

INTRODUCTION

1. OVERVIEW

This study provides a comprehensive look at the facilities of the Newport News/Williamsburg International Airport (PHF). It describes infrastructure plans that meet future aviation demands and provides the framework needed to guide Airport development. The study also considers the potential environmental, financial, and socioeconomic impacts, as well as meeting all Federal Aviation Administration Master Planning requirements.

This study also encompassed a Sustainability Management Plan Pilot Program and an Airport GIS / Electronic Airport Layout Plan (ALP) Pilot Program. The development of the Sustainability Management Plan created an initiative that infused environmental planning into every element of the master planning process. Throughout the Master Plan Update, sustainability is carried forward by identifying the current condition, defining specific initiatives, providing measurable goals, and creating alternatives that match the Airport's sustainability objectives. The result is an overall Sustainability Management Plan that was born from an all-inclusive planning process.

The Airport GIS and Electronic ALP Pilot Program involved incorporating an electronic ALP (eALP) into the Master Plan Update utilizing newly developed Federal Aviation Administration (FAA) processes and tools. This course supports the FAA's NextGen initiative, which entails updating the National Airspace System to take advantage of today's advanced technologies. The eALP was developed using Geographic Information Systems (GIS) and will allow the Airport and the FAA to efficiently update the ALP and ensure all information is easily accessible and accurate.

1.1 Project Purpose

The purpose of an Airport Master Plan is to provide specific details and guidance for future facility development of an individual airport to satisfy the aviation needs of the community and region it serves. Several methodologies were used to analyze current facilities and operations and then forecast future aviation growth and demands. Based on that analysis, alternatives were developed to meet the projected growth. Extensive input from the Airport and surrounding community was integrated into each alternative to ensure the future of the Airport would meet the community's needs and expectations, as well as future demand.

Projections for growth, and the resulting demand on facilities, initially took a broad and long-term approach. However, in order to accurately predict facility needs, as needed, these projections included variations on a seasonal, monthly, daily, and/or hourly basis. Facility needs are based upon "peak levels" of activity, rather than relying on averages of demand. This study addresses three planning periods: short-term (5-year); intermediate-term (10-year); and long-term (20-year).

Shorter planning horizons typically represent the more accurate projections and more detailed development plans. Longer horizons are more conceptual and the timing to implement projects in long range plans may vary according to need. Many of the recommendations are based on the concept that if a certain activity occurs, then identified facility alternatives should be implemented.

1.2 Project Goals

In general, Master Plans can range in the specific topics covered based on the Airport's needs and expectations. Within this Master Plan Update, the following areas are those in which greater emphasis was placed.

- Ensure that current and future Airport facility plans are environmentally compatible and in harmony with local and regional plans and objectives.
- Meet the long-range aviation and multi-modal transportation needs of the community and region.
- Include the interests of the public and governmental agencies in the multi-modal planning process.
- Create a new Capital Improvement Program that reflects the current and long term needs of the Airport.
- Infuse sustainability and environmental stewardship into all planning elements creating a Sustainability Management Plan.
- Improve the social aspects of the Airport and community interface.
- Optimize the operational efficiency, effectiveness, capability, and safety of the Airport.
- Identify airside, landside, and airspace improvements or options to optimize the Airport's economic benefits, while enhancing the safety and operational capability of the Airport.
- Establish an implementation schedule for short, intermediate, and long term improvements, including the identification of events which might "key" or trigger these developments.
- Reflect current comprehensive land use planning (on- and off-airport) and make recommendations as to compatible land uses and the appropriate legal steps necessary to ensure proper zoning and minimum noise impacts on surrounding areas.
- Enhance the economic and social value of the Airport.

1.3 Project Objectives

The following are specific project objectives that were targeted for further study and which align with the project goals:

- Re-evaluate the proposed extension to Runway 7R/25L and future parallel Runway 7L/25R.
- Review FAA Design Standards and action plan to address any existing modification to standards.
- Examine potential NAVAID improvements including new instrument approaches. Coordinate with DOAV's ongoing NAVAID study.
- Conduct a terminal area analysis to include apron utilization and overall terminal space flow for the movement of passengers and baggage. Examine consolidation of checkpoints, improvements in bag screening, and a Concourse B FIS.
- Examine auto parking requirements and potential future expansion.
- Examine the terminal loop roadway system to improve functionality and eliminate conflicts with local traffic.
- Examine Airport access to and from the interstate highway system.
- Examine the Southeast High-Speed Rail Corridor long range plan interface with PHF.
- Study the highest and best use of the airfield infrastructure installed for the previous World's Fair at PHF.
- Conduct noise and land use screening analysis to determine if a future FAA FAR Part 150 study is appropriate.

- Examine adjacent properties for compatibility and relative to the land use needs of PHF.
- Incorporate within the planning process a sustainable planning initiative.
- Incorporate an electronic ALP (eALP) utilizing methods and tools provided by the FAA.

2. PUBLIC INVOLVEMENT

Public participation played a key role in the success of the Newport News/Williamsburg International Airport Master Plan Update. Two committees were formed and met throughout the project to provide direct input to the Airport, FAA, and consultants. There were also two public workshops that were held during the planning process to allow the community and general public the opportunity to ask questions and provide input into the plan.

2.1 Advisory Committees

A Public Advisory Committee (PAC) and a Technical Advisory Committee (TAC) were established to ensure that input was given to the Master Plan Team throughout the study process. These committees represented the stakeholders of the Airport and community.

The two advisory committees met periodically throughout the planning process. Each committee provided a different focus based on the individuals, groups, and stakeholders represented. The different focuses of each committee provided additional perspectives, which were taken into consideration by the Master Plan Team.

2.2 Public Information Workshops

Two public information workshops were held during the Master Plan Update. They were used to inform the general public and the media of the study process and major findings. Public notice was given of the workshops through local newspapers and select websites. The workshops were designed as a way for the public to be informed of the Master Plan issues and to be involved in determining the final solutions.

3. EXISTING CONDITIONS

The initial step in documenting the master planning process was the identification of existing conditions at the Airport. This involves the collection of data pertinent to the Airport and the area it serves. The objective of the chapter is to provide background information and a complete inventory of current facilities for use in subsequent phases of analysis.

On-site investigations, interviews with stakeholders, and a collection and analysis of previous reports and studies were utilized in documenting the Airport's existing conditions.

4. AVIATION DEMAND FORECAST

The Aviation Demand Forecast projected aviation demand over the 20-year planning period. The objective of the forecast was to identify the long-term trends for the types and levels of aviation activity that could trigger the need for Airport facility expansion or improvement.

The Aviation Demand Forecast utilized the FAA Terminal Area Forecast (TAF), as well as additional quantitative and qualitative analysis to project the future scheduled commercial passenger volumes, aircraft operations, and based aircraft. After a baseline projection was developed, alternative forecasts showing higher and lower demand scenarios were created and utilized for scoping the planning elements that were needed to meet future demand.

These alternative scenarios are valuable in that they take into account the extreme volatility present in the aviation industry, as well as the competitiveness of the Airport's local market. Critical concerns of any aviation forecast include possible airline consolidation, higher fuel prices, new environmental regulations, and shifts in airline service patterns.

This forecast was necessary to update the Airport's traffic projections based on the most recent changes in regional air service and airline operational policy, as well as other aviation industry issues. Once the forecast was approved by the FAA, it was used in the analysis of the facility requirements.

5. FACILITY REQUIREMENTS

The facility requirements section of this Master Plan Update addresses the ability of existing facilities to accommodate the forecast demand and the Airport's strategic vision. To properly plan for the future requirements of Newport News/Williamsburg International Airport, it was necessary to translate the forecasts of aviation demand into the specific types and quantities of facilities that are needed to accommodate the projected demand.

The need for new or expanded facilities is often driven by capacity shortfalls that leave an airport unable to accommodate forecast growth with existing facilities. However, the requirements for new or improved facilities can also be driven by other circumstances. For example, facilities may be needed to comply with updated standards developed and adopted by the FAA or other regulatory agencies, to accommodate the strategic vision for the Airport, or to replace outdated or inefficient facilities that are prohibitively costly to maintain or modernize. These circumstances can have a significant impact on future needs and have been considered in this analysis.

The facility requirements analysis began with a review of emerging industry trends that may influence the need for future facilities. It then assessed all the major functional areas of the Airport (Airfield, Terminal, Landside, General Aviation, Support, and Utility facilities) and identified critical needs of each over specific planning periods. A summary of the key findings of the facility requirement assessment was then carried forward into the identification and evaluation of alternatives.

6. IDENTIFICATION AND EVALUATION OF ALTERNATIVES

The identification and evaluation of alternatives presents the various alternatives considered to address the facility requirements that were developed in the study. The purpose of the alternatives development and evaluation process is to identify a single preferred facility concept to integrate into the Airport Capital Improvement Program and future Airport Layout Plan.

Each alternative was analyzed for its overall best fit with the Airport, taking into consideration safety, operational efficiency, ability to meet future demand, regulatory compliance, and fiscal factors. The development of the PHF Master Plan also included sustainability and environmental considerations that were integrated throughout the project. As such, each alternative was

evaluated for sustainability and environmental influences, and the final solutions included sustainability management practices to support the Airport's goals.

The result of this analysis was a cohesive plan for Airport development that functionally combined all recommended improvements with the existing facilities. This plan provides the framework for making decisions regarding future Airport development and aids in the development of the Capital Improvement Program.

7. MARKET ANALYSIS AND FEASIBILITY

A Market Analysis and Feasibility Study was conducted to determine future opportunities for the development of Airport land. First, a Site Analysis of the area around the Airport was used to determine potential development sites, infrastructure amenities, constraints, and current building conditions.

Next, a Market Scan was conducted combining a "top down" (demographics) and "bottom up" (location, trends, assimilation of planned projects, etc.) analysis. The study provided insight into what types of business sectors might be good candidates to target for future development.

This information was used to create a Conceptual Development Plan that identified specific development sites, qualified industries, established square footage available for development, and prepared an overall summary of all supportable expansion opportunities.

8. AIRPORT LAYOUT PLAN

The Airport Layout Plan creates a blueprint for future development by depicting the proposed facility improvements consistent with the established strategic vision of the Airport. The plans provide a guideline by which the Airport can assure that development maintains FAA airport design standards and safety requirements which are necessary to receive Federal financial assistance.

Development of the ALP is a direct result of the master plan process and serves a variety of needs for the Peninsula Airport Commission, the Federal Aviation Administration, and the Virginia Department of Aviation. The ALP plans-set requires approval independent of the master plan, which is accomplished through several intermediate steps, including reviews by the Airport, the FAA Airports District Office (ADO), and other FAA offices involved, for example, in the associated airspace review.

9. FACILITIES IMPLEMENTATION

The Facilities Implementation Plan provides guidance on accomplishing the findings and recommendations of the Master Plan Update. The implementation plan considers the demand-driven need for facilities according to the Facilities Requirements and provides the Peninsula Airport Commission, the Federal Aviation Administration, and the Virginia Department of Aviation with information needed to integrate the Master Plan Update's recommendations with the Airport's long-term capital development program.

The implementation plan includes a master schedule for the projects of the development plan, and outlines key activities and responsibilities for completion of each step of the process. Trigger points for development are established based on a capacity limitations and long term needs. In

addition to the general implementation recommendations, a review of the Airport's sustainable performance was made, as well as an overview of the sustainability Monitoring Program.

10. FINANCIAL FEASIBILITY

The objective of this chapter was to identify a strategic financial plan. This chapter evaluated the Implementation Plan and its financial consequences.

The Financial Plan includes an overview of the capital improvements recommended for the Airport over a 20-year planning period, with emphasis on the five-year, short-term development period. This analysis assesses the financial implications of Peninsula Airport Commission undertaking the study's proposed projects. Further, the Airport's ability to generate future revenues (including FAA grants and other sources) sufficient to exceed projected Airport operating and capital expense was examined.

11. SUSTAINABILITY

Sustainability was integrated into every component of the master plan process with the goal of developing qualitative and quantitative initiatives to meet goals set by the Airport through the planning process. This included utilizing sustainability in evaluating master plan alternatives and in creating an overall implementation plan.

The process began with a baseline assessment to determine where the Airport stood in regards to multiple measures of sustainability including air and water quality, noise, energy, waste and recycling, natural resources, land use, transportation, and socioeconomic elements. A component of this assessment involved a Level 1 Energy Audit which provided an Energy Use Analysis. This analysis took the Airport's utility consumption, compared it to similar building type consumption data, and determined the gap. With the addition of a Walk-Thru Analysis, which inventoried the Terminal's infrastructure, a baseline report was created which aided in the creation of future sustainability goals.

Utilizing quantifiable goals established at the beginning of the study, and existing best practices and regulations, an evaluation was made comparing benchmarked activities identified in the Inventory Section. The evaluation quantified gaps between stated goals and existing conditions. The analysis resulted in tangible/measurable metrics by which every alternative was screened against to determine which would be included in the Implementation Plan.

Much of the process and evaluation of the sustainability measurements and master plan alternatives was done within the PAC and TAC meetings. It was within these meetings, and through discussions with Airport Staff, that the Airport's Sustainability Mission Statement was created.

11.1 Sustainability Mission Statement

The following graphic summarizes the Airport's sustainability plan.



Our Team:

Exceeding customer expectations and planning for a sustainable future:

 Economically

 Environmentally

 Operationally

12. AIRPORT GIS AND ELECTRONIC ALP

The Airport GIS and Electronic ALP Pilot Program involved incorporating an electronic ALP (eALP) into the Master Plan Update utilizing newly developed Federal Aviation Administration (FAA) process and tools. The project created a “reusable process” which allows the Airport to maintain the data deliverables beyond the initial e-ALP.

During the project, aerial photogrammetry and attribution data was collected, an obstruction survey was conducted, and planimetric data was developed. The data collected included all the required airport and aeronautical data supporting the current and future planning, development, and construction activities at the Airport.

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In summary, the Master Plan Update created a long-term plan for the facility development of the Newport News/Williamsburg International Airport. This plan included analysis of aviation demand and recognition of the need for sustainable Airport operation.