CAPT. WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S

Leonardtown, Maryland



AIRPORT MASTER PLAN UPDATE

FINAL AUGUST, 2002 EXECUTIVE SUMMARY



DELTA
AIRPORT CONSULTANTS, INC.
engineers - planners

EXECUTIVE SUMMARY

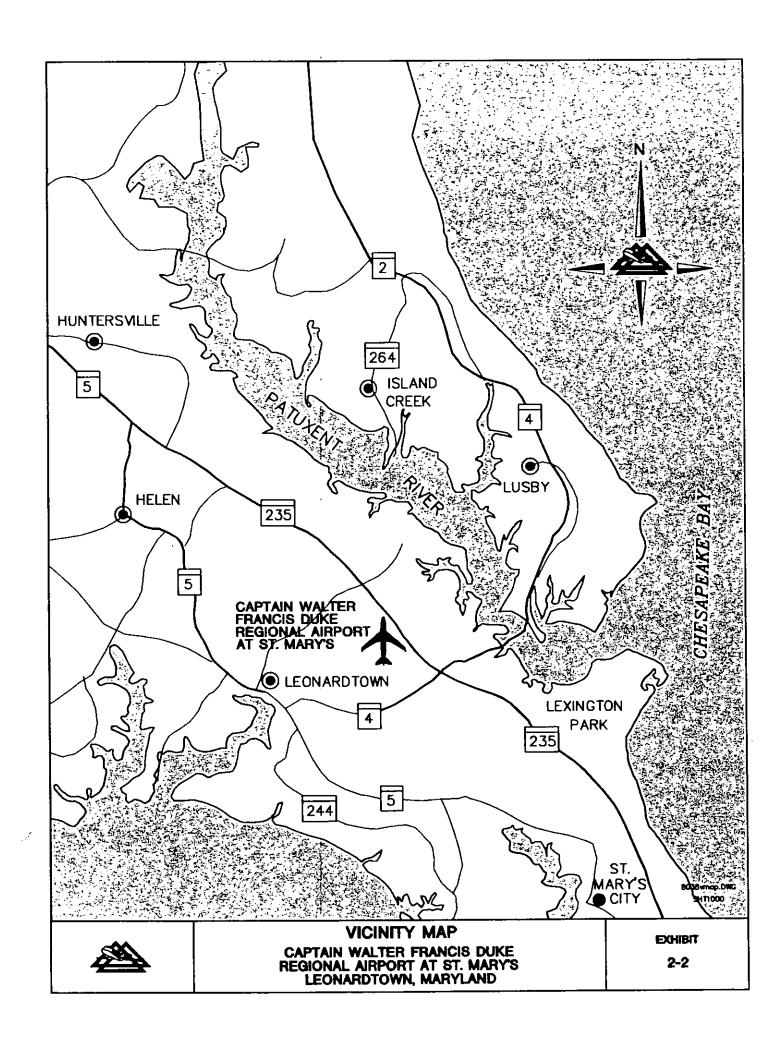
Captain Walter Francis Duke Regional Airport at St. Mary's (2W6) is a general aviation airport located in St. Mary's County approximately four (4) miles northeast of Leonardtown, Maryland. (See Vicinity Map). This general aviation airport is owned and operated by St. Mary's County. In order to provide a plan for future development is an efficient and rational manner, the County contracted with Delta Airport Consultants, Inc. in August, 1998 to prepare a Master Plan Update for the Airport. The Master Plan Update was funded under a planning grant from the Federal Aviation Administration (FAA) and the Maryland Aviation Administration (MAA).

Captain Walter Francis Duke Regional Airport at St. Mary's was originally constructed in 1969 utilizing federal and local funding Airport. The previous Master Plan was prepared in 1979 and Airport Layout Plan Updates were published in 1988 and 1993.

Since that time, the region has experienced significant growth and the Airport has undergone numerous changes and improvements. In addition, the Airport is interested in developing the facilities to ultimately support commuter service operations.

The National Plan of Integrated Airports System (NPIAS) (1993 - 1997) lists Captain Walter Francis Duke Regional Airport at St. Mary's as a general aviation airport. The Maryland Airport System Plan, latest release dated January, 1998, also classifies the Airport as a general aviation airport. Based on the fleet mix of aircraft currently utilizing the Airport on a regular basis, an aircraft approach category of 'B' determined by approach speed, and the airplane design group of II determined by the wing span. Therefore, the current Airport Reference Code (ARC) for the Airport is B-II. The critical aircraft at the Airport is a Beech Super King Air B200.





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The inventory of the Airport facilities creates the footprint for the remaining section of the Master Plan as well as serving as a building block for future Airport development and forecasts. The growing region of Southern Maryland consists of Calvert County, Charles County and St. Mary's County. The County is governed by an elected five (5) member Board of County Commissioners and Leonardtown is the county seat of St. Mary's County. Captain Walter Francis Duke Regional Airport at St. Mary's is owned and operated by St. Mary's County.

FORECASTS

Aviation demand forecasts are a key element in developing and/or updating an Airport Master Plan. The aviation industry is quite dynamic and is undergoing significant changes. It is important that the master plan reflects recent aircraft activity, expectations of future activity, and also reflects the County's mission to promote air service as an essential tool in economic development. Table 1 represents a summary of the forecasts for Captain Walter Francis Duke Regional Airport at St. Mary's over the twenty year planning period. These forecasts indicate that all aspects of aviation demand at the Airport will continue to grow during the planning period. Ongoing development will enable the Airport to continue to accommodate the growth in aviation demand and contribute to the economic vitality of the service area.



TABLE 1
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S FORECAST SUMMARY

ORECAST ELEMENT	1998	2005	2010	202
Based Aircraft	The state of the s	The second of the second of the second of	Commission of the disasterna Profess & Co	Total, english total
Single Engine	76	87	92	100
Multi-Piston	5	6	7	ġ
Multi-Turbine	0	1	2	4
Business Jet	0	0	1	. 2
Rotocraft	1	1	1	
TOTAL:	82	96	103	116
Annual Operations				
General Aviation	45,000	53,000	55,000	62,000
General Aviation Operations b	y Aircraft Type			
Single Engine	41,850	48,124	49,060	53,320
Multi-Piston	2,700	3,498	3,905	4,960
Multi-Turbine	. 0	504	880	1,860
Business Jet	0	339	605	1,240
Rotocraft	450	530	550	620

FACILITY REQUIREMENTS

Facility requirements were predicted on the existing and forecasted aviation demand. These requirements are needed to satisfy the increasing short-term and long-term ranges of aviation needs of the community. The methodology used to determine facility requirements begins with an examination of the major components of the Airport system: airspace, airfield, buildings and surface access. Any deficiencies in the Airport's facilities are identified based upon standards presented in FAA Advisory Circular (AC) 150/5300-13 (Change 6) "Airport Design".



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Runway 11-29

Runway 11-29 is the single runway for Captain Walter Francis Duke Regional Airport at St. Mary's. Runway 11-29, at 4,150' long x 75' wide, is recommended to be extended 1,200 feet to a length of 5,350 feet in Phase I of the planning period.

Runway Safety Area

• Runway 11-29 currently meets the required RSA width of 150 feet and the required RSA length beyond the runway end of 300 feet. Therefore, the current RSA should be maintained throughout the planning period, and extended as necessary to accommodate the runway extension.

Runway Object Free Area

• Runway 11-29 currently meets the required runway OFA width of 500 and the required OFA length of 300 feet beyond the runway end for a B-II facility with approach minimum not lower than ¾ statute mile. The existing runway OFA should be maintained throughout the duration of the planning period, and extended as necessary to accommodate the runway extension.

Runway Obstacle Free Zone

• Runway 11-29 currently meets the required runway OFZ width of 400 feet and extends 200 feet beyond each runway end any future improvements will be evaluated with respect to the runway OFZ criteria.

Runway Protection Zone

• The Runway Protection Zone (RPZ) is trapezoidal in shape and centered on the extended runway centerline. The function of the RPZ is to enhance the protection of people and property on the ground. Airport owner control is preferably exercised through the acquisition of sufficient property interest in the RPZ.



Additional property and easement acquisition is proposed in Phase I of the planning period.

Airfield Pavement Strength

• Runway 11-29 was extended and overlaid in 1996. The resulting pavement strength is approximately 20,000 lbs single wheel. To allow the Airport to accommodate a wider variety of B-II aircraft, it is recommended that the pavement be strengthened to accommodate 30,000 lbs single wheel during Phase I of the planning period.

Taxiways

• Additions or improvements to an airport taxiway system are typically undertaken to increase airport capacity, for operational efficiency, and to enhance safety. The existing taxiway system consists one partial parallel taxiway, three connector taxiways and a turnaround. The current parallel taxiway to runway centerline separation is 207 feet. This does not meet the 240 feet separation required by design standards for B-II airports with no lower than ¾ statute mile approach visibility minimums. It is recommended that the partial parallel taxiway be relocated and extended to a separation of the required 240 feet during Phase I of the planning period.

Airport Lighting and Visual Aids

• Airport lighting and visual aids assist the pilot in locating the landing environment and airport facilities during adverse weather conditions. Both Runway 11 and Runway 29 are equipped with 2-box Precision Approach Path Indicator (PAPIs). To accommodate the forecasted business jet operations, 4-box PAPIs are recommended for each runway end during Phase II of the planning period. Both Runway 11 and Runway 29 have omnidirectional Runway End Identifier Lights



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(REILs). It is recommended that the Runway 11 REILs be replaced by an approach lighting system.

Runway Edge Lights

Runway 11-29 has pilot controlled Medium Intensity Runway Lights (MIRLs).
 This system should be sufficient for the duration of the planning period.

Taxiway Edge Lights

• A limited amount of Medium Intensity Taxiway Lights (MITLs) have been installed to delineate the taxiway turnoffs and midfield connector. To improve the visibility of the complete taxiway system, it is recommended that additional MITLs be installed during Phase I of the planning period as part of the taxiway relocation and extension project.

Airfield Signs

• The Airport currently has mandatory holding signs for taxiway/runway intersection. Runway distance remaining signs are recommended for all runways used by turbojet aircraft, and is programmed for installation in Phase I of the planning period.

Land

• Approximately 50 acres of land is recommended to be placed under airport control through fee simple or avigation easement acquisition in Phase I of the planning period. Approximately three acres to accommodate the partial realignment of Airport Drive for the parallel taxiway relocation, approximately two acres for the relocation of Lawrence Hayden Road for the Runway 11 extension and approximately 40 acres of avigation easements to the north and east of the Runway 11 end.



Aircraft Apron

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Apron parking must be provided for 100% of the transient aircraft plus those based aircraft which are not stored in hangars. It is recommended that the existing grass tie-downs be replaced with paved apron space during Phase I and that any future tie-down areas be paved as well. Currently, the tie-down spaces available to based aircraft are almost fully occupied. Additional aircraft tie-down locations are recommended for construction during all phases of the planning period to meet the anticipated demand.

Aircraft Hangars

• Currently, approximately 45% of the based aircraft are stored in T-hangars. The available T-hangar space is full and a waiting list has been developed. Currently, there are four community hangars; the County Hangar, the ART Hangar, the Airpark Hangar and the Maryland State Police Hangar. It is recommended that an additional ten (10) T-hangars units be constructed during Phase I to meet anticipated demand, and an additional ten (10) units constructed during Phase III. The analysis of based aircraft also indicates that there is sufficient demand generated for corporate/community style hangars throughout the planning period.

Terminal Building

Currently, the FBO Hangar and the County Hangar perform the function of a typical general aviation terminal building. A new terminal building was recently complete, and is slated to ultimately accommodate commercial service passengers. It is anticipated that three (3) facilities are sufficient to accommodate pilots and passengers for the duration of the planning period.

Auto Parking

• There are no exact parameters that can be applied to determine automobile parking requirements at small airports. However, the auto parking was expanded



significantly in conjunction with the construction of the air carrier terminal building. Future development plans will take into consideration the necessity for parking adjacent to the new building and hangars and the chosen configurations will facilitate possible future expansion.

Airport Access Road

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• A segment of the existing airport access road will need to be realigned to accommodate the parallel taxiway relocation to achieve the 240 feet runway separation during Phase I of the planning period. It is anticipated that this roadway will need to be extended to keep pace with proposed airport development as the facilities expand to the west.

Fuel Facilities

• If the rate of fuel sales continues at the current rate of approximately 2.2 gallons of Avgas fuel per operations, the existing tanks should be sufficient to meet the requirement throughout the planning period. Jet fuel sales per operation are typically much higher than Avgas sales. With the forecasted increase in annual turbo-prop and jet operations, an additional 12,000 gallon Jet-A fuel tank is recommended during Phase II of the planning period.

Fencing

• The airside and landside are separated by a security fence on the south and east sides of the Airport. The remainder of the airport perimeter should be fenced during Phase I of the planning period enhanced security and wildlife protection.

Airport Electrical Vault

• The existing electrical vault is in good condition, however it is located immediately adjacent to the Object Free Area (OFA) for the proposed relocated parallel taxiway



and also to the air carrier apron. It is recommended that consideration be given to relocating this vault during Phase I of the planning period.

ALTERNATIVE DEVELOPMENT AND ANALYSIS

This process deals with the description and evaluation of alternative plans for airside and landside development at the Airport. Once identified, the recommended alternative forms the basis for the development of the Airport Layout Plan (ALP). The existing facilities are designed to accommodate B-II (small) aircraft. This Airport Reference Code (ARC) accommodates aircraft with approach speeds less than 121 knots, wingspan less than 79 feet and weight less than 12,500 pounds. The current runway length is 4,150 feet.

Approximately seventeen alternatives were developed to achieve anywhere from B-II (small) Non-Precision Instrument (NPI) Approach of 1 mile from both Runway 11 and 29, to B-II (large) with NPI of ½ mile for Runway 11 and NPI of 1 mile for Runway 29, to C-II Precision Instrument Approach (PI) of ½ mile for Runway 11 and NPI of 1 mile for Runway 29. Alternatives included the evaluation of a new airport site in St. Mary's County, no-build option as well as the reorientation of the existing Runway 11-29.

Following a public presentation of the alternatives, the Board of County Commissioners decided for the Airport to remain a B-II facility for the 20 year planning period. Therefore, the Airport will be able to accommodate B-II (large) aircraft once 1.) the obstructions to the FAR Part 77, 34:1 approach surface and 7:1 transitional surfaces have been cleared and 2.) the parallel taxiway has been relocated to meet Group II separation standards.



ENVIRONMENTAL INVENTORY

An environmental inventory was prepared to show the environmentally significant features within the existing boundaries of Captain Walter Francis Duke Regional Airport at St. Mary's. The main topics of this inventory included wetlands, noise and landfills. An overview was performed to generally recognize the potential impacts of airport development to these three environmental categories. It should be noted that the FAA has approved funding of a Comprehensive Environmental Assessment (EA) for the 5-year Airport Capital Improvement Program (ACIP) for Phase I of the planning period following the completion of this Master Plan update. This EA will include research, delineation, environmental agencies coordination and permitting where required. The EA will cover approximately 20 different environmental categories with the ultimate goal of obtaining a Finding Of No Significant Impacts (FONSI) from the FAA in order to accomplish the improvement projects in Phase I of the planning period.

AIRPORT MASTER PLAN DRAWINGS

The Airport Master Plan (AMP) Drawings are used as a guide by the Federal Aviation Administration (FAA) and the Maryland Aviation Administration (MAA) to established and fund facilities improvement and development. These drawings are a graphic representation of the existing airport facilities and proposed improvements throughout the planning period. The main drawing is the Airport Layout Plan (ALP) which indicates all pertinent clearance and dimensional information required to show conformance with applicable FAA standards. The ALP depicts the recommended location and configuration of facilities needed to meet the twenty year demand.



RECOMMENDED AIRPORT CAPITAL IMPROVEMENT PROGRAM (ACIP)

The Master Plan Update delineates the recommended airport capital improvement program. The projects within the ACIP are identified by phase (time period), estimated cost in calendar year 2002 dollars, estimated AIP eligibility and anticipated implementation and completion date. Costs include design and engineering fees and a project contingency. There are four primary sources of funding which could be available to the Airport to fund projects within the ACIP. These four sources are as follows:

- Federal Aviation Administration (FAA) Funding
- Maryland Aviation Administration (MAA) Funding
- Local Funds, Airport funds and County Capital Project funds allocated by the County to the Airport
- Other Capital Funds: Private or Tenant Investment

Table 2 presents the airport capital improvement program for the Airport Master Plan Update.



TABLE 2 CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S PHASE I FUNDING SUMMARY (1998-2020)

PHASE	PHASE PROJECT DESCRIPTION	ESTIMATED COSTS	FÀÀ	FUNDING SOURCES	SOURCEST CONTINUES COORDINATES
I-1	Construct Localizer Antenna, Localizer Building / DME Antenna and Critical Area	\$350,000	ф	\$175,000	\$175,000
1-2	Upgrade Rotating Beacon	\$75,000	\$67,500	\$3,750	\$3,750
I-3	Acquire Land for Airport Dr. Realignment	\$50,000	\$45,000	\$2,500	\$2,500
4	Realign Airport Drive	\$550,000	\$495,000	\$27,500	\$27,500
1-5	Relocate/Complete Taxiway "A"	\$1,200,000	\$1,080,000	\$60,000	\$60,000
9-1	Acquire Land for Relocation for Lawrence Hayden Rd.	\$50,000	\$45,000	\$2,500	\$2,500
I-7	Acquire Land for Apron, Access Road, State Police, Auto Parking & 80'x80' Corporate Hgr	\$100,000	o	\$50,000	\$50,000
8-I	Relocate Lawrence Hayden Rd.	\$500,000	\$450,000	\$25,000	\$25,000
6-I	1,200' Runway Extension; Relocate Threshold Lights and PAPI (Runway 11 End)	\$2,775,000	\$2,497,500	\$138,750	\$138,750
I-10	Construct Airport Access Road	\$510,000	-0-	\$255,000	\$255,000
I-11	Construct Apron (Runway 11 end)	\$2,400,000	\$2,160,000	\$120,000	\$120,000
1-12	Acquisition of Property	\$250,000	\$225,000	\$12,500	\$12,500
I-13	Construct 10 Unit T-Hangar & 80'x80' Corporate Hangar	\$700,000			\$700,000
I-14	Helicopter Operating Area	\$100,000	\$90,000	\$5,000	\$5,000



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OTHER	
SOURCES LOCAL	\$25,000
FUNDING	\$25,000
FAA	o _q
ESTIMATED COSTS	\$50,000
PHASE PROJECT DESCRIPTION	Relocate State Police Operations/Auto Parking
PHASE	I-15

PHASE II FUNDING SUMMARY (2005-2010)

ASE	ASE PROJECT DESCRIPTION	ESTIMATED F.	FAA	FUNDIN	FUNDING SOURCES OTHER MAA LOCAL OTHER
I-1	Upgrade PAPI (Runway 29 End)	\$12,000	\$10,800	\$600	009\$
I-2	Construct Fuel Farm	\$300,000	φ	0	\$300,000
I-3	Construct Airfield Maintenance Equip. Storage	\$75,000	\$62,500	\$3,750	\$3,750
4	Construct 80'x80' Corporate Hanger/Auto Parking	\$400,000	•	ı	\$400,000

PHASE III FUNDING SUMMARY (2010-2020)

FUNDING SOURCES MAA LOCAL OTHER	- \$815,000	- \$350,000	
ESTIMATED FAA COSTS	•	ı	
ESTÍMA	\$815,000	\$350,000	
PHASE PROJECT DESCRIPTION	III-1 Construct 80'x80' & 80'x100' Corporate Hangars/Auto Parking	III-2 Construct 10 Unit T-Hangar	Source: Delta Airport Consultants, Inc. Analysis
PHASE	111-1	Ш-2	Source: I



SUMMARY

The value of Captain Walter Francis Duke Regional Airport at St. Mary's to the local communities and the National Airport System is significant. The importance of an airport with modern, up to date facilities, should not be underestimated.

Air transportation increases and improves communications by bringing people together for business, social, recreational and cultural purposes. The region has been prudent in modernizing and development a first class transportation facility.

The Airport Master Plan Update has identified approximately \$12 million in future airport improvements needed to accommodate the existing and future aviation demand for the twenty year planning horizon (1998-2020). The master plan should allow the airport to continue to prosper and accommodate the region's needs in providing for safe and efficient air service in the 21st century.



