

1. Introduction

The airport master plan, along with its Airport Layout Plan (ALP), is essential to local-level planning efforts that address the development needs of an airport up to 20 years in the future. Dynamic conditions such as economics, politics, and advances in technology make it necessary for master plans to be updated every few years. The Federal Aviation Administration (FAA), the governing body for civil aviation in the US, recommends general aviation (GA) airport sponsors update their plans every ten years or if there is a significant change in aviation activity. Master plans seek to address the factors influencing future development needs such as aviation activity, meeting FAA airport design standards, addressing safety and security, promoting environmental responsibility, and needed upgrades to existing infrastructure.

Delaware Coastal Airport (GED or Airport), formerly named the Sussex County Airport, needs an up-to-date airport master plan to provide the Sussex County Council (County or Airport Sponsor) with useful and detailed information on the existing and future conditions of the airport to aide in its development and remain safe and efficient. The master plan update project is financed through the FAA, Delaware Department of Transportation (DelDOT) and Sussex County.

1.1. AIRPORT BACKGROUND

GED is a public-use airport serving the GA needs of Sussex County, Delaware, and the GA community of the Delmarva Peninsula. The Airport is developed on approximately 744 acres of land located roughly one mile east of the city of Georgetown, 15 miles inland from the Atlantic Ocean and in close proximity to a number of resort hotels and tourist destinations between Cape Henlopen, Rehoboth Beach and the Delaware Seashore State Park.

The Airport is owned and operated by Sussex County, Delaware. It is the desire of the Sussex County Council to evaluate Delaware Coastal Airport through preparation of an airport master plan. The purpose of the airport master plan is to assure that GED and its environs are safe and efficient as well as to evaluate the growing needs of Airport users and the surrounding communities.

The County envisions the Airport as a premier GA airport capable of supporting a wide range of aircraft and promoting the economic prosperity of Sussex County and the coastal Delaware community. In recent years, some of the primary factors driving growth and development at GED has been the growth and prosperity of existing airport businesses.

Since the last update of the Airport's master plan in 2002, the Airport has engaged in several facility improvements and operational changes, and experienced shifts in demand and overall utilization. This study will review the prior planning efforts conducted for the Airport, analyze market conditions and future requirements, and present an updated master development plan for Delaware Coastal Airport. This study was prepared with the support of a Project Advisory Committee (PAC) established solely for this study effort and consisting of representatives with both aeronautical and non-aeronautical backgrounds and having a variety of ties to the Airport, Sussex County and the coastal Delaware community.

1.1.1. Airport History

In October 1940, the Civil Aeronautics Administration, the predecessor to the FAA, was granted a \$40 million appropriation for the construction and improvement of up to 250 public-use airports for the sake of national defense under the Development of Landing Areas for National Defense program. Southern Delaware was made a priority due to the importance of harbors within the Delaware Bay and River areas, and Georgetown, Delaware, was selected to be the site of an airfield utilized by the US Army Air Corp. Military activity in Delaware increased due to the US entry into World War II, and airfields and fortifications within Sussex County were built, including the Georgetown Airport.

Construction of the Georgetown Airport was completed in 1943, and featured three runways, each 5,000 feet long and 150 feet wide with taxiways paved to a width of 50 feet, typical of World War II-era military airfields. The runway layout resembled a triangle, and included Runways 10-28 to the south, Runway 4-22 to the west, and Runway 16-34 to the east. A crossfield taxiway ran through Runway 4-22 and ended near the Runway 28 and Runway 34 ends. During World War II, the Airport was assigned as an auxiliary station to the Wildwood Naval Air Station in Cape May, New Jersey. The airfield was subsequently utilized by the US Navy to research aircraft carrier landings and catapult launching equipment.

The military facilities in Sussex County utilized during World War II were largely abandoned after the war, and the US Navy departed Georgetown Airport. After the departure of the Navy, the US federal government declared some equipment and facilities at the Airport as surplus. Sussex County took responsibility for the maintenance and operations of the airfield, which was renamed to Sussex County Airport, and ever since has operated as a civilian airport. Despite being a route stop for US Mail until 1949, the airfield did not develop substantial civilian air traffic, and was thus used as a test facility during the 1950s and 60s for aircraft carrier arresting gears and catapults. All American Engineering tested aerial retrieval and launching devices, as well as a rocket powered car, until 1966 when the equipment was relocated to a Navy facility in New Jersey.

Sussex County desired to revive operations at the airport in the 1970s by building roads, sewer and water lines, and drainage along the northeastern side of the airport to support a new industrial park. During this time, two of the three original runways were closed: Runway 10-28 and Runway 16-34. After removal of the catapult testing equipment, Runway 10-28 was used as a parking area for decommissioned military aircraft, and Runway 16-34 was converted into a taxiway (Taxiway C) and hangar space for the industrial park tenants. The crossfield taxiway was also converted into Runway 13-31.

Of the changes made to the airfield in the 1970s, only the taxiway and tenant hangar space that replaced Runway 16-34 remains, as Runway 10-28 has been rehabilitated to serve as a crosswind runway and Runway 13-31 was converted back to a crossfield taxiway. The industrial park has attracted many tenants of both aeronautical and non-aeronautical businesses, such as a Boeing 737 maintenance, repair, and overhaul (MRO) facility, multiple general manufacturing facilities, a poultry processing factory, a railroad and aircraft supply stores, among others. The Airport has also become home to a variety of businesses along the apron and hangar area off the Runway 4-22 parallel taxiway. These include a restaurant and FBO located at the GA terminal building, the Delaware Aviation Museum, a flight school, and the Sussex County Emergency Operations Center.

In an effort to attract more businesses and visitors to drive economic development in Sussex County, the airfield was renamed and rebranded to Delaware Coastal Airport in 2015 to reflect its proximity to world-renowned Delaware beaches. The Airport has gone through extensive rehabilitation since the early 2000s and continues to grow with construction of a new parallel taxiway for the crosswind Runway 10-28 completed in late 2019. **Table 1-1** lists Airport Improvement Program (AIP) grant history for GED from 2005 to 2018. The AIP provides grants to airport sponsors for the planning and development of public-use airports that are included in the National Plan of Integrated Airport Systems (NPIAS). For general aviation airports like GED, the grant can cover a range of 90 to 95 percent of eligible costs, based on statutory requirements for most airport projects.

Table 1-1: GED AIP Grant History 2005-2018

Year	AIP Federal Funds	Work Description
2005	\$566,846	Construct Snow Removal Equipment Building, Rehabilitate Runway - Plan-1
2006	\$1,124,531	Conduct Environmental Study, Rehabilitate Runway - Plan-1
2007	\$4,411,826	Rehabilitate Runway - Plan-1
2008	\$30,400	Update Miscellaneous Study
2008	\$120,636	Install Perimeter Fencing
2010	\$50,804	Conduct Miscellaneous Study
2010	\$227,712	Extend Runway - 04/22
2011	\$514,234	Environmental Mitigation
2011	\$723,900	Extend Runway - 04/22
2012	\$3,101,080	Extend Runway - 04/22
2013	\$4,297,047	Extend Runway 04/22, Rehabilitate Runway 04/22
2014	\$255,600	Expand Apron
2015	\$479,182	Install Taxiway Lighting
2016	\$225,549	Conduct Aeronautical Survey for RNAV Approach
2017	\$430,196	Install Infrastructure to support RNAV Approach – Construct Parallel Taxiway D
2018	\$5,532,528	Install Infrastructure to support RNAV Approach – Construct Parallel Taxiway D

Source: FAA.gov, 2019.

1.1.2. Airport Role

Delaware Coastal Airport is designated by the FAA as a publicly owned, public-use facility. Under the Airport and Airway Improvement Act of 1982 (Public Law 97-248), the Secretary of Transportation is required to publish a national plan for the development of public-use airports. This plan is published as the NPIAS and includes all commercial service, reliever (high-capacity GA airports in metropolitan areas) and select GA airports. The NPIAS identifies existing and proposed airports that are eligible to receive federal grants under the AIP and includes a five-year estimate of AIP-eligible projects.

According to the most recent (2019-2023) NPIAS, GED is classified as a publicly owned, public-use regional GA airport. The NPIAS states that if a nonprimary airport is classified as regional, its role in the system is to “support regional economies by connecting communities to regional and national markets and are generally located in metropolitan areas and serve relatively large populations. Regional airports have high levels of activity with some jets and multiengine propeller aircraft.” The NPIAS also defines GA airports as “public airports that do not have scheduled service or have scheduled service with less than 2,500 passenger boardings each year.”

Currently, there are nine public-use airports and one joint military-civilian use airport in the State, along with one public-use helistop. Of these eleven aviation facilities, five are privately owned. Eight have paved surfaces, while the remaining three maintain turf surfaces. **Table 1-2** identifies Delaware Coastal Airport amongst other Delaware airports listed in the NPIAS. The Airport is also the only airport in the NPIAS with a regional role in Delaware. The 2019-2023 development estimate for GED totals \$2,239,112 for airport improvements. The NPIAS identifies GED as one of the 2,941 nonprimary airports in the United States, and further categorizes the Airport as one of the 492 regional facilities.

Table 1-2: Delaware Airports in the NPIAS (2019-2023)

Airport	ID	Ownership	Role	Category (Cur. & Year 5)	Based Aircraft	2019-2023 Dev Estimate
Delaware Airpark	33N	Public	Local	GA	28	\$1,477,778
Delaware Coastal	GED	Public	Regional	GA	58	\$2,239,112
Summit	EYV	Public	Un-classified	Reliever	28	\$0
New Castle	ILG	Public	National	Reliever	157	\$20,359,291

Source: National Plan of Integrated Airport Systems (2019-2023).

1.1.3. Delaware State Aviation System Plan

The most recent full State Aviation System Plan (SASP) conducted in Delaware was in 2012, and previously in 2007. There has not been a full SASP available to the public since 2008, however DelDOT and consultants are in a continuous process of developing an update to the SASP with anticipated completion in 2021.

The 2012 Delaware SASP recognizes GED (mentioned as Sussex County Airport) as one of nine public-use airports in the state. The SASP describes the area around the airport as an agricultural and industrial development area and mentions the infrastructure on the airfield and its ability to accommodate large business jet aircraft. To better accommodate the large aircraft, the primary runway is recommended a 1,000-foot extension for a total length of 6,000 feet.

The SASP characterizes the airport as business-friendly and accepting of on-airport employment opportunities through the adjacent industrial park, which many citizens and local leaders praise for the economic benefits. The main business activities include airframe modification, aircraft

maintenance and storage, flight training, and manufacturing. The Delaware State Police Aviation Unit also bases some of their medevac helicopters on the field.

GED's highlighted strengths include its airfield infrastructure, proximity to Delaware beaches, and adjacent industrial park. The SASP describes how the airport can develop its strengths through expansion for business development and safe areas for runway extensions and airfield improvements.

1.1.4. Sussex County Comprehensive Plan

A review of the Sussex County 2018 Comprehensive Plan shows that GED is an important asset to the County both as a travel option and an economic resource. The Delaware Coastal Business Park was noted as having an important contribution to annual operations at the Airport, highlighting ALOFT AeroArchitects, Eastern Shore Poultry Co. Inc, Delmarva Insulation, and DMI, among other tenants. The business park, in addition to being based at the Airport, is connected to the local railway system and in close proximity of Route 9. The County has also expanded the total usable area of the business park by roughly 30 acres through the purchase of farmland adjacent to Park Ave, where the manufacturing company Atlantis Industries has recently relocated.

The goals, objectives, and strategies of the County were outlined and broken down by specific elements such as land use, conservation, utilities, housing, economy, historic preservation, and intergovernmental coordination, among others. The economic development goals, objectives, and strategies clearly indicate that GED is an important factor to the economy of the County. The first economic goal is "to maintain and strengthen the economic base in the County," which leads to an objective of "establishing, maintaining, and anticipating the necessary infrastructure which supports and fosters quality development for those who live, work, visit, and invest in the County." Several strategies were considered to accomplish this objective, among which the first three recommended "completing the long-term capital improvements planned for GED, promoting the proximity of the Airport to clientele, and work to increase operations at the Airport in order to qualify for additional FAA funding." Other goals such as mobility also mentioned the Airport, which included strategies such as exploring rail infrastructure improvements to the Delaware Coastal Business Park and encouraging the development of GA and tourism.

1.2. GOALS AND OBJECTIVES OF THE MASTER PLAN

The overarching goal of this study is to determine how GED can best position itself to provide for safe, reliable, and efficient aeronautical operations, accommodate growing and changing aeronautical demands, and ensure regional economic success. To simplify this broad goal, several specific goals and objectives were identified for this study. These include:

Goal #1 – Meet the aviation needs of citizens and businesses in the airport's service area.

Goal #2 – Maintain safe and efficient airside facilities compliant with airport design standards and FAA, Delaware Department of Transportation (DelDOT), local and County guidance.

Goal #3 – Identify opportunities to enhance the economic viability of the Airport through responsible and sustainable growth.

Goal #4 – Maintain planning flexibility for future changes in the aviation industry and regional economy.

To accomplish these goals, objectives for the project have been determined as follows.

Objective #1 – Develop a plan to meet the growing general aviation demand at the airport as well as the potential for unforeseen opportunities.

Objective #2 – Evaluate and recommend alternatives to address both aeronautical and non-aeronautical related development.

Objective #3 – Engage the public and stakeholders through participation in the planning process.

Objective #4 – Obtain approval from FAA of the resulting aviation demand forecasts and ALP.

1.3. REVIEW OF EXISTING STUDIES

To support the effort of updating the Delaware Coastal Airport Master Plan and ALP drawings, several previously developed studies and reports pertaining to the Airport and its surroundings were referenced. The following sections identify and discuss the most substantive elements of these studies, as well as studies commissioned specifically for this study effort.

1.3.1. 2002 Airport Master Plan

The 2002 Airport Master Plan represent the most significant Airport specific planning study for the Delaware Coastal Airport in recent years. Since 2002, many of the recommendations made from this plan have been implemented. It is the intention of this document to build on and update the 2002 master plan and prepare for the next 20+ years of development at GED.

1.3.2. 2007 Airport Layout Plan Update

The 2007 Airport Layout Plan update for GED graphically represented future growth initiatives for the Airport inclusive of both airside and landside elements, airspace controls, property interest and environmental sensitivity considerations. The primary projects proposed in this document include a runway extension to Runway 4-22, significant taxiway system redevelopment, pavement removal and ample apron and hangar construction. Since 2007, a number of projects have been implemented, many of which are identified in **Table 1-1** above. This master plan report and its associated ALP drawings will utilize the information and direction expressed in the 2007 ALP when planning for the next 20+ years of growth at GED.

1.3.3. 2017 Aeronautical Approach Study

This project included an FAA compliant aeronautical survey for Runways 4-22 and 10-28 and an evaluation of areas of penetrations/obstacles that must be cleared to maintain or improve the existing approaches to Runway 4 and 22 and have approaches developed for Runways 10 and 28 at GED. The aeronautical survey consisted of a vertically guided airport airspace analysis survey to

assist the FAA in determining the non-precision instrument and visual surface penetrations for all runways, and to allow the development or revision of instrument approach and departure procedures to achieve the lowest practicable approach minimums for the Airport. Data available from this study was utilized in this report and supplemented with newly acquired survey data for objects of height within the approach and departure zones for all runways at GED. Existing approaches and their aeronautical minima are expressed in the following chapter and recommendations for improvements made in the analysis of future facility requirements later in this study.

1.4. STUDIES COMMISSIONED FOR THIS REPORT

1.4.1. Aeronautical Survey and Photogrammetry

To ensure quality data is utilized and relied upon during the development of the ALP drawings, an aeronautical survey was performed to capture topographic information, planimetric details of manmade and natural objects, and aerial imagery for the Airport property and its immediate surroundings. Three-dimensional elevation data for the entirety of Airport property and runway protection zones (RPZs) was also captured to enable a highly detailed analysis of an airspace obstructions present on or within near proximity of the airfield. The information provided from this mapping effort is utilized throughout this report as well as the ALP drawings.

1.4.2. On-Site Hangar Facilities Inspection

An on-site facility inspection was performed in February 2020 to determine the existing condition of on-airport buildings and their supplementary systems. Such information provides an indication of the remaining useful life of on-airport buildings and allows for recommendations regarding any upgrades necessary to appropriately improve or preserve the structure to support airfield demands throughout a 20-year planning horizon. The full Building Condition Inventory report is included in **Appendix A** of the Airport Master Plan.

1.4.3. Pavement Management Plan

A pavement inspection and development of an airfield Pavement Management Plan (PMP) was included as part of the Airport Master Plan Update. The PMP will aid the County in project planning and securing grants to fund the overall maintenance and rehabilitation of pavements at GED. The PMP was developed to adhere to applicable FAA Advisory Circulars and American Society for Testing Materials (ASTM) Manuals. The PMP includes the following key steps:

- Review of existing record plans to develop pavement histories
- Define the pavement network and calculate sample units based on project history and related documents
- Conduct an airfield pavement condition survey to visually assess the condition of all airfield pavement and document pavement distress types, severities and quantities.
- Evaluate the results of the visual assessment and document distresses to assign a Pavement Condition Index (PCI) value for each section and branch of pavement using PAVER software
- Perform analyses of distress data and deterioration rates to develop a maintenance

plan, including a five-year near-term Capital Improvement Program (CIP), and a 20-year long-term CIP

- Identify basic short and long-term maintenance and rehabilitation (M&R) techniques.
- Develop Pavement Classification Numbers (PCNs) for all airfield pavement based on data collected during the pavement inspections (no structural or geotechnical testing conducted).

The full PMP is included as **Appendix B** in the Airport Master Plan Update.

1.4.4. Wetland Delineation

A wetland delineation to review the approximately 744 acres of Airport property was conducted as part of this study, with data obtained through a standalone analysis completed within the Airport Master Plan in conjunction with an on-going delineation on portions of Airport property completed simultaneously as part of a separate project by others. The results of the wetland delineation will provide a comprehensive map of wetlands on Airport property based on the requirements of the 1987 U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual and the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Ver. 2.0). The USACE ordinary high-water mark for any streams within the study area have been delineated, as well. The boundaries of the wetland delineation were subsequently surveyed by a licensed land surveyor for use in a future jurisdictional determination and USACE Wetland Delineation Forms and photographs were also recorded. A wetlands and waterways memorandum is provided as **Appendix C** to this Airport Master Plan Update, detailing the areas delineated as part of this study. A wetlands and waterways map is included in Chapter 3, *Environmental Overview* to detail the areas within Airport property where wetlands and waterways have been identified.

The data collected as part of this analysis was utilized throughout the development of airport alternatives when considering potential environmental impacts associated with each potential alternative.