to E.

Sustainability Initiative

• Recycle construction and demolition aggregate material.
• Modify existing roadway design without adding a significant amount of new impervious surfaces on the landside to maintain the PHF's overall storm water runoff.

Key Implementation Steps

• Significant capital planning with multiple entities
• Extensive interagency coordination with VDOT, the City of Newport News, York County, and Hampton Roads Metropolitan Planning Organization (HRMPO)

Page Left Blank Intentionally

5.4.3 Long-Term Development Projects

Long-term development improvements include those projects that are warranted by demand within the final 10 years of the planning horizon (2024 – 2033). Table 5-3 provides a summary of each project within the long-term. Within each project summary, information such as project description, cost, trigger point, key implementation steps, sustainability measures, and a thumbnail sketch are provided. The priority within the long-term development phase is to fulfill one or more of these three objectives:

- Sustainability
- Vehicle Accessibility
- Capacity

The environmental processing for these projects will need to be completed in advance of the design and construction to allow for project completion in accordance with applicable federal rules and regulations. Like the other two development phases, there are a few projects listed in the Capital Improvement Plan that are not discussed in this section. These projects do not fit within the core objectives of this phase, but are necessary to support the day-to-day operations of the airport. Examples of projects within this period are apron rehabilitation and an Airport Master Plan Update.

5.4.3.1 Sustainability

The long-term plan for sustainability includes projects that would occur in the 2024 to 2033 time horizon. The projects primarily include airfield projects directed at airport access, navigational improvements, and midfield hangar development. All long-term projects will follow the Airport's *Project Green Skies* design guidelines. These recommended measures include, but are not limited to, reducing the use of:

- New Building Materials
- Electricity
- Ground Disturbing Activities

As described in Section 5.4.1 Short-Term Development Projects, funding for other sustainable measures could be a combination of federal, state, local or other partnerships. Partnerships could occur with the City of Newport News or the Commonwealth of Virginia and other various organizations promoting sustainability. These and other sustainability organizations would enhance the promotion of the PHF's efforts to achieve the sustainable goals and objectives. In addition, new sustainability funding sources would be explored by the Airport if and when these grant programs become available.

Monitoring of these measures should be achieved within sustainability tracking plans or sustainable dashboards specific to the construction and operation of the long-term projects.

Implementation of these sustainable measures for the Long-Term Development Projects can assist the Airport in meeting its environmental goals. For the Midfield Hangar Development, the Airport is

expected to use compact fluorescent lights or LED lights in place of traditional incandescent lighting, use Forest Stewardship Council products and resources to reduce the overall consumption of energy, and reduce the use of new materials. Additional measures that should be implemented during the long-term will include recycling construction and demolition waste to reduce disposal costs, using passive lighting techniques to reduce the need for indoor lighting, implementing a native plant or xeriscaping landscape strategy, coating surfaces with materials that have a high-Solar Reflectance Index (SRI), and restricting the use of potable water in irrigation systems.

5.4.3.2 Vehicle Accessibility

Improving vehicle access to the terminal and airport facilities is the second major objective within this planning period. The entire roadway system is interconnected; therefore, consideration must be made for sequencing improvements to limit impacts on users, tenants, and nearby residents and businesses. The terminal loop road will be modified to create a single directional vehicle traffic loop with ingress/egress from the north on McManus Boulevard. Then the construction of a new roadway from Jefferson Avenue to McManus Boulevard will establish the primary access route for future Airport vehicle traffic. Meanwhile, two new north/south roadways will be constructed to segregate vehicle traffic from the terminal, general aviation, airport support facilities, and local traffic transitioning between Bland Boulevard and Denbigh Road. The timing of this project could occur at any time during the planning period; however, it is expected to occur during the long term phase because of the interagency coordination necessary to implement a roadway project such as this. Several of the key agencies are Peninsula Airport Commission, City of Newport News, York County, Hampton Roads Metropolitan Planning Organization, state and federal highway departments, and the Federal Aviation Administration. These projects have an estimated total cost of $23.8 million in 2012 dollars.

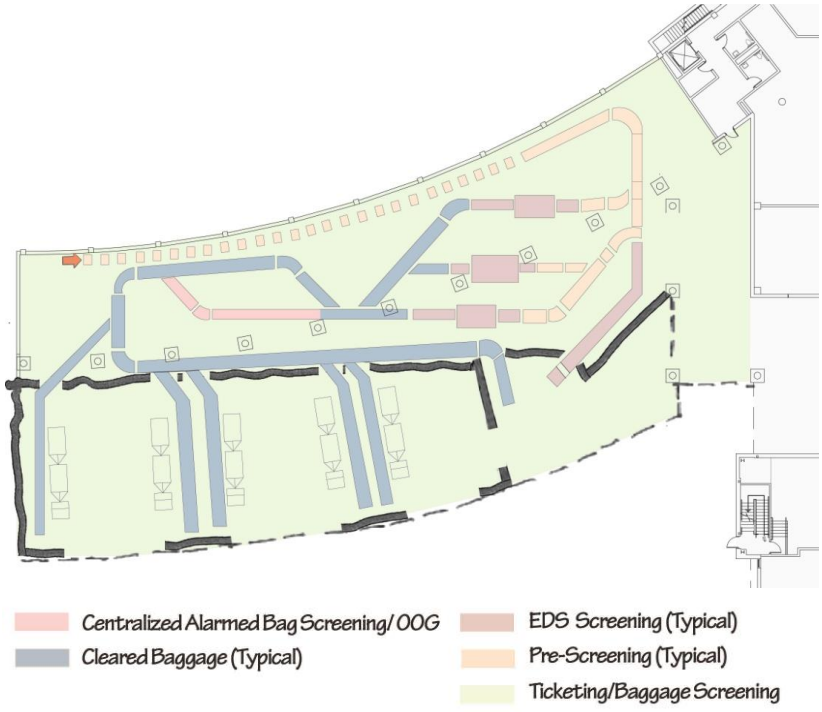
- Airport Roadway Improvements – Phase I, Terminal Loop Road realignment
- Airport Roadway Improvements – Phase II, Primary Airport access improvements
- Airport Roadway Improvements – Phase III, East Bypass Road
- Airport Roadway Improvements – Phase V, Two-way north/south arterial road

5.4.3.3 Capacity

Capacity is the third objective. Several project groups fall within this objective. As stated earlier, these capacity improvements are driven by growing demand and not a specific year. The first is the increased passenger demand related improvements. The implementation of these capacity projects are triggered independently from one another and discussed separately below.

The construction of the baggage screening project should occur when annual enplanements exceed 616,000 passengers and consist of incorporating an in-line baggage screening system for outbound baggage. This project will improve the functionality of key terminal spaces, improve passenger circulation, and generally improve levels of service for passengers using the airport. This project has an estimated total cost of $11.6 million in 2012 dollars. Figure 5-4 provides an illustration of this terminal project. The implementation steps for terminal-related projects can be straightforward. The key step will be the coordination with the TSA, airline tenants, and users of the terminal building during construction.

Figure 5-4
Passenger Terminal Baggage Screening Improvements



Within the passenger demand related capacity improvements are the improvements to the existing gravel 300 space parking lot and the construction of an additional 500 space auto parking garage adjacent to the existing parking structure. These parking improvements should occur when annual passenger volume surpasses 711,000. In addition, a portion of the former cell phone lot within the terminal loop road will be modified to provide approximately 250 additional vehicle spaces to accommodate future rental car parking when annual passenger volume exceeds 821,000. These projects have an estimated total cost of $3.3 million in 2012 dollars. The key implementation step will be the coordination with the rental car agencies, TSA, and users of the terminal building.

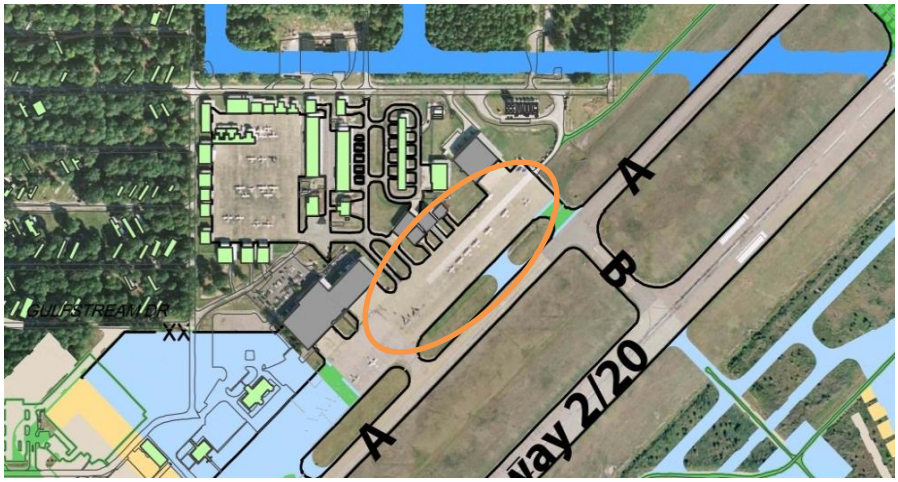
- Airport Roadway Improvements – Phase VI, Parking Garage Construction
- Auto Parking Lot Expansion
- Rental Car Relocation/Expansion

Capacity improvements are also expected within this development phase to accommodate growth in based aircraft. The timing of this project could occur at any time during the planning period; however, it is expected to occur during the long term phase. This project has an estimated total cost of $5.5 million in 2012 dollars. The key implementation step for this project will be coordination with on-airport users.

- South Corporate Area Development Phase IV, Aprons and Two Hangars

Table 5-3
Long-Term Project Descriptions

Project Title	General Aviation Apron Rehabilitation	**No.**	**Long 21**
Description	The general aviation apron located near the Taxiway A and B intersection will require pavement rehabilitation. The apron area is approximately 19,000 square yards.		
Cost	$3,800,000		



Trigger Point

The PCI of the paved surface indicates pavement condition is at 55.

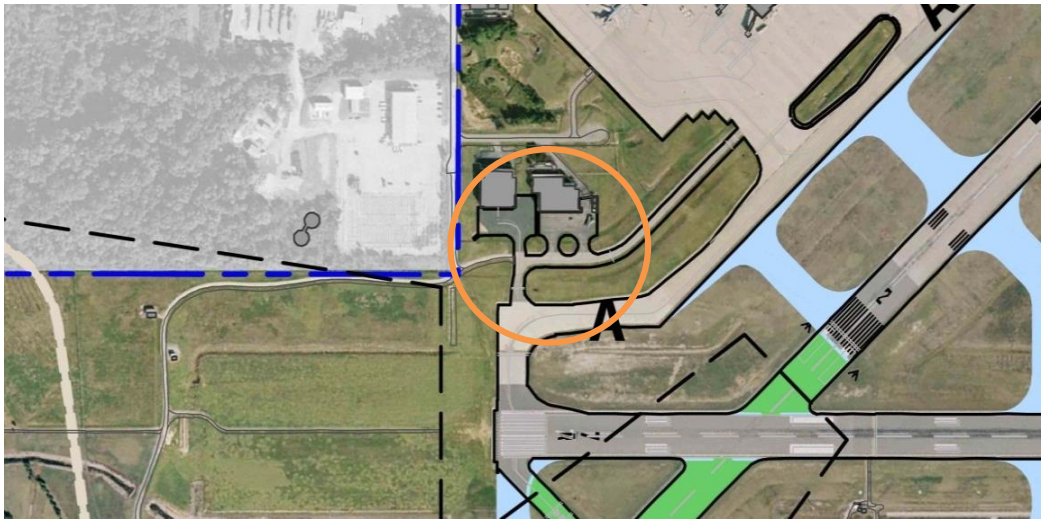
Sustainability Initiative

- Recycle taxiway pavement.
- During construction, ensure that the specified recycled content materials are installed and quantify the total percentage of recycled content materials installed.
- Minimize areas of ground disturbing activities and leave vegetation intact when feasible.

Key Implementation Steps

- Coordination with on-airport users
- Environmental documentation

Project Title	Small Aircraft Apron Rehabilitation	**No.**	**Long 22**
Description	The general aviation apron serving the Smithfield and Noland hangar, adjacent to the north side of the Runway 7 end will require pavement rehabilitation. The apron is approximately 2,200 square feet in size.		
Cost	$800,000		



Trigger Point

The PCI of the paved surface indicates pavement condition is at 55.

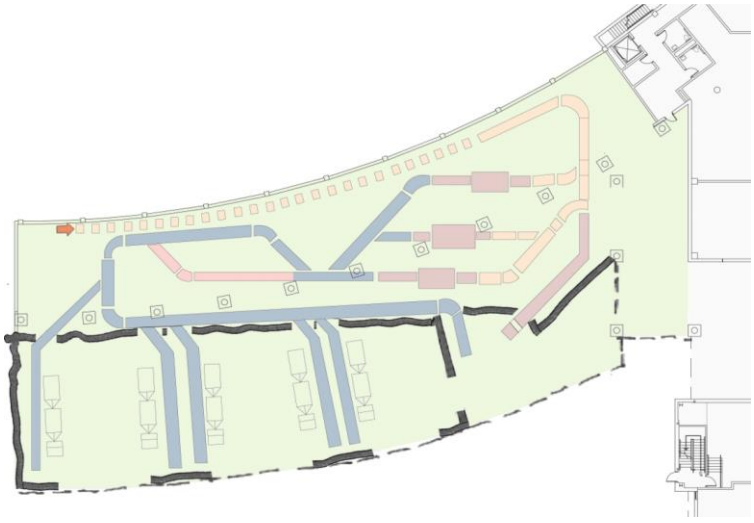
Sustainability Initiative

- Recycle apron pavement.
- During construction, ensure that the specified recycled content materials are installed and quantify the total percentage of recycled content materials installed.
- Minimize areas of ground disturbing activities and leave vegetation intact when feasible.

Key Implementation Steps

- Coordination with on-airport users
- Environmental documentation

Project Title	Passenger Terminal Baggage Screening Improvements	**No.**	**Long 23**
Description	The passenger terminal baggage screening area will be expanded to accommodated the inclusion of TSA bag screening equipment. This expansion will be approximately 10,000 square feet of additional space.		
Cost	$11,600,000		



Trigger Point

Peak hour enplaned baggage in a range of 459 to 486 bags.

Sustainability Initiative

- Implement a policy for Energy Star Compliance with equipment purchases.
- Use Forest Stewardship Council certified wood products and resources.
- Coordinate electrical lighting scenarios with day lighting strategies.
- Use compact fluorescent lights in place of incandescent lighting.
- Use materials (i.e., glass) that allow for day lighting.
- Use occupancy sensors to control lighting in areas that are intermittently occupied.
- LED lighting in signage.

Key Implementation Steps

- Coordination with the TSA, airline tenants and users within the terminal building

Project Title	Long-Term Five Year Environmental Assessment	**No.**	**Long 24**
Description	An environmental assessment study will be conducted to establish all the impacts either positive or negative about the Airport Roadway Improvement project.		
Cost	$500,000		

No Image Available

Trigger Point

Enabling project for the Airport Roadway Improvements

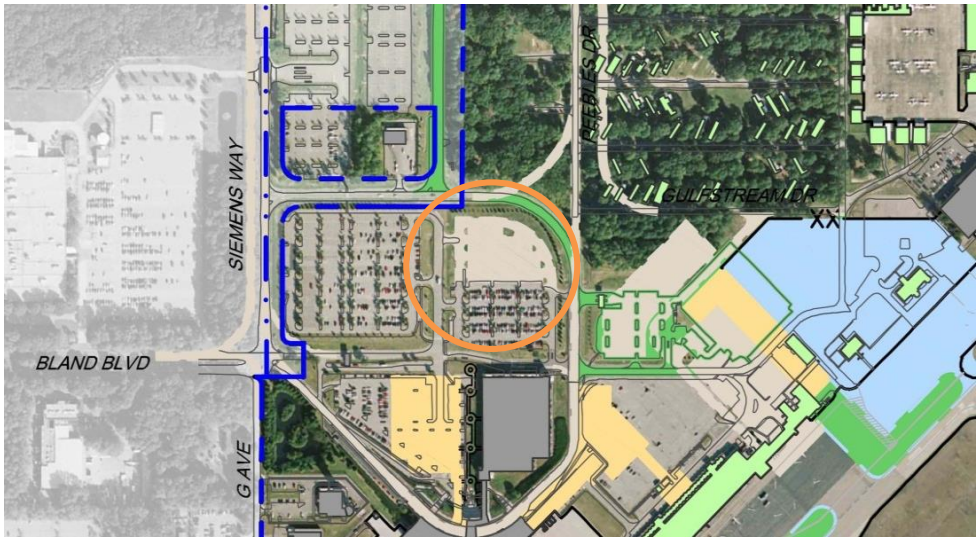
Sustainability Initiative

- Initiate public outreach to the residents and business owners within the airport's service area.

Key Implementation Steps

- Environmental documentation

Project Title	Auto Parking Lot Expansion	**No.**	**Long 25**
Description	The existing gravel parking lot within the loop road will be paved to accommodate an additional 300 parking spaces.		
Cost	$900,000		



Trigger Point

Public parking demands 2,400 spaces when annual passengers increase to 711,000.

Sustainability Initiative

• Minimize the extent and duration of bare ground surface exposure.
• During construction, ensure that the specified recycled content materials are used and quantify the total percentage of recycled content materials installed.
• Protect vegetation from damage due to run-off or spillage during mixing and placement of construction materials.

Key Implementation Steps

• Coordination with the TSA, tenants and users

Project Title	South Corporate Area Development - Phase IV, Apron and Two Hangars	**No.**	**Long 26**
Description	Phase IV will include the construction of two large conventional hangars.		
Cost	$5,000,000		

Trigger Point

Based jet aircraft grows from 28 to 33.

Sustainability Initiative

- Implement stormwater management practices during and after construction.
- To prevent erosion, minimize the extent and duration of bare ground surface exposure.
- Recycle construction and demolition aggregate material.
- During construction, ensure that the specified recycled content materials are installed and quantify the total percentage of recycled content materials installed.
- Leave vegetation intact when feasible.
- Locate material stockpile areas and lay-down areas in locations that will be disturbed or paved as part of construction.
- Reduce the use of potable water by using reclaimed water and stormwater runoff for irrigation, process water, and building flush systems during the construction phasing.
- Encourage vegetative roofing.
- Bus construction employees into the construction site to reduce security checkpoint delays (and reduce emissions from individual riders and vehicle idling).
- Require the contractor(s) to develop a plan to protect existing vegetation during all construction activities.
- Protect vegetation from damage due to run-off or spillage during mixing and placement of construction materials.
- Incorporate renewable energy sources into new construction.

Key Implementation Steps

- Environmental documentation
- Coordination with on-airport users and future tenants

Project Title	Airport Master Plan Update	**No.**	**Long 27**
Description	An airport master plan study will be conducted to determine the long-term development plans for the Airport.		
Cost	$1,000,000		

No Image Available

Trigger Point

Needed after major infrastructure improvements are made in order to update the long-term development plan.

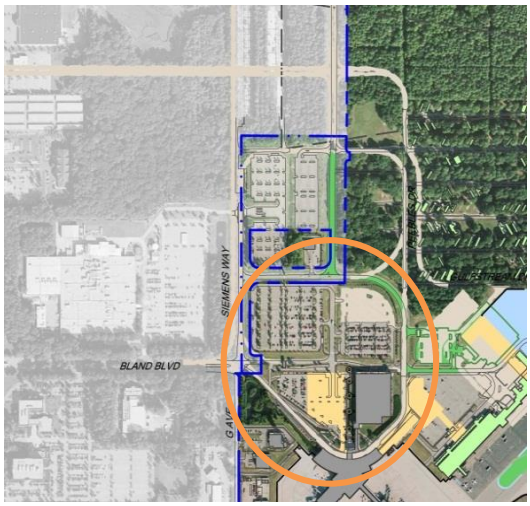
Sustainability Initiative

• Initiate public outreach to the residents and business owners within the airport's service area.

Key Implementation Steps

• Coordination with the airport users, and local residents

Project Title	Airport Roadway Improvements - Phase I, Terminal Loop Road	**No.**	**Long 28**
Description	Phase I modifies the terminal loop road to create a single directional vehicle traffic loop with ingress/egress from the north on McManus Boulevard and the removal of a segment of McManus Boulevard.		
Cost	$4,600,000		



Trigger Point

Needed to improve the ease of accessibility to the terminal, reduce congestion, and improve vehicle safety.

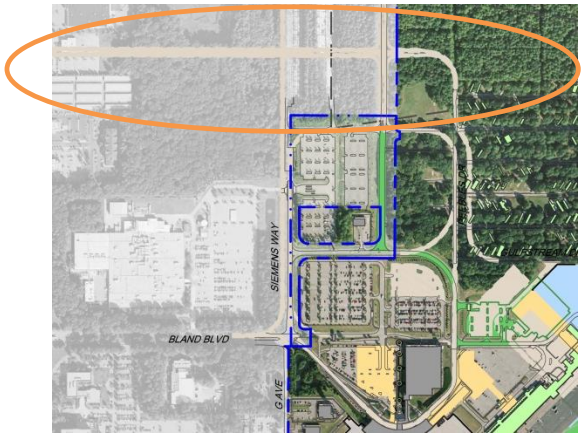
Sustainability Initiative

• Recycle construction and demolition aggregate material.
• Modify existing roadway design without adding a significant amount of new impervious surfaces on the landside.
• Implement stormwater management practices during and after construction.
• Minimize the extent and duration of bare ground surface exposure.
• During construction, ensure that the specified recycled content materials are used and quantify the total percentage of recycled content materials installed.
• Protect vegetation from damage due to run-off or spillage during mixing and placement of construction materials.

Key Implementation Steps

• Environmental documentation
• Extensive interagency coordination with VDOT, the City, the County, and HRMPO
• Significant capital planning with multiple entities

Project Title	Airport Roadway Improvements - Phase II, Primary Airport Access	**No.**	**Long 29**
Description	Phase II involves the construction of a new roadway from Jefferson Ave to McManus and establish that route as the primary access route for airport traffic.		
Cost	$3,700,000		



Trigger Point

Supportive project for the Auto Access - Phase I Terminal Loop Road Realignment Project

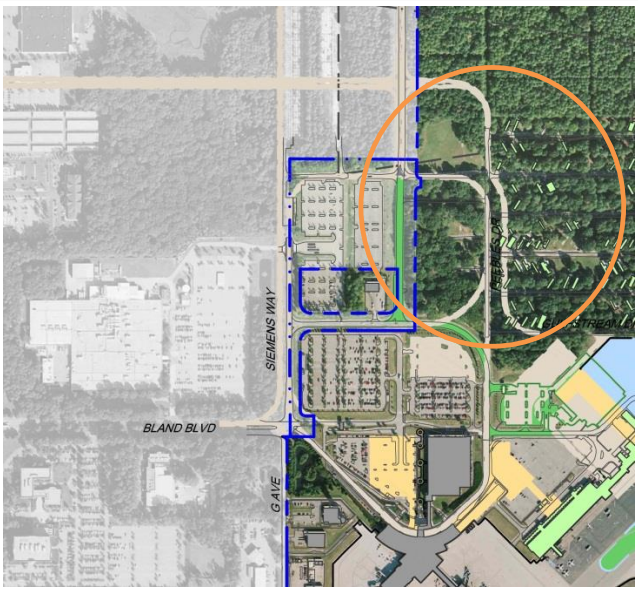
Sustainability Initiative

• Recycle construction and demolition aggregate material.
• Modify existing roadway design without adding a significant amount of new impervious surfaces on the landside.
• Implement stormwater management practices during and after construction.
• Minimize the extent and duration of bare ground surface exposure.
• During construction, ensure that the specified recycled content materials are used and quantify the total percentage of recycled content materials installed.
• Protect vegetation from damage due to run-off or spillage during mixing and placement of construction materials.

Key Implementation Steps

• Coordinate environmental documentation and construction phasing with other relevant projects
• Extensive interagency coordination with VDOT, the City, the County, and HRMPO

Project Title	Airport Roadway Improvements - Phase III, Support Vehicle Access	**No.**	**Long 30**
Description	Phase III of this project involves the construction of a north/south roadway to provide access to the general aviation and airport support facilities, separated from the primary passenger terminal loop road.		
Cost	$1,700,000		



Trigger Point

Supportive project for the Auto Access - Phase I Terminal Loop Road Realignment Project

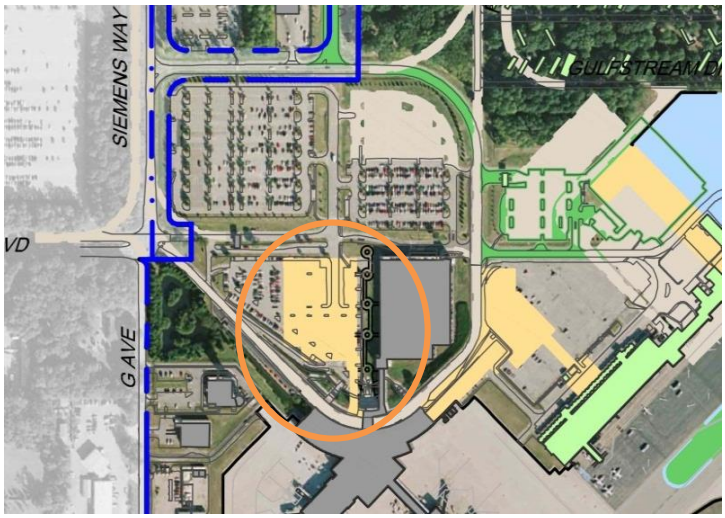
Sustainability Initiative

• Recycle construction and demolition aggregate material.
• Modify existing roadway design without adding a significant amount of new impervious surfaces on the landside.
• Implement stormwater management practices during and after construction.
• Minimize the extent and duration of bare ground surface exposure.
• During construction, ensure that the specified recycled content materials are used and quantify the total percentage of recycled content materials installed.
• Protect vegetation from damage due to run-off or spillage during mixing and placement of construction materials.

Key Implementation Steps

• Coordinate environmental documentation and construction phasing with other relevant projects.
• Extensive interagency coordination with VDOT, the City, the County, and HRMPO
• Significant capital planning with multiple entities

Project Title	Airport Roadway Improvements - Phase IV, Parking Garage Construction	**No.**	**Long** **31**
Description	Phase IV involves the construction of a 500-car auto parking garage. The structure is to be placed adjacent to the existing parking structure and will require the relocation of the short term parking lot.		
Cost	$11,600,000		



Trigger Point

The public parking lot requires 3,080 spaces when annual enplaned passengers increase to 821,000.

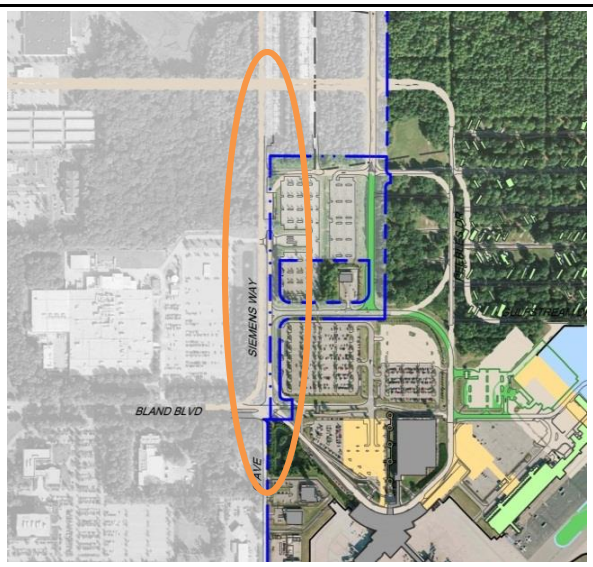
Sustainability Initiative

• Recycle construction and demolition aggregate material.
• Modify existing roadway design without adding a significant amount of new impervious surfaces on the landside.
• Implement stormwater management practices during and after construction.
• Minimize the extent and duration of bare ground surface exposure.
• During construction, ensure that the specified recycled content materials are used and quantify the total percentage of recycled content materials installed.
• Protect vegetation from damage due to run-off or spillage during mixing and placement of construction materials.

Key Implementation Steps

• Environmental documentation
• Coordination with rental car agencies, the TSA, and airport users

Project Title	Airport Roadway Improvement - Phase VI, New Local Arterial Roadway	**No.**	**Long** **32**
Description	Phase VI establishes a new north/south arterial road between Bland Boulevard and Turnberry Boulevard, which provides a segregated route for non-airport traffic This roadway provides a bypass for local traffic transitioning between Bland Boulevard and Denbigh Road.		
Cost	$2,200,000		



Trigger Point

Supportive project for the Auto Access - Phase I Terminal Loop Road Realignment Project.

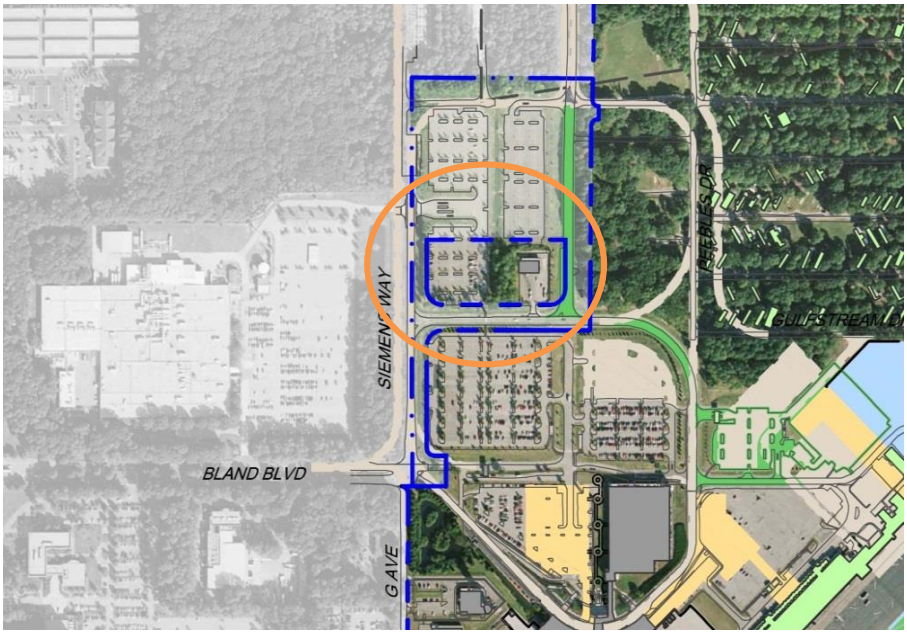
Sustainability Initiative

• Recycle construction and demolition aggregate material.
• Modify existing roadway design without adding a significant amount of new impervious surfaces on the landside.
• Implement stormwater management practices during and after construction.
• Minimize the extent and duration of bare ground surface exposure.
• During construction, ensure that the specified recycled content materials are used and quantify the total percentage of recycled content materials installed.
• Protect vegetation from damage due to run-off or spillage during mixing and placement of construction materials.

Key Implementation Steps

• Coordinate environmental documentation and construction phasing with triggering project
• Extensive interagency coordination with VDOT, the City, the County, and HRMPO
• Significant capital planning with multiple entities

Project Title	Rental Car Relocation/Expansion	**No.**	**Long 33**
Description	A portion of the former cell phone lot within the terminal loop road will be modified to provide suffice vehicle space to accommodate future rental car parking relocation / expansion.		
Cost	$200,000		



Trigger Point

The rental car ready lot requires 256 spaces when annual passengers increase to 821,000 .

Sustainability Initiative

- Minimize the extent and duration of bare ground surface exposure.
- Implement stormwater management practices during and after construction.

Key Implementation Steps

- Environmental documentation
- Coordination with rental car agencies, the TSA, and airport users

Page Left Blank Intentionally

5.5 MASTER PLAN CAPITAL IMPROVEMENT PROGRAM SUMMARY

A summary of the Capital Improvement Plan for Newport News/Williamsburg Intentional Airport is provided in Table 5-4. Each project has been assigned to a particular planning period as presented in the previous section. A detailed explanation of available funding sources will be presented in **Chapter 6*, Financial Feasibility.*** Before a specific project commences, a detailed project cost estimate should be prepared to update the planning level estimates shown in the Master Plan.

This chapter identifies the key factors driving the Implementation Plan and illustrates how construction projects should be phased over time. In addition, sustainable opportunities are integrated into each development phase that will improve the Newport News/Williamsburg International Airport. Below is a summary of the projects and estimated cost of each development phase.

- Short-term Development Phase – 13 projects for an estimated total of $60.9 million
- Intermediate-term Development Phase – 7 projects for an estimated total of $55.2 million
- Long-term Development Phase – 13 projects for an estimated total of $47.6 million

Based on the identified 33 capital project within the planning period the total capital improvement plan is approximately $163 million dollars over the next 20 years.

This Implementation Plan provides the Peninsula Airport Commission a plan of action to identify and respond to safety requirements and growing demand. It is important to reiterate that capacity projects will be undertaken when demand warrants, rather than in accordance with a predefined schedule and therefore the capital improvement program schedule must be adjusted periodically in accordance with actual future conditions.

While the Airport will not be including the Ultimate/Strategic Initiatives into the financial feasibility analysis, it is important that these projects are identified and included in the Capital Improvement Plan. As key opportunities present themselves, such as the closure of a nearby general aviation airport, long haul commercial flights begin, or an air cargo distribution facility is needed, these strategic initiatives provide the Peninsula Airport Commission the plan to accommodate the demand. The implementation of these 16 projects for an estimated total of $272.1 million will be undertaken when demand warrants, rather than with a predefined schedule.

Table 5-4
Capital Improvement Plan – Summary

Project Number	Project Name	Short-Term 2011 - 2018	Intermediate-Term 2019 - 2023	Long-Term 2024 - 2033	Ultimate/Strategic Initiative
1	Short-Term Five Year Environmental Assessment	$ 500,000			
2	Passenger Terminal Security Screening Improvements	$ 10,200,000			
3	Terminal Expansion for Baggage Claim	$ 10,000,000			
4	Apron Access Improvements, Taxiway C at Taxiway A	$ 200,000			
5	Apron Access Improvements, Taxiway D at Taxiway A	$ 400,000			
6	Apron Access Improvements, Taxiway B at Taxiway A	$ 600,000			
7	South Corporate Area Development - Phase I, Apron and Two Hangars	$ 7,700,000			
8	Taxiway A lighting Upgrade and Shoulder Construction	$ 2,500,000			
9	Perimeter Road around Runway 2 and 7 ends	$ 1,500,000			
10	Oriana Road Realignment/Relocation	$ 6,600,000			
11	Power Line Relocation	$ 8,700,000			
12	South Corporate Area Development - Phase II, Apron and Three Hangars	$ 11,000,000			
13	Obstruction Removal on the Runway 20 and 25 end	$ 1,000,000			
	Short-Term Project Subtotal	**$ 60,900,000**			
14	Mid-Term Five Year Environmental Assessment		$ 500,000		
15	Runway 2/20 Threshold Relocation (REILS and PAPIs)		$ 12,000,000		
16	Taxiway A,D, and J Improvements		$ 7,900,000		
17	South Corporate Area Development - Phase III, Apron and Three Hangars		$ 15,100,000		
18	Taxiway J Extension and Connectors		$ 7,700,000		
19	Taxiway D Rehabilitation from 2/20 to the Existing 25 end		$ 10,750,000		
20	Brick Kiln Boulevard Realignment		$ 1,300,000		
	Mid-Term Project Subtotal		**$ 55,250,000**		
21	General Aviation Apron Rehabilitation			$ 3,800,000	
22	Small Aircraft Apron Rehabilitation			$ 800,000	
23	Passenger Terminal Baggage Screening Improvements			$ 11,600,000	
24	Long-Term Five Year Environmental Assessment			$ 500,000	
25	Auto Parking Lot Expansion			$ 900,000	
26	South Corporate Area Development - Phase IV, Apron and Two Hangars			$ 5,000,000	
27	Airport Master Plan Update			$ 1,000,000	
28	Airport Roadway Improvements - Phase I, Terminal Loop Road			$ 4,600,000	
29	Airport Roadway Improvements - Phase II, Primary Airport Access			$ 3,700,000	
30	Airport Roadway Improvements - Phase III, Support Vehicle Access			$ 1,700,000	
31	Airport Roadway Improvements - Phase IV, Parking Garage Construction			$ 11,600,000	
32	Airport Roadway Improvement - Phase VI, New Local Arterial Roadway			$ 2,200,000	
33	Rental Car Relocation/Expansion			$ 200,000	
	Long-Term Project Subtotal			**$ 47,600,000**	
	Airport Master Implementation Plan Total	**$163,750,000**			
	Runway 7/25 Extension (9,000') Construction (including Taxiways D , J and NAVAIDS)				$ 25,900,000
	Midfield Hangar Development / Relocation - Phase I, Site Preparation				$ 9,700,000
	Midfield Hangar Development / Relocation - Phase II, Access				$ 5,100,000
	Midfield Hangar Development / Relocation - Phase III, Apron and Hangars				$ 8,100,000
	Midfield Hangar Development / Relocation - Phase IV, Hangars				$ 7,700,000
	Midfield Hangar Development / Relocation - Phase V, Relocation Hangars				$ 15,600,000
	Midfield Hangar Development / Relocation - Phase VI, FBO and Fuel Farm				$ 8,700,000
	Midfield Hangar Development / Relocation - Phase VII, Demo and Cleanup of Former GA Area				$ 3,700,000
	Air Cargo Facility - Phase I, Site Prep				$ 3,800,000
	Air Cargo Facility - Phase II, Roadway/Parking				$ 4,500,000
	Air Cargo Facility - Phase III, Cargo Apron				$ 4,900,000
	Air Cargo Facility - Phase IV, Relocation of ARFF Facility				$ 15,500,000
	Air Cargo Facility - Phase V, Cargo Facility				$ 16,500,000
	Runway 7L/25R - Phase I, Property Acquisition				$ 56,700,000
	Runway 7L/25R - Phase II, Construction				$ 62,200,000
	Runway 25L Extension (10,000) - Construction (including Taxiway D, J, NAVAIDS, and Easement)				$ 23,500,000
	Ultimate/Strategic Initiative Project Subtotal				**$ 272,100,000**
	Subtotals	**$ 60,900,000**	**$ 55,250,000**	**$ 47,600,000**	**$ 272,100,000**
	Grand Total	**$435,850,000**			

Source: Reynolds Smith and Hills, Inc. and PHF, 2013