

ENVIRONMENTAL ASSESSMENT

CAPTAIN WALTER F. DUKE
REGIONAL AIRPORT AT ST. MARY'S

CALIFORNIA, MARYLAND

PREPARED FOR THE

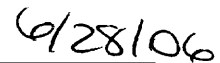
COUNTY OF ST. MARY'S, MARYLAND

JUNE 2006

This environmental assessment becomes a Federal document when evaluated and signed by the responsible Federal Aviation Administration (FAA) official.



Responsible Federal Aviation Administration Official



Date



U. S. Department
of Transportation

Federal Aviation
Administration

WASHINGTON AIRPORTS DISTRICT OFFICE
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June 28, 2006

Mr. George Erichsen
St. Mary's County
Department of Public Works & Transportation
P.O. Box 508
44825 St. Andrew Church Road
California, MD 20169

Re: Finding of No Significant Impact – Captain Walter Francis Duke Regional Airport

Dear Mr. Erichsen:

Enclosed is one copy of the Finding of No Significant Impact (FONSI), for the proposed improvement projects at Captain Walter Francis Duke Regional Airport for your information and files. We wish to thank you for your efforts in completing this action.

In accordance with FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, you are required to publish a notice of availability of the FONSI in the local newspaper. We have included a sample public notice that you may use. We would suggest that the public notice be published two times. Please forward a proof of publication of the notice to this office for our files.

If you have any questions, please contact me at 703-661-1362.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jennifer Mendelsohn".

Jennifer Mendelsohn
Environmental Protection Specialist

cc: Maria Stanco, FAA Environmental Team Lead
Colleen Angstadt, Delta Airport Consultants, Inc.

SAMPLE

NOTICE OF FINDING OF NO SIGNIFICANT IMPACT

The Federal Aviation Administration has announced that a "Finding of No Significant Impact" (FONSI) has been approved based upon results of a Final Environmental Assessment prepared in June 2006. The proposed project is the Airport's Five Year Capital Improvement Program at Captain Walter Francis Duke Regional Airport, California, Maryland.

The following projects are addressed by the FONSI:

- Remove obstructions for Runway 11/29.
- Acquire approximately three acres of fee-simple land and approximately 54 acres of aviation easement for obstruction removal, road relocation and Runway Protection Zone (RPZ) control.
- Overlay and strengthen Runway 11/29 pavement to 30,000 pounds SWL.
- Extend Runway 11/29 by 1,200 feet to the west.
- Relocate parallel Taxiway A 240 feet to the south and extend to the east.
- Relocate Lawrence Hayden Road approximately 700 feet to the west.
- Realign Airport Drive approximately 30 feet to the south.
- Install Localizer/DME antenna at the Runway 29 end.
- Construct airport access road.
- Construct west apron and connecting taxiway.
- Construct t-hangars, conventional hangars, auto parking and apron.
- Upgrade rotating beacon.
- Install perimeter/security fence.

The FONSI indicates that the proposed action is consistent with existing environmental policies and objectives as set forth in the National Environmental Policy Act of 1969 in that it will not significantly affect the quality of the human environment.

Copies of the FONSI are available for public inspection at the following locations:

Federal Aviation Administration
Washington Airports District Office
23723 Air Freight Lane, Suite 210
Dulles, Virginia 20166

St. Mary's County
Department of Public Works & Transportation
44825 St. Andrew Church Road
California, MD 20169

Local libraries where the Draft/Final EA was placed for public review

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT**

Captain Walter Francis Duke Regional Airport
California, St. Mary's County, Maryland

Airport's Five Year Capital Improvement Program

1. Introduction. This document is a Finding of No Significant Impact on the environment as a result of a development proposal by St. Mary's County, owner and operator of Captain Walter Francis Duke Regional Airport (2W6). St. Mary's County's proposed actions are obstruction removal, land acquisition, overlay/strengthen Runway 11/29 pavement, extend Runway 11/29 and parallel taxiway west, relocate and extend parallel Taxiway A, relocate Lawrence Hayden Road, realign Airport Drive, install localizer/distance measuring equipment (DME) antennas and building, construct airport access road, construct west apron and connecting taxiway, construct hangars, upgrade rotating beacon and install perimeter fence. The Federal Aviation Administration (FAA) must comply with the National Environmental Policy Act of 1969 (NEPA) before being able to take the federal action of further processing of an application for Federal assistance in funding various airport development and for approval of the Airport Layout Plan (ALP) that depicts the proposed airport development projects. Approval of the ALP is authorized by the Airport and Airway Improvement Act of 1982, as amended (Public Laws 97-248 and 100-223).

2. Project Purpose and Need. The purpose of the proposed improvements is to meet FAA design standards and accommodate the existing and projected aviation demand of the Captain Walter Francis Duke Regional Airport. The existing Airport Reference Code (ARC) is B-II (small) and future ARC is B-II (large) based on aviation demand identified in the 2002 Master Plan Update. Runway 11/29 is 75 feet wide and 4,150 feet long with a pavement strength of 20,000 pounds Single Wheel Loading (SWL). To allow the airport to accommodate a wider variety of B-II aircraft, the proposed Runway 11/29 would need to be strengthened and extended. The installation of a localizer and DME antennas will provide more precise lateral guidance to aircraft during the approach to the runway and allow aircraft to more accurately determine their position along the final approach course during Instrument Meteorological Conditions. This project is part of the National Plan of Integrated Airport Systems (NPIAS), which is planned to provide public airport facilities conforming to minimum design standards.

Obstruction removal includes the grading of terrain, removal of existing trees and similar natural growth objects, as well as buildings within the protected airspace for Runway 11/29 and the elimination of obstructions to the Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace* surfaces. Property interest acquisition is necessary to gain controlling interest of the RPZs and aid in the removal of obstructions.

3. Proposed Project. The following is a listing of the various components of the proposed project:

- Remove obstructions for Runway 11/29.
- Acquire approximately three acres of fee-simple land and approximately 54 acres of avigation easement for obstruction removal, road relocation and Runway Protection Zone (RPZ) control.
- Overlay and strengthen Runway 11/29 pavement to 30,000 pounds SWL.
- Extend Runway 11/29 by 1,200 feet to the west.
- Relocate parallel Taxiway A 240 feet to the south and extend to the east.
- Relocate Lawrence Hayden Road approximately 700 feet to the west.
- Realign Airport Drive approximately 30 feet to the south.
- Install Localizer/DME antenna at the Runway 29 end.
- Construct airport access road.
- Construct west apron and connecting taxiway.
- Construct t-hangars, conventional hangars, auto parking and apron.
- Upgrade rotating beacon.
- Install perimeter/security fence.

4. **Reasonable Alternatives Considered.** As described in Chapter 2 of the Final Environmental Assessment (EA), the alternative courses of action evaluated include: (1) No Action, (2) Maintain ARC B-II (small) which includes those projects that will bring the airport into compliance with FAA design standards and improve safety including obstruction removal, land acquisition, relocation and extension of Taxiway A, realignment of Airport Drive, upgrading the rotating beacon and installation of a perimeter fence and (3) Proposed Project – develop and serve ARC B-II (large) which includes all the projects listed in Section 3 of this FONSI.
5. **Assessment.** The potential environmental impacts and possible adverse effects were identified and evaluated in a Final EA prepared in June 2006. The Final EA examined the following environmental impact categories: Noise; Compatible Land Use; Social Impacts; Induced Socioeconomic Impacts; Air and Water Quality; U.S. Department of Transportation Act Section 4(f) Land; Historic, Architectural, Archaeological and Cultural Resources; Biotic Communities; Endangered and Threatened Species of Flora and Fauna; Wetlands; Floodplains; Coastal Zone Management; Coastal Barriers; Wild and Scenic Rivers; Farmland; Energy Supply and Natural Resources; Light Emissions; Solid Waste Impacts; Construction Impacts; Hazardous Materials and Cumulative Impacts.

Section A of the Final EA states that the 65 DNL noise contour extends beyond airport property north of Runway 29. No residential or noise sensitive facilities are located in the 65 DNL noise contour for the proposed project.

Section B and C of the Final EA discloses impacts to six commercial/industrial properties for RPZ control and road relocation. The acquisition would not require the relocation of any businesses. The proposed project would also require an aviation easement acquisition over eight commercial/industrial and five residential properties to eliminate incompatible land uses and/or potential obstructions in the future. None of the properties to be acquired or eased would affect minority or low-income populations.

Section I of the Final EA describes the proposed impacts to Biotic Communities. The proposed project would require obstruction removal which includes cutting of existing trees and grading of terrain on approximately 106 acres beneath the protected airspace for Runway 11/29 to eliminate obstructions to the FAR Part 77 surfaces. Obstruction (tree) removal to achieve compliance with FAR Part 77 is exempt from the Forest Conservation Act per Section 5-1602(b)(11). The Maryland Department of Natural Resources recommended not disturbing or removal forest habitat during the April-August breeding period to minimize impacts to native wildlife.

As described in Section K of the Final EA the proposed project will impact approximately 12.64 acres of wetlands. Obstruction removal and grading limits for the relocation and extension of Taxiway A, apron construction, runway extension and road relocations would impact wetlands. Mitigation will include a 1:1 replacement for affected emergent wetlands and a 2:1 ratio for affected scrub-shrub or forested wetlands to comply with Maryland Department of Environment (MDE) regulations. A Joint Permit Application has been filed with the MDE and U.S. Army Corps of Engineers for approval.

6. Mitigation Measures. The FAA will require that St. Mary's County implement the following conservation measures, if they decide to pursue the proposed project:

1. Obstruction (tree) removal to achieve compliance with Federal Aviation Regulation Part 77, *Objects Affecting Navigable Airspace* is exempt from the Forest Conservation Act per Section 5-1602(b)(11). Due to this exemption, federal funding for tree removal mitigation may be limited.
2. Approximately 12.64 acres of wetlands would be impacted by obstruction removal and grading limits for the relocation and extension of Taxiway A, apron construction, runway extension and road relocations. Mitigation will include a 1:1 replacement for affected emergent wetlands and a 2:1 ratio for affected scrub-shrub or forested wetlands to comply with Maryland Department of Environment (MDE) regulations. A Joint Permit Application has been filed with the MDE and U.S. Army Corps of Engineers for review and approval.
3. St. Mary's County shall prepare an erosion and sedimentation control plan to meet Maryland's Erosion and Sediment Control Guidelines for State and Federal Projects, pursuant to the Environmental Article, Title 4, Subtitle 1, Annotated Code of Maryland and COMAR 26.17.01.
4. The implementation of Best Management Practices will minimize construction impacts associated with the proposed project.

The EA has been reviewed by the FAA and found to be adequate for the purpose of the proposed Federal action. The FAA has determined that the EA for the proposed project adequately describes the potential impacts of the proposed actions. No new issues surfaced as a result of the public participation process.

7. **Public Participation.** Efforts were made to encourage public participation through the public meeting process as is documented in the Final EA (Appendix M). St. Mary's County, as owner and operator of 2W6 held two public meetings. These meetings were held on May 24, 2004 and May 22, 2006. Notices announcing these public meetings were published in the local newspapers. The sign-in sheets, project summaries and comments received are included in the EA (Appendix M). The Draft EA was made available to the public from May 10, 2006 to June 12, 2006. Two comments in support of the proposed project were received.
8. **Inter-Agency Coordination.** In accordance with 49 USC 47101(h), FAA has determined that no further coordination with the U.S. Department of Interior or the U.S. Environmental Protection Agency is necessary because the proposed project does not involve construction of a new airport, new runway or major runway extension that has a significant impact on natural resources including fish and wildlife; natural, scenic, and recreational assets; water and air quality; or another factor affecting the environment.
9. **Reasons for the Determination that the Proposed Project will have No Significant Impacts.** The attached Final EA examines each of the various environmental impact categories. The removing obstructions, acquiring land, overlay/strengthening Runway 11/29 pavement, extending Runway 11/29 and parallel taxiway, relocating and extending parallel Taxiway A, relocating Lawrence Hayden Road, realigning Airport Drive, installing localizer/DME antennas and building, constructing airport access road, constructing west apron and connecting taxiway, constructing hangars, upgrading rotating beacon and installing perimeter fence would not exceed the threshold of significance as defined in FAA Order 1050.1E. Based on the information contained in the Final EA, the FAA has determined the proposed project (Alternative 3), is most feasible and prudent alternative. FAA has decided to implement the proposed project as described in the attached Final EA.

10. Finding of No Significant Impact

I have carefully and thoroughly considered the facts contained in the attached EA. Based on that information I find that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in section 101(a) of the National Environmental Policy Act of 1969 (NEPA). I also find the proposed Federal Action, with the required mitigation referenced above will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to section 102 (2)(C) of NEPA. As a result, FAA will not prepare an EIS for this action.

APPROVED:



Terry J. Page, Manager
Washington Airports District Office

6/28/06

Date

DISAPPROVED:

Terry J. Page, Manager
Washington Airports District Office

Date

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PURPOSE AND NEED FOR THE PROPOSED FEDERAL ACTION

This Environmental Assessment (EA) has been prepared pursuant to the National Environmental Policy Act (NEPA) in accordance with the requirements of Federal Aviation Administration (FAA) Order 5050.4A, *The Airport Environmental Handbook* and FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*. This EA will also comply with the state of Maryland's environmental regulations, and related St. Mary's County, Maryland, rules and regulations. This EA analyzes and discloses the impacts associated with the 2002 Airport Master Plan Update for the Captain Walter Francis Duke Regional Airport (2W6).

In accordance with the Council on Environmental Quality Regulations, Section 1502.13, this chapter specifies the underlying purpose and need for the proposed recommendations at the airport, and consists of the following sections:

Airport Setting and Background – This section provides an overview of the airport's physical setting, and discusses the history of the airport and its role in the aviation community.

Description of the Sponsor's Proposed Action – This section describes the development projects included in the sponsor's proposed action.

Project Background – The underlying need for the proposed development program is related to the airport's role in promoting regional economic development. This section illustrates the operational requirements of the airport and summarizes the forecast growth in aviation activity resulting from this role.



Purpose and Need for the Proposed Federal Action – The relationship between the proposed improvements and the efficiency, safety, and forecasted demand at the airport is established. Following a brief overview of the airport, airport operations, and the major airport facilities, this section describes the need for the development projects included in the sponsor’s proposed action.

Requested Federal Actions and Timeframe – This section lists the federal actions required to implement the sponsor’s proposed action, and identifies the anticipated timing of those actions.

A. AIRPORT SETTING AND BACKGROUND

Captain Walter Francis Duke Regional Airport (2W6) is a general aviation (GA) airport located in St. Mary’s County four miles northeast of Leonardtown, Maryland. The airport was previously “St. Mary’s County Airport,” but the name was changed in 2000 to honor Captain Duke and to reflect the regional service area. The airport is owned and operated by St. Mary’s County and serves the aviation needs of St. Mary’s County and the surrounding communities. There are numerous private use and restricted use airports located within a 25 nautical mile radius of 2W6; however 2W6 is the only public airport facility in the region.

The FAA is required to publish the National Plan of Integrated Airport Systems (NPIAS) as mandated by the Airport and Airway Improvement Act of 1982. The NPIAS and the Maryland Aviation System Plan Update (MASPU) list 2W6 as a general aviation airport. NPIAS is an FAA planning system that is updated every two years and is intended to identify the nation’s airport needs over a 10-year planning period, representing a continuous planning effort. Likewise, the MASPU identifies Maryland’s airport needs. The most recent update to the state plan was published in January 1998.

The Airport Master Plan Update, published August 2002, defines the current Airport Reference Code (ARC) as B-II (small), with growth to B-II (large) during early stages of the planning period (2000-2020). The term small refers to propeller driven aircraft of 12,500 pounds maximum gross weight and less. The ARC is based on the fleet mix of aircraft utilizing the airport on a regular basis, with the aircraft approach category of 'B' determined by approach speed, and the airplane design group of 'II' determined by the wing span. The B-II (small) critical aircraft is a Beechcraft Super King Air B200.

The Master Plan Update process evaluated several development alternatives to determine the preferred operational alternative (POA). The POA is the end result of the planning process and defines the projects required to be assessed in this EA. Those projects anticipated to be initiated within five years after completion of the EA form the basis for the 'sponsor's proposed action'.

B. DESCRIPTION OF THE SPONSOR'S PROPOSED ACTION

This EA addresses projects that collectively enhance the airport's ability to meet forecasted growth and improve the safety and efficiency of the airport. Together these projects are defined as the sponsor's proposed action.

The projects include improvements necessary to develop the airport as an ARC B-II (large) general aviation airport. These projects are included in the airport's five-year Airport Capital Improvement Program (ACIP) with respect to land requirements, Part 77 surface protection, navigational aids, and facility development. The proposed projects are described as follows:

Obstruction Removal

Obstructions to the FAR Part 77 34:1 approach surfaces and 7:1 transitional surfaces will



be removed to accommodate large aircraft on non-precision instrument approach procedures having visibility minimums greater than ¾ mile.

Property Interest Acquisition

Approximately three acres of fee-simple land acquisition and approximately 54 acres of aviation easement will be required as noted in **Table 1-1**. All aviation easements will provide the sponsor with sufficient property interest to prevent incompatible land uses and allow for obstruction removal for FAR Part 77.

Table 1-1
Captain Walter Francis Duke Regional Airport
Property Interest

Runway	Fee Simple (Acres)	Easement (Acres)	Purpose
11	0.3	45.32	Obstruction removal Road relocation
29	1.52	8.91	RPZ control Obstruction removal
	1.4		Road relocation
TOTAL	3.22	54.23	

Source: Delta Airport Consultants, Inc.

Overlay/Strengthen Runway Pavement

Runway 11-29 was extended and overlaid in 1996. The current pavement strength is 20,000 lbs. single wheel and will be strengthened to 30,000 lbs. single wheel to accommodate a wider variety of B-II large aircraft.

Extend Runway and Parallel Taxiway West

The existing Runway 11-29, at a length 4,150 feet, does not adequately support the growing turbojet operations. As stated in the 2002 Master Plan Update, an extension of Runway 11-29 to 5,350 feet will enable the airport to accommodate 75 percent of large airplanes of 60,000 pounds or less at 60 percent useful load.



Relocate Parallel Taxiway 'A' and Extend (East)

B-II design standards require a separation of 240 feet between a runway centerline and parallel taxiway centerline. The existing parallel Taxiway 'A', is located at a 207-foot separation. This project will include the relocation of existing Taxiway 'A' to meet the separation standard. Also, the taxiway will be extended east to the approach end of Runway 29.

Relocate Lawrence Hayden Road

Lawrence Hayden Road will be realigned approximately 700 feet to the west of the existing right-of-way and will reconnect to an existing portion of Lawrence Hayden Road near the intersection of Airport View Drive.

Realign Airport Drive

Airport Drive will be realigned approximately 30 feet south to accommodate the relocated Taxiway 'A' object free area.

Install Localizer/DME Antennas and Building

This project involves the construction of a localizer antenna, localizer building and distance measuring equipment (DME) antenna at the Runway 29 end. Also included is the clearing of the localizer critical area. The localizer will substantially improve existing approach course guidance and therefore, enhance operational safety. The localizer will also allow for lower landing minimums.

Construct Airport Access Road

This project includes the construction of the first phase of an airport access road to connect Airport Drive to Lawrence Hayden Road. The road will provide access to and from the general aviation and terminal areas to the new west apron, conventional hangars, and T-hangars.



Construct West Apron and Connecting Taxiway

This project will include the construction of a new 23,000-square-yard apron to the south of the proposed Runway 11 extension. The apron will provide paved tie-down parking to replace existing grass tie-downs and will provide airfield access for future conventional hangar development.

Construct T-Hangars, Conventional Hangars, Auto Parking, and Apron

This project includes the construction of a 10-unit T-hangar and associated apron and taxiway connectors, an 8,000-square-foot conventional hangar, and associated auto parking along the proposed airport access road on the west side of the airport.

Upgrade Rotating Beacon

The existing 10-inch airport beacon is not adequately visible from its current location. A new tower-mounted structure is proposed to replace the existing beacon.

Install Perimeter/Security Fence

Fencing would be installed along the perimeter of the airport to include property recently acquired or to be acquired as part of a project assessed in this EA.

C. PROJECT BACKGROUND

1. Airport Master Plan Update

Because the critical aircraft in the future will be a faster, heavier aircraft than the Beechcraft King Air B200, the most recent Master Plan Update for 2W6 (August 2002) recommended development of the airfield as an ARC B-II (large) facility. The future B-II (large) critical aircraft is represented by the Cessna Citation II for approach and wingspan, and the Rockwell Sabreliner 65 for weight. Accordingly, the ARC for 2W6 would shift from B-II (small) to B-II (large)



during the early stages of the planning period (2000-2020).

2. Aviation Demand Forecasts/Facility Requirements

The forecast of aeronautical activity at 2W6 during the 20-year planning period (2000-2020), as defined in the Master Plan Update, is a key element of the planning process. The FAA-approved forecast established the basis for determining and planning the airfield infrastructure and facility requirements necessary to adequately serve the community's current and future GA needs. Forecast data used for the purposes of this EA are detailed in **Table 1-2**. As shown, these forecasts indicate that all aspects of aviation demand at the airport will continue to grow during the planning period. Ongoing development will enable 2W6 to continue to accommodate the growth in aviation demand and contribute to the economic vitality of the service area.

Table 1-2
Captain Walter Francis Duke Regional Airport
Airport Operations Forecasts

FORECAST ELEMENT	BASE	FORECAST YEARS			
	1998	2003	2005	2010	2020
Total Based Aircraft	82	91	96	103	116
Single Engine	76	84	87	92	100
Multi-Piston	5	6	6	7	9
Multi-Turbine	0	1	1	2	4
Business Jet	0	0	0	1	2
Rotorcraft	1	1	1	1	1
Operations	45,000	48,634	53,000	55,000	62,000
GA Operations by Aircraft Type					
Single Engine	41,850	44,702	48,124	49,060	53,320
Multi-Piston	2,700	3,063	3,498	3,905	4,960
Multi-Turbine	0	229	504	880	1,860
Business Jet	0	154	339	605	1,240
Rotorcraft	450	486	530	550	620

* Forecast numbers for 2003 were extrapolated from the Master Plan Update (2002) approved forecast.
Source: Master Plan Update, August 2002.



The Master Plan Update determined facility requirements based upon existing and forecasted aviation demand. The requirements are needed to satisfy the increasing short-term and long-term aviation needs of the community. Facility requirements were used to present several alternative development layouts for the airport. Following the alternative analysis a preferred operational development alternative was chosen to develop the Airport Layout Plan (ALP).

The ALP identifies all development throughout the 20-year planning period. The proposed improvements were then planned over three development phases, Phase I (2000-2005), Phase II (2005-2010), and Phase III (2010-2020).

D. PURPOSE AND NEED FOR THE PROPOSED FEDERAL ACTION

The proposed improvements are intended to meet FAA design standards and fulfill the existing and projected aviation demand of the Captain Walter Francis Duke Regional Airport. This section provides a description of specific needs addressed by each project type included in the sponsor's proposed action.

Obstruction Removal

Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace, establishes standards for determining obstructions in navigable airspace; sets forth the requirements for notice to the FAA administrator of certain proposed construction or alteration; provides for aeronautical studies of obstructions to air navigation, to determine their effect on the safe and efficient use of airspace; provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and provides for establishing antenna farm areas. Any existing fixed or mobile objects are, and future objects may be, obstructions to air navigation if they are of greater height than any of the heights or surfaces outlined in FAR Part 77.23. The standards apply to all objects, whether manufactured, natural growth, or terrain.



Existing objects within the protected airspace or known penetrations to Part 77 surfaces for Runway 11-29 include both vegetative and man-made structures. Obstructions within the primary and/or transitional surfaces include trees, brush, power/light poles, and buildings. Additionally, both approaches to Runway 11-29 have tree obstructions. This project includes the removal of obstructions to Part 77 surfaces. Because the majority of obstruction removal will occur off existing airport property, the county has proposed to obtain the appropriate property interest needed to remove current or future obstructions.

Property Interest Acquisition

Fee simple land acquisition and avigation easement will be necessary for the airport to adequately control RPZs and approach slopes and to facilitate obstruction removal as noted in Table 1-1.

Overlay/Strengthen Runway 11-29

Runway 11-29 currently has a published pavement strength of 20,000 lbs. single wheel. To allow the airport to accommodate a wider variety of B-II aircraft, existing runway pavement needs to be overlaid and strengthened to accommodate 30,000 lbs. single wheel.

Extend Runway and Parallel Taxiway West

An extension to Runway 11-29 is needed to address the airport's future critical design aircraft, ARC B-II (large), and to assist in achievement of the airport's operational objectives as detailed in the Master Plan Update. The effort is focused on extending Runway 11-29 from the existing length of 4,150 feet to 5,350 feet of usable pavement for aircraft take-off and landing. Also, to service the additional 1,200 feet of runway length, Taxiway 'A' would be extended west.



Relocate Taxiway 'A' and Extend (east)

The project requires the relocation of Taxiway 'A' to meet Group II design standards for separation of parallel taxiway and runway centerlines. The centerline separation is currently 207 feet, whereas FAA design standard separation is 240 feet.

Relocate Lawrence Hayden Road

The relocation of Lawrence Hayden Road is necessary to accommodate the 1,200-foot runway extension and associated runway safety area (RSA). The new road realignment will be located approximately 700 feet to the west of the existing right-of-way and will reconnect to an existing portion of Lawrence Hayden Road near the intersection of Airport View Drive.

Realign Airport Drive

It is necessary to realign Airport Drive to accommodate the relocation of Taxiway 'A' and the associated taxiway object-free area.

Install Localizer/DME Antennas and Building

Currently, there are two published instrument approach procedures for 2W6; VOR or GPS Runway 29 and GPS Runway 11. The approach procedure with the lowest landing minimums is the GPS Runway 11 with a minimum descent altitude (MDA) of 560 feet mean sea level (MSL) and one statute mile visibility. The MDA equates to a height above the runway threshold of 418 feet.

The installation of a localizer and DME will provide more precise lateral guidance to aircraft during the approach to the runway and allow aircraft to more accurately determine their position along the final approach course during Instrument Meteorological Conditions (IMC).

The installation of a localizer with DME is consistent with the FAA's and the Maryland Aviation Administration's (MAA) mission of fostering aviation and improving reliability and safety of air transportation facilities. These improvements are needed to enhance the safety of aircraft using the airport, as well as the usefulness of the facility during adverse weather conditions.

Construct Airport Access Road

It is necessary to construct a road to allow access to and from the general aviation and terminal areas to the proposed hangars, auto parking and public apron along the west side of the airport. The airport access road would also ultimately connect to the existing Airport Drive to Lawrence Hayden Road.

Construct West Apron and Connecting Taxiways

Construction of a new apron along the west side of the airport, south of the Runway 11 extension, is necessary to accommodate future growth as demonstrated in the Master Plan Update. The proposed 23,000-square-yard apron would replace the existing grass tie-downs and meet the need for additional tie-downs. Connector taxiways are necessary to allow access from the apron to Taxiway 'A' and the runway.

Construct T-hangars, Conventional hangars, Auto Parking, and Apron

The Master Plan Update indicates that approximately 45 percent of existing based aircraft at 2W6 are stored in T-hangars. The available T-hangar space is full and there is a waiting list for hangar space. It is necessary to construct a 10-unit T-hangar to meet current demand. The T-hangar would be constructed along the west side of the airport on newly constructed apron. The Master Plan Update analysis of based aircraft also indicated additional demand for conventional hangar space at the airport throughout the planning period. An 8,000-square-foot conventional hangar is necessary to meet the current need at the airport. The hangar would be constructed on the west side of the airport. In order to accommodate the tenants of the conventional hangar and T-hangars, a

new automobile parking lot is necessary and would be constructed adjacent to the conventional hangar.

Upgrade Rotating Beacon

The existing rotating beacon (10-inch) is located on top of the county hangar, but is not clearly visible to approaching pilots. In order to improve visibility the beacon needs to be replaced with a new, tower-mounted structure.

Install Perimeter/Security Fence

The airside and landside are separated by a security fence on the south side of the airport. Additional fencing is required to enclose property recently acquired or to be acquired as part of projects assessed in this EA.

E. PROPOSED FEDERAL ACTIONS

The requested federal action includes the following:

- Unconditional approval of the portion of the Airport Layout Plan that depicts the proposed projects.
- Approval of further processing of an application for federal assistance to implement those AIP eligible projects.

Chapter Two
PROJECT ALTERNATIVES

This chapter describes the process used to identify reasonable alternatives meeting the purpose and need for the sponsor's proposed action described in Chapter 1, as well as the following four elements: 1) Alternative Development, 2) Screening of Potential Alternatives, 3) Alternatives Considered and Eliminated from Further Consideration and 4) Selection of Preferred Alternative. As stated in Chapter 1, Section D, the Purpose and Need for the Proposed Federal Action, this EA addresses projects that, while serving separate needs, collectively improve/support the airport's ability to meet forecasted growth and enhance safety. The Council on Environmental Quality (CEQ) regulations state that the responsible agencies shall "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives that were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." This chapter consists of the following elements:

Alternative Development – Selected potential development options as identified in the Airport Master Plan Update (August 2002) are presented for consideration.

Screening of Potential Alternatives – In accordance with CEQ regulations, the alternatives are presented in comparative form, "defining the issues and providing a clear basis for choice among options by the decision maker and the public."

Alternatives Considered and Eliminated from Further Consideration – Alternatives identified in the Airport Master Plan Update (August 2002) that were considered and then eliminated from further consideration are described here.

Selection of the Preferred Alternative – The preferred alternative is identified on a comparative basis of each alternative's ability to meet the project Purpose and Need, while minimizing adverse impacts.



A. ALTERNATIVE DEVELOPMENT

The Purpose and Need (Chapter 1) presented the 13 projects to be considered in this EA as a result of the recommendations made in the Airport Master Plan Update completed in August 2002. Each project requires a detailed analysis of its design considerations to determine the full scope of potential impacts. The projects detailed in Chapter 1 are as follows:

Project 1: Obstruction removal

Project 2: Property Interest Acquisition

Project 3: Overlay/Strengthen Runway 11-29 pavement (30,000 single wheel)

Project 4: Extend Runway 11-29 and parallel taxiway west

Project 5: Relocate Taxiway 'A' and extend (east)

Project 6: Relocate Lawrence Hayden Road

Project 7: Realign Airport Drive

Project 8: Install Localizer/DME antennas and building

Project 9: Construct airport access road

Project 10: Construct west apron and connecting taxiways

Project 11: Construct T-hangars, conventional hangar, auto parking, and apron

Project 12: Upgrade rotating beacon

Project 13: Install perimeter/security fence

Three alternatives were identified for evaluation in this environmental assessment. A No Action alternative will be considered as required by the FAA, as well as two development alternatives. One development alternative addresses meeting existing non-standard conditions, while the second development alternative proposes to develop the airport as an ARC B-II (large). The second development alternative also includes facility development in order to accommodate future needs of the aviation community as identified in the 2002 Master Plan Update.



Description of Potential Alternatives

To effectively evaluate the environmental impact of airport improvement projects presented in this EA, federal law requires the examination of all reasonable alternatives (development options), including a No Action alternative. Two specific development alternatives are identified in order to define the range of possible alternatives for the airport. This section summarizes the alternatives examined as part of this EA.

The two development alternatives under consideration are designed to improve the safety and efficiency of 2W6. The first development alternative proposes to maintain the B-II (small) operational category, while the second proposes to expand the ARC to B-II (large). Both alternatives include the removal of existing obstructions to FAR Part 77 surfaces (transitional and approach surfaces) and property interest acquisition via easement and fee simple actions as necessary to achieve FAA design standards. The B-II (large) alternative also includes improvements to Runway 11-29, Taxiway 'A', and additional facilities.

Existing objects within the protected airspace otherwise known as penetrations to Part 77 surfaces for Runway 11-29 include both vegetative and man-made structures. Obstructions within the primary and/or transitional surfaces include trees, brush, power/light poles, and buildings. Obstruction removal would occur on existing airport property, property that has an existing aviation easement, and on property which the County has proposed to obtain the appropriate property interest needed to remove current or future obstructions. Both development alternatives propose to remove all obstructions to existing Part 77 surfaces, as well as those objects that will become obstructions due to the other proposed actions within this EA as shown on **Exhibits 2-1, 2-2, 2-3, and 2-4**.

Fee simple land acquisition at 2W6 is necessary to gain control of both existing and proposed RPZs, relocate Lawrence Hayden Road, and realign Airport Drive. Aviation easement acquisition is also required to control potential obstructions to Part 77 surfaces in the future as shown on **Exhibits 2-5 and 2-6**.



Exhibit 2-1



Exhibit 2-2



Exhibit 2-3



Exhibit 2-4



Exhibit 2-5



Exhibit 2-6



Alternative 1 - No Action Alternative

Evaluation of the No Action alternative is required under NEPA. With the No Action alternative, the county would maintain the facility in its current condition and configuration. Only those actions not requiring formal NEPA documentation could be implemented if this alternative were chosen. The No Action alternative serves as a basis for comparing the environmental consequences of other potential alternatives. The No Action alternative will be referred to throughout this study as Alternative 1 (see **Exhibit 2-7**).

Alternative 2 – Maintain ARC B-II (small) – Achieve FAA Design Standards

Alternative 2 proposes to maintain the airport at an ARC B-II (small). This alternative includes those projects that will bring the airport into compliance with FAA design standards and improve the overall safety of the airport. Projects included in this alternative are listed below. **Exhibit 2-8** illustrates this alternative.

- Project 1: Obstruction removal
- Project 2: Property Interest Acquisition
- Project 5: Relocate Taxiway ‘A’ and extend (east)
- Project 7: Realign Airport Drive
- Project 12: Upgrade rotating beacon
- Project 13: Install perimeter/security fence



Exhibit 2-7



Exhibit 2-8



Alternative 3 – Develop to serve B-II (large) including 1,200’ Runway Extension

Alternative 3 proposes to expand the ARC for 2W6 to B-II (large). This alternative includes all 13 projects as listed below. **Exhibit 2-9** illustrates this alternative.

Project 1: Obstruction removal

Project 2: Property Interest Acquisition

Project 3: Overlay/Strengthen Runway 11-29 pavement (30,000 single wheel)

Project 4: Extend Runway 11-29 and parallel taxiway west

Project 5: Relocate Taxiway ‘A’ and extend (east)

Project 6: Relocate Lawrence Hayden Road

Project 7: Realign Airport Drive

Project 8: Install Localizer/DME antennas and building

Project 9: Construct airport access road

Project 10: Construct west apron and connecting taxiways

Project 11: Construct T-hangars, conventional hangar, auto parking, and apron

Project 12: Upgrade rotating beacon

Project 13: Install perimeter/security fence

B. SCREENING CRITERIA OF POTENTIAL ALTERNATIVES

This section presents criteria to be used in the evaluation and screening of the alternatives. The screening process helps identify a preferred alternative by evaluating comparable alternatives using the following criteria: ability to meet project needs, feasibility and prudence/practicality, and environmental factors.



Exhibit 2-9



Ability to Meet Project Purpose and Need

As a fundamental condition of the purpose and need for the sponsor's proposed action, the ability of the airport to continue to operate safely while accommodating forecasted demand must be met. Accordingly, alternatives that do not provide the facilities required to meet demand and enhance safety in the near term, three to five years, would be inconsistent with the purpose and need of the sponsor's proposed action. Further, alternatives that do not provide the ability to continue meeting the airport's forecasted need through the 20-year planning period would not be consistent with the purpose and need of the sponsor's proposed action.

Feasibility and Prudence/Practicability

This criterion addresses standards relating to the selection of the alternatives. NEPA requires that all reasonable alternatives be considered. Some environmental laws also specify conditions in considering an appropriate range of alternatives. The Department of Transportation (DOT) Act, Section 4(f) states that potential alternatives presenting "unique problems, extraordinary costs, or community disruption" are not considered to be prudent. In order to be considered "extraordinary" the costs of the alternative would need to be of such magnitude as to make the development financially infeasible. A prohibitively expensive alternative would also not be considered practicable.

Environmental Factors

Alternatives addressing the same need may differ substantially with respect to potential environmental impacts. Alternatives that have significantly more environmental impacts when compared to other alternatives, while addressing the same needs, should be eliminated from consideration. Relevant environmental factors may include noise impacts, wetland impacts, potential disruption of existing development patterns, and potentially disproportionate impact on minority and low-income populations (environmental justice). The complete list of environmental impacts from FAA Order 5050.4A, *Airport Environmental Handbook*, will be



evaluated in detail in Chapter 4.

C. SCREENING ANALYSIS OF ALTERNATIVES

1. No Action Alternative (Alternative 1)

In this alternative, no substantial changes would be made to the existing airport. A summary of the screening evaluation of this alternative follows.

Ability to Meet Project Purpose and Need

This alternative would not comply with FAA design standards as the airport would not correct the inadequate spacing between the runway and parallel taxiway centerlines. This alternative would not allow 2W6 to clear existing obstructions from FAR Part 77 surfaces, extend Runway 11-29 and the associated parallel taxiway, acquire property interest, develop additional facilities, or install a localizer with DME.

Feasibility and Prudence/Practicability

This alternative is considered neither practical nor prudent as it does not meet the defined purpose and need.

Environmental Factors

This alternative would not disturb environmental resources or disrupt existing development patterns; thus, no environmental impacts would result.



Conclusion

Evaluation of a No Action alternative is required under NEPA. Although this alternative would not meet the purpose and need for the sponsor's proposed action, it is retained for consideration as a basis for comparing the environmental consequences of the other potential alternatives.

2. Development Alternatives

Development alternatives were established based upon the preferred operational alternative from the Master Plan Update. This alternative proposed to expand the existing ARC B-II (small) classification to B-II (large) and achieve FAA design standards, forecasted demand, and enhance safety at 2W6. One of the development alternatives is comprised of all 13 projects described in Section A, while the other development alternative includes only those projects necessary to meet FAA design standards.

Property interest acquisition, obstruction removal, relocation of Taxiway 'A' and extension east, realignment of Airport Drive, upgrading of the rotating beacon, and installation of perimeter/security fencing around land recently purchased or proposed for acquisition within this EA are included in both development alternatives. The extension and overlay/strengthening of Runway 11-29, associated parallel taxiway extension (west) and relocation of Lawrence Hayden Road, installation of localizer/DME antennas and building, and construction of aprons, T-hangars, conventional hangar, and airport access road are included only in development Alternative 3.

An evaluation matrix of the development alternatives is presented at the end of this section.



Alternative 2 – Maintain ARC B-II (small) – Achieve FAA Design Standards

In this alternative, the airport would remain an ARC B-II (small), but would be developed to achieve FAA design standards. Taxiway ‘A’ would be shifted approximately 33 feet to the south to achieve the required 240-foot separation between runway to parallel taxiway centerlines. This shift would require the realignment of Airport Drive. Runway 11-29 would remain at its current length of 4,150 feet.

Fee simple land acquisition of approximately one and a half acres is required to relocate Lawrence Hayden Road. Obstruction removal includes the removal of existing trees and similar natural growth objects on approximately 57 acres within the protected airspace for Runway 11-29 and the elimination of obstructions to the FAR Part 77 surfaces. Obstruction removal would occur on existing airport property, property that has an existing aviation easement, and property the county has proposed to obtain the appropriate property interest. The approximate limits of obstruction removal are illustrated on Exhibits 2-1 and 2-3. Approximately 54 acres of land would be acquired via aviation easement to facilitate obstruction removal, as shown on Exhibits 2-5 and 2-6.

This alternative also includes upgrading the rotating beacon and installing additional fencing to enclose property recently acquired or to be acquired as part of this EA. Alternative 2 is shown on Exhibit 2-7.

Ability to Meet Project Purpose and Need

Alternative 2 would develop the airport to meet current FAA design standards. This alternative would also remove obstructions within the primary and transitional surfaces, including trees, brush, and manufactured structures. Removing all existing obstructions would achieve compliance with FAR Part 77 surface requirements. Lastly, this alternative would provide the required control over Runway 11-29’s RPZs via fee simple



land acquisition and easement acquisition that would facilitate obstruction removal and ensure protection in the future.

Feasibility and Prudence/Practicability

This alternative is comprised of the project elements necessary for compliance with FAA design standards and enhancement of safety as listed at the beginning of this chapter. This EA assesses the projects' individual and cumulative impacts, and thus the reduction or elimination of one or more projects from an alternative does not produce environmental impacts that have not been identified and addressed in this report. **Table 2-1** lists each project and its approximate costs.

Table 2-1
Captain Walter Francis Duke Regional Airport
Alternative 2 Cost Summary

Project	Cost
Obstruction Removal	\$105,000
Property interest acquisition	\$158,000
Taxiway construction	\$1,521,000
Realign Airport Drive	\$761,000
Upgrade the rotating beacon	\$96,000
Install perimeter/security fencing	\$46,000
Total Cost	2,687,000

Source: Delta Airport Consultants, Inc., 2004

Environmental Factors

This alternative may have impacts to existing wetlands both on and off airport property. Coordination with both the Army Corps of Engineers (ACOE) and the Maryland Department of Environment (MDE) will ensure that all permitting and mitigation requirements are met as necessary. Tree clearing for obstruction removal would be coordinated with the Maryland Department of Natural Resources (MDNR) to ensure compliance with the Maryland Forest Conservation Act. No other environmental impacts are anticipated.



Conclusion

This alternative achieves the significant portion of the project purpose and need, compliance with FAA design standards, separation of parallel taxiway and runway centerlines and clear FAR Part 77 surfaces. However, it does not aid the airport in meeting forecasted business jet demand by extending the runway or accommodate the need for the increased hangar and apron space. The cost of the project is not considered to be significant and environmental impacts are limited. This alternative is retained for detailed evaluation.

Alternative 3 – Develop to Serve B-II (large) Aircraft, Including 1,200’ Runway Extension

The basis of Alternative 3 is to develop the existing ARC B-II (small) to B-II (large). The alternative involves extending Runway 11 and Taxiway ‘A’ 1,200 feet to the west. Also, in this alternative, as in Alternative 2, the airport would relocate and extend Taxiway ‘A’ to the east, realign Airport Drive, remove obstructions (approximately 106 acres) and acquire land to achieve FAA design standards and protect FAR Part 77 surfaces. Approximately 54 acres of land would be acquired via avigation easement and approximately three acres via fee simple acquisition as shown on Exhibits 2-5 and 2-6. The alternative also includes an upgrade to the rotating beacon and installation of perimeter/security fencing.

The extension of Runway 11 requires the relocation of Lawrence Hayden Road to accommodate the RSA. The alternative also proposes to install a localizer with DME, which will significantly enhance the safety and utility of the airport during adverse weather conditions. Facility development is also proposed within this alternative to meet existing and future demand for apron and hangar space. The proposed west apron, auto parking, T-hangars, and conventional hangar would be accessible via the newly constructed airport access road.



Ability to Meet Project Purpose and Need

This alternative satisfies the purpose and need and would develop the airport to meet forecasted demand as outlined in the Airport Master Plan Update (2002).

Feasibility and Prudence/Practicability

This alternative is comprised of the project elements as listed at the beginning of this chapter. This EA assesses the projects' individual and cumulative impacts, and thus the reduction or elimination of one or more projects from an alternative does not produce environmental impacts that have not been identified and addressed in this report. The approximate costs of each project are shown in **Table 2-2**.

Table 2-2
Captain Walter Francis Duke Regional Airport
Alternative 3 Cost Summary

Project	Cost
Obstruction Removal	\$525,000
Property interest acquisition	\$317,000
Overlay/Strengthen Runway 11-29	\$395,000
Runway and taxiway construction	\$5,037,000
Relocate Lawrence Hayden Road	\$697,000
Realign Airport Drive	\$761,000
Install localizer with DME	\$444,000
Construct airport access road	647,000
Construct west apron, T-hangars, conventional hangar, auto parking apron	\$4,054,000
Upgrade the rotating beacon	\$96,000
Install perimeter/security fencing	\$46,000
Total Cost	13,019,000

Source: Delta Airport Consultants, Inc., 2004

Environmental Factors

This alternative may have impacts to wetlands both on and off airport property. Coordination with both the ACOE and MDE will ensure all necessary permitting and mitigation requirements are met. Tree clearing for obstruction removal would be



coordinated with the MDNR to ensure compliance with the Maryland Forest Conservation Act. The runway extension will require the removal of any remaining waste from an abandoned landfill to accommodate the extended runway safety area. The waste will be removed according to existing state and local regulatory requirements. No other environmental impacts are anticipated.

Conclusion

Alternative 3 achieves the project purpose and need as described in Chapter 1 and would be considered prudent and practicable. This alternative is retained for detailed evaluation.



Table 2-3 presents an evaluation matrix of all alternatives.

Table 2-3
Captain Walter Francis Duke Regional Airport
Alternatives Evaluation Matrix

Criteria	Alternative		
	1 – No Action	2	3
Compliant distance between runway centerline and parallel taxiway centerline distance	No	Yes	Yes
Obstructions cleared from FAR Part 77 surfaces	No	Yes	Yes
Increased Runway 11-29 pavement strength	No	No	Yes
Lawrence Hayden Road relocated	No	No	Yes
ARC increased to B-II (large)	No	No	Yes
Runway extended	No	No	Yes
Cost			
Obstruction Removal	\$0	\$105,000	\$525,000
Property Interest Acquisition (Fee Simple and Avigation Easement)	\$0	\$158,000	\$317,000
Overlay/Strengthen Runway 11-29	\$0	\$0	\$395,000
Extend runway and parallel taxiway west	\$0	\$0	\$3,516,000
Relocate parallel taxiway and extend (east)	\$0	\$1,521,000	\$1,521,000
Relocate Lawrence Hayden Road	\$0	\$0	\$697,000
Realign Airport Drive	\$0	\$761,000	\$761,000
Install localizer antenna, construct localizer building/DME antenna and critical area	\$0	\$0	\$444,000
Construct Airport Access Road		\$0	\$647,000
Construct west apron and connecting taxiways	\$0	\$0	\$3,167,000
Construct T-hangars, conventional hangar, auto parking, and apron	\$0	\$0	\$887,000
Upgrade rotating beacon	\$0	\$96,000	\$96,000
Install perimeter/security fence	\$0	\$46,000	\$46,000
Total Cost	\$0	\$2,687,000	\$13,019,000

Source: Delta Airport Consultants, Inc., 2004



D. ALTERNATIVES CONSIDERED AND ELIMINATED FROM STUDY

The Airport Master Plan Update, completed in August 2002, considered 13 alternative layouts based upon the facility requirements, see **Table 2-4**. All of the alternatives were based upon three primary objectives as detailed below.

Objectives:

- Improve the airport's ability to accommodate larger general aviation aircraft, including business jets
- Improve the accessibility of the airport during adverse weather conditions
- Attract commuter air service to the airport

Ten of the original alternative layouts were eliminated from further study through the master planning process. Those alternatives retained were 2, 11, and 13. Based upon extensive public coordination and consideration by the county commissioners, it was decided that the airport would remain a B-II facility for the 20-year planning period but be developed to remove the small aircraft restriction, therefore making Alternative 2 from the Master Plan Update the preferred operational alternative.



Table 2-4
Captain Walter Francis Duke Regional Airport
Summary of Development Alternatives from Airport Master Plan (2002)

Alternative	Description
1 - B-II (small)	Runway 11 – NPI ¹ , 1 mile / Runway 29 – NPI, 1 mile; runway length = 4,150'
2 - B-II (large)	Runway 11 – NPI, 1 mile / Runway 29 – NPI, 1 mile; Runway length = 5,350' (extension to west)
3 - B-II (large)	Runway 11 – NPI, ¾ mile / Runway 29 – NPI, 1 mile; Runway length = 5,350' (extension to west)
4 - B-II (large)	Runway 11 – NPI, ½ mile / Runway 29 – NPI, 1 mile; Runway length = 5,350' (extension to west)
5 - B-II (large)	Runway 11 – NPI, 1 mile / Runway 29 – NPI, 1 mile; Runway length = 5,350' (extension to east)
6 - C-II	Runway 11 – NPI, 1 mile / Runway 29 – NPI, 1 mile; Runway length = 5,350' (extension to west)
7 - C-II	Runway 11 – NPI, ¾ mile / Runway 29 – NPI, 1 mile; Runway length = 5,350' (extension to west)
8 - C-II	Runway 11 – NPI, ½ mile / Runway 29 – NPI, 1 mile; Runway length = 5,350' (extension to west)
9 - C-II	Runway 11 – PI ² , ½ mile / Runway 29 – NPI, 1 mile; Runway length = 5,350' (extension to west)
10 - C-II	East – PI, ½ mile / West – NPI, 1 mile; Runway length = 5,350' (realign runway)
11 - C-II	East – PI, ½ mile / West – NPI, 1 mile; Runway length = 5,350' (new runway site)
12 - C-II	Runway 11 – PI, ½ mile / Runway 29 – NPI, 1 mile; Runway length = 5,350' (new runway 250' to north/new taxiway)
13 - C-II	Runway 11 – PI, ½ mile / Runway 29 – NPI, 1 mile; Runway length = 5,350' (new runway 250' to north/utilize existing taxiway)

¹NPI – Nonprecision Instrument

²PI – Precision Instrument

Source: Airport Master Plan Update, August 2002



E. SELECTION OF THE PREFERRED ALTERNATIVE

As a result of the alternative screening, the sponsor's preferred alternative was selected. Although Alternative 1, No Action, involves the fewest environmental impacts, it does not meet the project needs. Both of the remaining development alternatives would meet the most critical aspects of the defined purpose and need and correcting nonstandard conditions; however, Alternative 2 would not extend the runway to fully accommodate the future critical aircraft need nor increase hangar or apron space to satisfy the short- and long-term aviation needs of the community. Therefore, Alternative 3 was selected as the preferred development alternative from this EA, as it meets the defined purpose and need identified in Chapter 1. Significant environmental impacts are not anticipated with this alternative.



This chapter describes the airport and the natural (e.g., wetlands, biotic communities, endangered and threatened species, wild and scenic rivers, etc.) and human or constructed (e.g., historic and cultural resources, air quality, etc.) environment that could be affected by the project and identifies other planned developments or ongoing projects at the Captain Walter Francis Duke Regional Airport (2W6).

A. ENVIRONMENTAL SETTING

The Captain Walter Francis Duke Regional Airport is located in St. Mary's County, Maryland. The airport, which occupies approximately 230 acres, lies between Hollywood, Maryland, to the northwest and California, Maryland, to the southeast, (see **Exhibit 3-1**). Direct access to 2W6 is provided by Airport Drive, from Route 235. As shown on **Exhibit 3-2**, the airport is situated on the southwest side of State Route 235 between both communities.

The airport is located in the Atlantic Coastal province, at an elevation of 143 feet above mean sea level (MSL), with a current airport reference point of 38°18'55.28" North latitude and 76°33'0.42" West longitude. 2W6 is listed in the National Plan of Integrated Airport Systems (NPIAS) as a General Aviation (GA) facility.

B. SITE HISTORY

Preliminary planning for a county-owned airport in St. Mary's County began in the late 1950s. A survey conducted in 1966 indicated a need for an airport that would accommodate medium-sized twin-engine aircraft. The present site of the airport was chosen from three sites selected for detailed study.



Exhibit 3-1

Location Map



Exhibit 3-2
Vicinity Map



Construction of the St. Mary's County Airport was completed during 1969, and the airport was in operation before the end of that year, with a 3,250-foot runway. Airport operations and management were conducted under a lease agreement between the county and a private company until 1983, at which point an airport commission was established to manage the airport. Airpark Sales and Services, Inc., was designated as the Fixed Based Operator (FBO) in September 1987.

The original Master Plan for the airport was completed in 1979 and Airport Layout Plan Updates were published in 1988 and 1993. The most recent Airport Master Plan Update was completed in August 2002. Following numerous infrastructure improvements, Runway 11-29 was extended in 1996 from 3,250 feet to its current length of 4,150 feet. In the spring of 2000, the airport was re-dedicated as the Captain Walter Francis Duke Regional Airport along with the completion of a new air carrier terminal building.

C. AIRPORT FACILITIES

Airport facilities, including airfield, passenger terminal, general aviation, and airport support facilities are shown on **Exhibit 3-3**, the Existing Airport Layout. The airfield consists of one runway and associated taxiways. Runway data, including key airfield dimensions and navigational aids, are summarized in **Table 3-1**. Taxiway data are summarized in **Table 3-2**.

Runway 11-29 is 4,150 feet long and 75 feet wide and is accompanied by a partial parallel taxiway and a combination of connector taxiways providing access to the terminal and GA apron areas.



Exhibit 3-3
Airport Layout Plan



Table 3-1
Captain Walter Francis Duke Regional Airport
Runway Data

Item	Runway 11-29
Runway Length	4,150'
Runway Width	75'
Pavement Type	Asphalt
Pavement Strength (lbs)	Single wheel 12,500
Runway Lighting	MIRLS
Runway Marking	Non-precision Instrument
NAVAIDs	RW 11 – PAPI, REIL RW 29 – PAPI, REIL
Approach Lighting	N/A
Type of Approach	Non-precision
	RW 11 – 20:1
Approach Slope	RW 29 – 20:1
Runway End Elevation (feet above MSL)	RW 11 – 143.39 RW 29 – 126.33

Source: Airport Master Plan Update, 2002

Table 3-2
Captain Walter Francis Duke Regional Airport
Taxiway Data

Taxiway/ Taxilane	Description	Width	Type of Construction
A	Serves as a partial parallel taxiway to Runway 11-29	35' - 40'	Asphalt
B	Serves as an exit taxiway providing access to the GA apron	40'	Asphalt
C	Serves as an entrance/exit taxiway	40'	Asphalt
D	Serves as a turn-around	35'	Asphalt

Source: Airport Master Plan Update, 2002



The passenger terminal complex at the airport comprises the terminal building, the general aviation aircraft parking apron, the commercial service apron, the airport entrance and circulation roadways, and automobile parking. A one-level terminal building was constructed in 2000. Currently unoccupied, the terminal building is composed of ticketing, baggage claim and security screening area, passenger holdroom, offices, and lavatory facilities. The airport is not currently served by a commercial air carrier, however a portion of the terminal building is leased to a local law enforcement agency.

Fuel storage facilities at 2W6 are located on the southern portion of the airport. Airport support facilities include the fuel storage facilities and the operations and maintenance facilities, also shown on Exhibit 3-3.

D. PREVIOUS ENVIRONMENTAL DOCUMENTATION

This section provides an overview of previous environmental documentation for the Captain Walter Francis Duke Regional Airport.

1. Soil Survey

The soil survey of St. Mary's County indicates 14 different soils within the airport property and its vicinity, as summarized in **Table 3-3** and illustrated on **Exhibit 3-4**.

2. National Wetlands Inventory Map

A review of the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) map for the Leonardtown, Maryland area, (USGS 7.5-minute quadrangle) indicates several freshwater forested/shrub wetlands in the vicinity of the airport, as shown in **Exhibit 3-5**. Note that NWI maps are designed for general planning purposes only and typically do not show all wetland resources within a given area.



Table 3-3
Captain Walter Francis Duke Regional Airport
Soils within Project Area

Soil	Description
Alluvial land	Composed of recently deposited sediment, often as the result of erosion from uplands that have been denuded of cover. Composition and depth of these soils vary.
Beltsville series	Generally found in moderately well drained uplands; typically contain 1 or 2 thin A-horizons of dark grayish brown to light yellowish brown silt loam; B-horizons, found at a depth of 6 inches and below, are composed of fragipan and tend to demonstrate moderate amount of structure and peds with fine clay films
Bibb series	Level, poorly drained floodplains of upland creeks; may periodically flood and are often the site of wetland hardwoods
Caroline series	Deep, moderately well drained, unconsolidated deposits of silt and clay loam in uplands; often percolate water at the surface, and are strongly acidic; these factors retard plant growth and make the soils susceptible to erosion
Cut and Fill land	Disturbed or modified by grading or filling; majority of airport property is situated on such soils
Evesboro series	Well-drained land, composed of ancient marine sediments that have been reworked by wind and rain; compose most of land in the vicinity of the airport
Fallingston series	Poorly drained, usually found on terraces above major streams and uplands; form from ancient alluvium and marine sediment containing low to moderate amounts of silt and clay
Kempsville series	Organic soils; formed in place from parent material once part of the upper portion of subsoil composed of reddish brown loam
Klej series	Poorly drained beds of sands and sandy materials; ground cover usually sparse, since soils retain few nutrients and are subject to extremes (wetness/droughts)
Matapeake series	Soils commonly found on uplands formed in loamy soils deposited over coarser sediment which allows ample drainage
Othello series	Poorly drained soils, commonly found on terraces adjacent to rivers and large streams
Rumford series	Soils commonly found on extremely well drained uplands formed from layers of marine sediment containing little silt or clay
Sassafras series	Soils are well drained; found on uplands and low terraces in river valleys

Source: Cultural Resources Survey, Coastal Carolina Research, Inc., August 2004



Exhibit 3-4
Soils Map



Exhibit 3-5
National Wetlands Inventory Map



E. THE NATURAL ENVIRONMENT

This section provides an overview of the natural environment that surrounds the airport, including topography, drainage, climate, water resources, floodplains, biotic communities, and wetlands.

1. Topography and Geology

2W6 is located within the Atlantic Coastal province, an area of low elevation consisting of unconsolidated beds of marine-deposited sand, silt, clay, and gravel. The local portion of the coastal plain consists of a plateau and plateau edge deeply incised by well-established stream valleys. According to the Hollywood, Maryland, USGS 7.5-minute quadrangle map, the existing topography on the subject property is between 100 and 150 feet in elevation above mean sea level (MSL) (see **Exhibit 3-6**).

2. Climatic Variables

Meteorological conditions may significantly affect the operations of an airport and must be taken into account for future development. The region has a varied climate, with average temperatures ranging between 36°F and 77°F. The hottest month is July, with a mean temperature of 78°F, and the coldest month is January, with a mean temperature of 36°F. Annual rainfall is approximately 47 inches, with most precipitation occurring in March and the least in November. The average seasonal snowfall is about 15 inches.



Exhibit 3-6
2W6 USGS Map



The orientation of the runway to the prevailing wind direction is vital to the safe operation of aircraft, especially small single-engine aircraft, which are more susceptible to crosswinds. Crosswinds are winds that blow perpendicular to the runway or path of an aircraft while landing or taking off. The most recent Master Plan Update (August 2002) indicated that Runway 11-29 exceeded the 95 percent coverage recommended by the FAA for both all-weather and instrument meteorological conditions (IMC) (see **Table 3-4**).

Table 3-4
Captain Walter Francis Duke Regional Airport
Wind Coverage

Runway	10.5 Knots	13 Knots
All Weather Conditions	92.45%	96.34%
IMC	93.05%	96.07%

Source: Airport Master Plan Update, 2002

3. Water Resources

Airport activities can affect water quality, primarily due to storm water runoff that carries pollutants from paved surfaces. Water pollution problems can be intensified during winter when deicing/anti-icing compounds are used to clear ice and snow from runways, taxiways, aprons, and aircraft. Addressing the issues of controlled drainage and clean water, this section provides an overview of water resources in the airport environs, including groundwater and surface water.

a. Storm Water

Storm water runoff is generated by gradient-induced drainage of paved and impervious surfaces. Activities such as aircraft washing, fueling, and minor maintenance on paved surfaces can result in contaminants in storm water runoff. If not collected and treated, contaminated storm water may eventually be deposited into nearby tributaries or groundwater reserves. Storm water runoff is



not currently collected or treated at the airport. However, the airport does operate under a National Pollutant Discharge Elimination System (NPDES) permit authorizing storm water discharge.

The eastern portion of 2W6 is crossed by first and second-order tributaries of the St. Mary's River, Mill Creek, Hickory Landing Creek, and Back Creek. The latter three flow into Cuckold Creek, which enters the Patuxent River about four miles east of 2W6. The western portion of the airport and its immediate environs are cut by Spring Brook, Lows Run, and Broad Run.

The airport's storm drainage consists of a piped conveyance system with catch basins and open grass lined channels. **Exhibit 3-7** illustrates the existing storm water drainage pattern. Three main drainage ditches collect the storm water runoff from the airport. All run parallel in a west to east direction, discharging into the St. Mary's River, which in turn discharges into the Potomac River, and ultimately into the Chesapeake Bay. Further information on storm water drainage is located in S&ME's Stormwater Pollution Prevention Plan (see **Appendix C**).

b. Wastewater Facilities

Wastewater, or sewer flow, is mostly generated in the airport terminal area, primarily by employees, tenants, and others using the terminal. Additionally, general aviation and tenant facilities, such as hangars, also contribute to wastewater generation.

c. Existing Permits

Operators of industrial plants, including airports, are required to obtain storm water permits under the 1987 amendments to the Clean Water Act (CWA). The CWA provides the authority to establish water quality standards, control



Exhibit 3-7
Storm Water Patterns



discharges into surface and subsurface waters, develop waste treatment management plans and practices, and issue permits for dredged or fill material.

The CWA specifically addresses both point source and non-point-source discharges. Point sources are distinct entities that discharge wastewater with pollutants into rivers or lakes through distinct conveyances such as pipes, ditches, and canals. Non-point sources (e.g., agricultural lands, construction sites, parking lots, streets) do not discharge wastewater from a discrete conveyance system. Section 402 of the CWA establishes the NPDES. NPDES permits are required for all point source discharges to waters of the United States, including discharges of storm water associated with industrial and airport activities.

An NPDES permit requires submission of information regarding existing programs to control pollutants and field monitoring of major outfalls to detect improper discharges. All discharges of storm water runoff must be identified and characterized, including those containing deicing fluids, liquid fuels, and chemicals used for maintenance.

As noted previously, 2W6 currently has several drainage channels throughout the property. Runoff from the airport is handled by these channels, which direct water to a storm water drainage system. The airport operates under an NPDES permit for discharges from the storm water drainage system. The NPDES permit establishes the effluent limitations that restrict the rates and quantities of pollutants discharged. 2W6 and all applicable airport tenants in the existing NPDES permit must comply with the requirements set forth in the permit. Storm water outfall is well within the constraints of the NPDES permit.



4. Floodplains

This section provides a description of floodplains in the airport environs. According to FAA Order 5050.4A, *Airport Environmental Handbook*, base floodplains are defined in Executive Order 11988, *Floodplain Management*, as “the lowland and relatively flat areas adjoining inland and coastal waters including floodprone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year”; that is, the area that would be inundated by a 100-year flood.

The Flood Insurance Rate Map (FIRM) for St. Mary’s County, Community Panel Number 2400640016B, effective date February 19, 1987, indicates that the airport is within Zone C, areas of minimal flooding, as shown on **Exhibit 3-8**.

5. Biotic Communities

Biotic communities may be directly or indirectly affected by aviation development and activities. Specifically, development that affects existing watercourses or vegetation may alter wildlife habitat in the area, resulting in potentially significant impacts to flora and fauna. Mill Creek Environmental Consultants, Ltd., conducted an on-site field investigation to evaluate the present habitat conditions on and in the immediate vicinity of the airport to determine the presence of threatened or endangered species or critical habitat. The investigation was completed concurrently with the wetlands delineation and is included in the Endangered, Threatened, and Special Concern Species and Biotic Survey Report, presented in **Appendix D**.

The report indicated that no habitat types identified on the site appear to provide specialized habitat for any threatened or endangered species.



Exhibit 3-8
Flood Insurance Rate Map



6. Wetlands

Wetlands are another critical environmental aspect to consider during any construction project. A developer is required to delineate any wetlands within the project area and, if necessary, mitigate impacts on any adversely affected wetlands. Wetlands are defined in Executive Order 11990 as “those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats and natural ponds.” Wetlands also include estuarine areas, tidal overflows, and shallow lakes and ponds with emergent vegetation. Furthermore, the wetlands ecosystem includes those areas which affect, or are affected by, the wetland itself, for example, adjacent uplands or regions upstream and downstream. Areas covered with water for such a short time that there is no effect on moist soil vegetation are not included within the definition of wetlands, nor are the permanent waters of streams, reservoirs, and deep lakes.

Seven wetland locations were identified on or near existing airport property. These are shown in **Exhibit 3-9**. The vegetation, soil characteristics, and wetlands hydrologic parameters were indicative of wetlands. The complete wetland delineation report can be reviewed in **Appendix E** of this EA.

a. Classification of Wetlands

The locations of the seven wetlands are discussed in the following text, and are lettered and depicted on Exhibit 3-9 for reference. Wetland A is located west of the airport’s T-hangars, southeast of the Runway 11 end. The wetland was classified as a Palustrine, scrub-shrub (PSS) wetland and covers 2.19 +/- acres as reported by Mill Creek Consultants in the 2005 Wetland Survey and Delineation Report.



Exhibit 3-9
Wetlands



Wetland B is a small, narrow Palustrine, emergent (PEM) strip of wetlands adjacent to the security fence on the northwest end of the airport. The area is separated from a larger wetlands expanse by a county road connecting to Lawrence Hayden Road. Wetland hydrology is maintained in this area because of the topography of the site; the land is a depression with surface waters from the runway and elevated adjacent roadbed flowing into the lower elevation and ponding the area. The wetland covers 0.04 +/- acres.

Wetland area C covers 1.90 +/- acres and lies off the west-northwest end of Runway 11-29 between the runway embankment and the perimeter fence adjacent to Lawrence Hayden Road. The wetland is a PEM transitioning to a PSS type as it moves toward the east and higher topographical elevation. Hydrology in this area comes from surface water flow and a series of wet seeps into the site from the north.

Wetland area D is one of the three largest wetland areas in the project area. The wetlands' headwaters begin as drainage inside the airport security fence on the north end, where the wetlands are a PEM ecosystem consisting of wet grasses and disturbed soils that are hydric in nature. The hydrology of the site is formed by natural drainage channels which were reshaped during runway and safety area construction. As the drainage area expands outside the security fence to the north, topography becomes more level, but is compartmented. Vegetation is that of a mature bottomland hardwood forest with trunks of loblolly pine and a few Virginia pine interspersed throughout the forest. The wetland covers 5.78 +/- acres.

Wetland F is the largest of the seven wetland locations, covering 8.84 +/- acres. It is a combination of open water, PEM areas along the shoreline which transition to Palustrine, forested (PFO) wetlands as topographic elevation increases. The wetland area is located at the east end of airport property adjacent to Maryland State Route 235 and the Wildewood Shopping Center.



Wetland G is the second largest wetland area at 7.82 +/- acres. It is located east of Lawrence Hayden Road and off the east end of Runway 11-29. This location transitions from a series of open fields, which are disturbed areas as a result of airport and road construction, into PFO wetlands. Hydrology for this forested area is from surface flow and Spring Brook and its tributary stream system.

The last wetland area, X, has been converted from a PFO type to a PEM wetlands ecosystem as the result of a vegetation clear-cutting operation completed in 2004. This clear cutting in wetlands was authorized by a Letter of Authorization issued December 17, 2001, by the Water Management Administration (WMA) of MDE. The purpose of the clear-cutting was to create a 500-foot clear zone around the radius of a newly installed Automated Weather Observing System (AWOS) at the airport. The wetland covers 0.36 +/- acres.

F. THE HUMAN ENVIRONMENT

This section presents an overview of the human (i.e., constructed) environment surrounding the Captain Walter Francis Duke Regional Airport. Factors addressed in this section include the population and growth characteristics of the airport service region: land use, zoning, noise-sensitive facilities, aircraft noise, cultural resources, and hazardous materials.

1. Population and Economy

St. Mary's County had previously been a remote rural county whose economy focused on fisheries, agriculture, and tourism. The county population is approximately 90,000. Population growth has been steady and constant for over 20 years. Between 1996 and 2001, St. Mary's saw the highest percent income increase for any county in Maryland due mainly to the influx of technical jobs resulting from the consolidation of several activities by the U.S. Navy.



The Patuxent River Naval Air Station (NAS) has shifted the economy to military and defense-related industries. The largest single employer is the NAS at 10,500 employees. Public sector jobs, primarily defense-related jobs, dominate county employment, with defense contractors forming the largest private sector category. The NAS is the central economic generator for the county, and any major economic changes in the area will be in relation to the air station. The top private sector employers are listed below in **Table 3-5**.

Table 3-5
Captain Walter Francis Duke Regional Airport
Major Employers in St. Mary's County

Name	Product or Service
DynCorp	Defense Engineering
St. Mary's Hospital	Healthcare
BAE Systems	Defense Engineering
Advanced Engineering Services	Defense Engineering
Eagan, McAllistar Associates, Inc.	Defense Engineering
Information Spectrum Inc.	Defense
St. Mary's College of Maryland	Education
Mantech Systems Engineering Corp.	Defense Engineering
Wal-mart	Retail
Food Lion	Retail

Source: St. Mary's County



2. Land Use, Zoning, and Noise-Sensitive Facilities

This section provides an overview of the land use, zoning, and noise-sensitive facilities located in the study area.

a. Existing Land Use

St. Mary's County has existing land use and zoning regulations. **Exhibit 3-10** depicts existing land use and environs surrounding the airport. Land use consists primarily of commercial and industrial areas, with pockets of residential use areas. The area around 2W6 is in transition from agricultural to commercial and residential uses. The residential areas lie mostly to the south in the development of Wildewood. This development is expected to grow, as is the commercial industrial area surrounding Hollywood.

The airport lies in an area zoned for commercial/industrial use that branches out from the Lexington Park/Hollywood corridor. It is surrounded by areas expected to develop that are currently wooded or agricultural. Residential zoned areas currently are buffered by these forests and farmlands.

It should be noted that this zoning and development plan for the county has created strong opposition within the community as it promises to increase impervious surfaces within several watersheds to an extent that could seriously affect water quality within the streams and the estuaries of the threatened Chesapeake Bay.



Exhibit 3-10
Land Use Map



b. Noise-Sensitive Facilities

Federal Aviation Regulations Part 150 and FAA Order 1051.1E provide guidelines for land use compatibility around airports with respect to noise. The Part 150 guidelines are presented in **Table 3-6**. Incompatible land uses generally include noise-sensitive facilities located within the DNL 65 or greater noise contours. Conversely, agricultural, commercial, and industrial uses are commonly compatible with aircraft noise.

3. Aircraft Noise

Although the comparison of the No Action and build alternatives is based on future conditions, existing aircraft noise exposure at the Captain Walter Francis Duke Regional Airport was analyzed to provide a point of reference for the analysis of the proposed action.

Aircraft noise impacts on the areas surrounding the airport were assessed through the use of the FAA's Integrated Noise Model (INM) Version 6.0c, a computer model used to simulate and average annual day aircraft noise impacts. The INM provides noise contours based on input of an airport's activity levels, fleet mix, flight tracks, and runway utilization patterns. For this EA the year 2003 was used as the existing or base year.

a. Aircraft Operations

Aircraft operations data include annual aircraft activity levels, fleet mix, stage lengths, and operations by time of day. Existing operational counts (as presented in Chapter 1, Purpose and Need) used to produce the existing noise contours are shown in **Table 3-7**. **Table 3-8** provides the fleet mix and percentage of use per aircraft associated with the operational data.



**Table 3-6
Captain Walter Francis Duke Regional Airport
FAR Part 150 Sound Exposure/Land Use Compatibility Guidelines**

Land Use	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N ¹	N ¹	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N ¹	N ¹	N ¹	N	N
Public Use						
Schools	Y	N ¹	N ¹	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y ²	Y ³	Y ⁴	Y ⁴
Parking	Y	Y	Y ²	Y ³	Y ⁴	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y ²	Y ³	Y ⁴	N
Retail trade--general	Y	Y	25	30	N	N
Utilities	Y	Y	Y ²	Y ³	Y ⁴	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y ²	Y ³	N	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y ⁶	Y ⁷	Y ⁸	Y ⁸	Y ⁸
Livestock farming and breeding	Y	Y ⁶	Y ⁷	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y ⁵	Y ⁵	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables	Y	Y	25	30	N	N

Key:

SLUCM = Standard Land Use Coding Manual

Y(Yes) = Land Use and related structures compatible without restrictions.

N(No) = Land Use and related structures are not compatible and should be prohibited.

NLR = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35 = Land use and related structures generally compatible; measures to achieve NLR of 25, 30 or 35 dB must be incorporated into design and construction of structure.

Notes:

¹ Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB; thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

² Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas or where the normal noise level is low.

³ Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas or where the normal noise level is low.

⁴ Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas or where the normal noise level is low.

⁵ Land use compatible provided special sound reinforcement systems are installed.

⁶ Residential buildings require an NLR of 25.

⁷ Residential buildings require an NLR of 30.

⁸ Residential buildings not permitted.

Source: Federal Aviation Regulations 14 CFR Part 150, effective January 18, 1985.



Table 3-7
Captain Walter Francis Duke Regional Airport
Existing Operations

Aircraft Type	Annual Operations
General Aviation (Local)	30,617
General Aviation (Itinerant)	19,905
Rotor (Civilian)	507
Airline (Air Taxi)	0
Military	0
TOTAL:	51,029

Source: Airport Master Plan Update, 2002.

Table 3-8
Captain Walter Francis Duke Regional Airport
Fleet Mix – Percent Use (Representative Aircraft for INM)

Aircraft Type	Percent Use
General Aviation (Local)	
Single Engine	93%
Twin Engine	7%
General Aviation (Itinerant)	
Cessna 178/182	91.3%
Cessna 441	5.7%
Beech King Air 90	3.0%
Rotor (Civilian)	
Dauphin	100%
Airline (Air Taxi)	0%
Military	0%

Source: Delta Airport Consultants, Inc.

b. Flight Tracks and Runway Use

Airport operational assumptions include information on flight tracks and annual average runway use. A flight track is a projection on the ground of an aircraft's path in the sky. Because of meteorological conditions, aircraft types, destinations, and pilot judgment, no two are the same. In addition, flight tracks and runway use may change during periods of adverse weather conditions, navigational problems,



communications, or radar outages. The existing use of airport runways is important in determining where aircraft are flying and what flight tracks pilots are following. Local airport management is typically the best source for this information at an airport such as 2W6.

c. Aircraft Noise Contours

The INM was used to depict the DNL 65, 70, and 75 contours for existing operations at the Captain Walter Francis Duke Regional Airport. As shown on **Exhibit 3-11**, the entire DNL 65 contour is contained on airport property. No people or homes are exposed to existing noise levels of DNL 65 or greater.

4. Air Quality

All states must designate each area within their borders with the National Ambient Air Quality Standards (NAAQS) as a requirement of the Clean Air Act Amendments (CAAA) of 1990. The EPA defines ambient air within CFR 40, Part 50, as “that portion of the atmosphere, external to buildings, to which the general public has access.” The NAAQS were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the EPA has issued NAAQS for six criteria pollutants: carbon monoxide (CO), sulfur oxides (SO_x), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), and lead (Pb).

The NAAQS are classified as primary or secondary. Primary standards are designed to protect sensitive segments of the population from adverse health effects, with an adequate margin of safety, which may result from exposure to criteria pollutants. Secondary standards are designed to protect human health and welfare and therefore, in some cases, are more stringent than the primary standards. Human welfare is considered to include the natural environment (vegetation) and the constructed environment (physical structures).



Exhibit 3-11
Noise Contours



Regions that comply with the NAAQS are designated as “attainment” areas. However, areas that do not meet the NAAQS are designated from marginal to extreme “non-attainment” areas.

Under the Clean Air Act (CAA) and associated amendments, state and local air pollution agencies have the authority to adopt and enforce ambient air quality standards (AAQS) more stringent than the NAAQS. The state of Maryland adopted the NAAQS. The Captain Walter Francis Duke Regional Airport is located in an attainment area for all the criteria pollutants and operations do not currently exceed NAAQS.

5. Cultural Resources

This section presents an overview of cultural resources at the Captain Walter Francis Duke Regional Airport and the surrounding area. Cultural resources include historic properties, defined in the National Historic Preservation Act as “any prehistoric or historic district, site building, structure or object included in or eligible for inclusion on the National Register, including artifacts, records, and material remains related to such a property.” There are currently no listed cultural resources including historic properties on airport property.

6. Department of Transportation Act, Section 4(f) Lands

Section 4(f) of the Department of Transportation Act provides that the secretary of transportation shall not approve any program or project that requires the use of any publicly owned park or other protected resource unless there is no feasible and prudent alternative to the use of such land, and that such a program or project should include all possible planning to minimize any adverse effects resulting from the use of land. Section 4(f) lands include public parks; recreation areas; or land that is a historic site of national, state, or local significance as determined by the officials having jurisdiction.



According to Order 1050.1E, Appendix A, Section 6.2.e, “for section 4(f) properties, the initial assessment will determine whether the requirements of section 4(f) are applicable. When there is an actual physical taking of lands being used for park or other purposes in conjunction with a project, there is generally no latitude for judgment regarding 4(f) applicability. Use within the meaning of section 4(f) includes not only actual physical takings of such land, but also adverse indirect impacts (constructive use) as well. When there is no physical taking, but there is the possibility of constructive use, the FAA must determine if the impacts would substantially impair the 4(f) resource. If there would be no substantial impairment, the action would not constitute a constructive use and would not therefore invoke section 4(f) of the DOT Act.”

There are currently no listed 4(f) properties on or adjacent to airport property, or within the proposed project area.

G. CONTEMPLATED FUTURE ACTIONS

In accordance with FAA Order 5050.4A, any planned development project that is not included in the alternatives section of an EA should be described to show its relationship to the proposed action and to show that the sponsor’s intentions regarding the National Environmental Policy Act (NEPA) documentation for the project are considered. Other past, present, and reasonably foreseeable projects, both on and off-airport, that were considered for the potential to generate cumulative impacts are discussed in this section.

1. On-Airport Projects

According to the most recent Master Plan Update (2002) and Capital Improvement Plan (CIP) for 2W6, on-airport construction projects include proposed actions in this EA. The past projects completed at the airport each were an independent activity but have a collective impact as a group. Projects completed in the past three years at 2W6 are listed in **Table 3-9**.



Table 3-9
Captain Walter Francis Duke Regional Airport
Airport Projects (completed in past 3 years)

Project	Year
Completion of perimeter fencing	2002
Approval of use of MAA funding for non-FAA airfield signage	2002
Elimination of perimeter access points	2002
Voluntary Fly-Quiet Program	2002
Airport Advisory Committee re-established with first meeting	2002
Airspace protection included in local Zoning Ordinance update for Airport Environs	2002
Standardized tie-down and hangar leases	2003
Development Review Procedures updated for proposals to build at airport	2003
Proximity Card Reader system installation	2003
activation	2005
Runway painting performed by MAA	2003
GCO / RCO installed	2004
Fee simple acquisition of 6.7 acres of property for 50,000 square feet of new hanger construction by others (Airport Property Map was updated) and future perimeter road per ALP	2004
Economic Impact Study	2004
Terrorism Risk Insurance included in County budget	2004
On-line St. Mary's Airport Users Forum developed	2004
Integrated Airport with Countywide Emergency Operations Plan	2004
FAA designated airport as high priority for evaluation of GPS WAAS approach vertical guidance and upgrade	2004
Environmental Assessment Grant	2004
Revised ALP	2004
AWOS Commissioning	2005
USDA Wildlife Assessment	2005
Security Cameras at 24 hour access points purchased with Homeland Security monies	2005
Chamber of Commerce located at Terminal Building	2005
Tie-down replacement	2005
Replacement of REILS	2005
Painted tie-down designations	2005
Taxiway, Ramp, and Runway Crack Sealing	2005
Wildlife Hazard Assessment by USDA	2005

Source: St. Mary's County, Department of Public Works and Transportation



2. Off-Airport Projects

Off-airport construction projects that have been initiated or are anticipated within the next five years were identified by the St. Mary's County Department of Land Use and Growth Management. These projects, listed in **Table 3-10**, were considered for purposes of analyzing possible cumulative impacts.

Table 3-10
Captain Walter Francis Duke Regional Airport
Off-Airport Projects (anticipated within 5 years)

Project	Status
California Woods at Myrtle Point – Residential development (~300 houses); will entail addition of several traffic lights	In progress
Residential development (300+ houses) – St. John's Road	In progress
Wildwood Elementary School	Under negotiation
Residential development – Indian Bridge Rd.; include new intersection at Rt. 4 and Indian Bridge Rd.	Requested
Shopping Center – intersection of Rt. 235 & Rt. 4; demolish existing trailer park and stores	Requested
Shopping Center – Northeast of Rt. 235, behind Cheney Mining Center	Requested

Source: St. Mary's County Department of Land Use and Growth Management, 2005

As the airport is owned by St. Mary's County Department of Public Works and Transportation all airport development is coordinated through the county. Cumulative impacts from both on and off airport property projects will be minimal as proposed development is in accordance with the county's comprehensive plan. Alterations to roads and traffic patterns, due to new housing, commercial, and/or industrial development will be completed as necessary, and will be in compliance with local, state, and federal regulations. In addition, the use of best management practices during the construction of these projects will minimize the short-term impacts from erosion/sediment control, dust control, and other earth-disturbing activities.



Chapter Four
ENVIRONMENTAL CONSEQUENCES

This chapter presents the analysis of environmental consequences associated with the project alternatives retained for detailed consideration, as described in Chapter 2. Also, as noted in Chapter 2, the individual projects making up each build alternative stand alone; thus they may be accomplished separately from the others without additional adverse environmental impacts. Potential environmental impacts were analyzed and identified for the following alternatives:

- **Alternative 1 – No Action:**
Under the No Action alternative, no substantial changes would be made to the existing airport, although maintenance activities would continue, and actions not requiring formal NEPA documentation could be implemented. The operational issues, environmental impacts, and ability to meet project needs for Alternative 1 are described in this chapter.
- **Alternative 2 – Maintain ARC B-II (small) – Achieve FAA Design Standards:**
Alternative 2 would provide projects to bring the airport into compliance with FAA design standards and improve the overall safety of the airport while maintaining its current Airport Reference Code (ARC) of B-II (small).
- **Alternative 3 – Develop to Serve ARC B-II (large), Including 1,200’ Runway Extension:**
Alternative 3 would provide the airport with all improvement projects included in Alternative 2, with additional obstruction removal, a runway extension and associated projects, hangar development, and apron expansion.

FAA Orders 5050.4A, *Airport Environmental Handbook*, and 1050.1E, *Environmental Impacts: Policies and Procedures*, require the evaluation of airport development projects as they relate to specific environmental impact categories. In addition, the orders outline types of impacts and



thresholds that determine whether an impact is made through calculation, measurement, or observation. In other instances, impact is established through correspondence with appropriate federal, state, or local agencies.

The following sections provide an assessment of the environmental consequences of the proposed project and its alternative with respect to 21 impact categories:

- Aircraft Noise
- Compatible Land Use
- Social Impacts (including Environmental Justice)
- Induced Socioeconomic Impacts
- Air Quality
- Water Quality
- Department of Transportation Act, Section 4(f) Lands
- Historic, Architectural, Archaeological, and Cultural Resources
- Biotic Communities
- Endangered and Threatened Species of Flora and Fauna
- Wetlands
- Floodplains
- Coastal Zone Management Programs and Coastal Barriers
- Wild and Scenic Rivers
- Farmlands
- Energy Supply and Natural Resources
- Light Emissions
- Solid Waste Disposal
- Construction Impacts
- Hazardous Materials
- Cumulative Impacts

A. AIRCRAFT NOISE

Noise is typically the most significant off-airport environmental impact associated with airport operations. The impact is a direct result of the number and types of aircraft operating at the facility. Appropriate compatible land use planning, however, assists in controlling potential noise impacts. The most frequently used strategies for airports to achieve a high level of



compatibility with surrounding areas include the purchase of land and/or easements, as well as the actual changing of land uses from noise-sensitive to noise-tolerant areas.

Noise contours were developed for the Captain Walter Francis Duke Regional Airport utilizing FAA Integrated Noise Model (INM) version 6.0c. The contours were developed for 2003 (existing) and 2008 (future) conditions, with and without the proposed development.

Projected aircraft noise exposure in the airport environs is described in this section, as well as the potential effects of the project alternatives in terms of aircraft noise exposure.

1. Summary

Aircraft noise exposure in the airport environs was analyzed for existing and future conditions (under each alternative) in accordance with the methodology for preparing aircraft noise exposure maps contained in FAA Order 1050.1E. The proposed improvements at 2W6 that have potential to create higher noise levels are the extension to Runway 11 and the construction of a parallel taxiway.

The projected annual aircraft operations for 2008 are provided in **Table 4-1**. **Table 4-2** provides the fleet mix and percentage of use by representative aircraft in 2008. Total projected annual aircraft operations for 2008 will remain the same regardless of the alternative.

The generalized flight tracks (arrival and departure flight tracks) will not be affected by Alternatives 1, 2, or 3, and will remain unchanged throughout the forecast period.

Under each of the alternatives considered, aircraft noise levels are expected to increase slightly between the base year (2003) and 2008, as a result of the projected increase in operations. The FAA's threshold of impact is DNL 65. Below DNL 65 all land uses are



considered compatible. The FAA's threshold of significance, according to Order 1050.1E, paragraph 14.4d, Appendix A, has been determined to be a 1.5 decibel (dB) increase in noise over any noise-sensitive area located within the DNL 65 contour or 3 dB increase within the DNL 60-65 contours. There are no noise impacts in the existing scenario as the contours remain on airport property, and none are anticipated for any of the alternatives under consideration.

Table 4-1
Captain Walter Francis Duke Regional Airport
Projected Annual Aircraft Operations (2008)

Aircraft Type	Annual Operations
General Aviation (Local)	32,519
General Aviation (Itinerant)	21,138
Rotor (Civilian)	542
Airline (Air Taxi)	0
Military	0
TOTAL	54,199

Source: Master Plan Update, 2002
Delta Airport Consultants, Inc.

Table 4-2
Captain Walter Francis Duke Regional Airport
2008 Fleet Mix – Percent Use

Aircraft Type	Percent Use	
	Alternatives 1 & 2	Alternative 3
General Aviation (Local)		
Single Engine	92.6%	92.6%
Twin Engine	7.4%	7.4%
General Aviation (Itinerant)		
Cessna 178/182	87.8%	87.8%
Cessna 441	6.3%	6.3%
Beech Super King	5.9%	3.5%
Air 200		
Citation II	0%	1.4%
Sabreliner	0%	1.0%
Rotor (Civilian)		
Dauphin	100%	100%
Airline (Air Taxi)	0%	0%
Military	0%	0%

Source: Delta Airport Consultants, Inc.



2. Methodology

The FAA's INM version 6.0c was used to prepare aircraft noise contours to evaluate potential aircraft noise effects under each alternative of this EA. The INM is a computer program used to determine the total effect of aircraft noise in an airport environment. The INM produces noise contours, which are computer-generated lines that connect points of equal noise levels resulting from aircraft operations.

The FAA specifies metrics to be used in measuring aircraft noise. The metric used in this analysis is DNL. DNL is the day-night average cumulative sound level that provides a measure of the total sound energy during a 24-hour period. A 10 dB weighting penalty is added to aircraft noise occurring during the nighttime hours (between 10:00 pm and 7:00 am). The 10 dB penalty represents the added intrusiveness of noise events that occur during normal sleep hours when ambient sound levels are typically about 10 dB lower than during daytime hours, because of the annoyance associated with sleep disruption.

Estimates of noise effects resulting from aircraft operations can be interpreted in terms of the probable effect on human activities characteristic of specific land uses. FAR Part 150 guidelines for evaluating land use compatibility with noise exposure were presented in Table 3-6. These guidelines reflect the average response of large groups of people to noise. Therefore, the guidelines might not reflect an individual's perception of an actual noise environment or a specific noise event. Compatible or non-compatible land use is determined by comparing the predicted or measured DNL at a specific site with the compatibility guidelines provided in the table. The INM was used to produce aircraft noise contours for DNL 65, 70, and 75. The FAA considers DNL 75 and higher incompatible with most land uses and DNL 65 compatible with most land uses. Furthermore, some land uses are considered compatible with noise levels within DNL 65 and 75. All land uses are considered to be compatible with noise levels lower than DNL 65.



3. Environmental Impacts

To estimate the potential effects of aircraft noise on noise-sensitive land uses under Alternatives 1, 2, and 3, noise exposure maps were prepared for forecast aircraft operations for 2008. The impact area for noise impacts consists of the areas that would be exposed to DNL 65 or greater as a result of conditions considered under all alternatives. Currently, all residential and noise-sensitive facilities are outside the DNL 65 and will remain outside the DNL 65 contour for each of the considered development alternatives.

a. Alternative 1

This alternative would not result in the construction of new airfield facilities or new or modified airport facilities. The noise contours for this alternative as projected for 2008 are shown on **Exhibit 4-1**.

b. Alternative 2

Alternative 2 involves the shift and extension of Taxiway A to meet FAA design standards. The noise contours for Alternative 2 in 2008 are shown on **Exhibit 4-2**.

The contours for Alternative 2 remain very similar to those of Alternative 1, as there was no change to the runway or fleet mix. There will be no significant noise impacts on residential property or noise-sensitive facilities from this alternative. All noise impacts equal to and exceeding DNL 65 will remain on existing airport property.



Exhibit 4-1
No Action 2008



Exhibit 4-2



c. Alternative 3

Alternative 3 involves the extension of Runway 11 by 1,200 feet and relocation and extension of Taxiway A to the east. The noise contours for Alternative 3 in 2008 are shown on **Exhibit 4-3**.

As shown on the exhibit, there will be no significant noise impacts on residential property or noise-sensitive facilities from this alternative. A small portion of the DNL 65 contour extends beyond airport property north of Runway 29. However, the adjacent land use is compatible with the DNL 65 contour.

4. Mitigation

In consideration of the criteria specified in FAA Order 1050.1E and FAR Part 150, no impacts requiring mitigation are anticipated from aircraft noise as a result of the implementation of the sponsor's proposed action.



Exhibit 4-3
Alternative 3 2008



B. COMPATIBLE LAND USE

The primary factor defining land use compatibility between airports and the surrounding community is typically aircraft noise. However, 2W6 must also maintain compatibility from an operational standpoint as well. Guidelines within FAA Orders 150/5300-13, Airport Design, and FAR Part 77, suggest that all existing and planned airport elements, including the following, should be on airport property or property in which the sponsor has acquired an appropriate interest to prevent incompatible land uses: (A) Object Free Areas; (B) Runway Protection Zones; and (C) areas under FAR Part 77 imaginary surfaces where the surfaces obtain a height of at least 35 feet above the primary surface.

From an environmental perspective, all land uses are considered to be compatible with noise levels lower than DNL 65. Accordingly, the analysis of existing and planned land use focuses on areas within the DNL 65 contour for considered alternatives. No significant compatible land use impacts with respect to aircraft noise levels would result from the implementation of either build alternatives, as the DNL 65 contour is within existing airport property boundaries.

The FAA prefers that the airport owner control the defined Runway Protection Zone (RPZ) area to enhance the protection of people and property on the ground. The county currently holds sufficient property interest in the RPZ areas for Runways 11 and 29; however, proposed RPZs extend off existing airport property. Therefore, property interest acquisition is proposed to gain control over these extended RPZs.

Alternatives 2 and 3 do not involve the acquisition or relocation of residential properties; however, portions of six commercial/industrial properties would be acquired in fee simple for RPZ control and road relocation. Because the acquisition of these properties would not require the relocation of any businesses, no significant impacts are anticipated.



The two development alternatives would also require avigation easement acquisition over 13 commercial/industrial and residential properties to eliminate incompatible land uses and/or potential obstructions in the future, as shown on Exhibits 2-5 and 2-6.

C. SOCIAL IMPACTS (including Environmental Justice)

According to FAA Order 1050.1E, the principal social impacts of an alternative to be considered in an environmental assessment are as follows: (1) the relocation of residences and/or businesses; (2) alterations of surface traffic patterns; (3) disruption of established communities; (4) diversion of orderly, planned development; and (5) creation of an appreciable change in employment.

Guidelines for evaluating social impacts are presented in Executive Order No. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Population*. The three general purposes of this executive order are to: (1) focus federal agency attention on human health and environmental conditions in minority and low-income communities with a goal of achieving environmental justice; (2) foster non-discrimination in federal programs that substantially affect human health or the environment; and (3) give minority and low-income communities greater opportunities for public participation in, and access to public information on matters relating to human health and the environment. The evaluation of environmental justice must determine if the proposed project would cause a “disproportionate impact” to minority and/or low-income populations.

Should properties be affected, requirements set forth in the Uniform Relocation Assistance and Real Property Acquisition Policies Act (the Uniform Act) of 1970 would be met. As stated in FAA Advisory Circular 150/5100-17, *Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects*, “It is the sponsor’s obligation under the Uniform Act to provide an adequate relocation assistance program that insures prompt and equitable relocation and reestablishment of persons displaced as a result of its federally assisted airport projects.”



1. Summary

To determine the social impacts of the alternatives evaluated, a “Survey of Social and Economic Impacts of Proposed Improvements” at the airport was conducted by Regenesis during 2004 (see **Appendix F**). The survey concluded that there would be no significant social impacts based upon the sponsor’s proposed action.

2. Environmental Impacts

- The relocation of residences and/or businesses; diversion of orderly, planned development –

Construction of Alternative 2 or 3 would not require the acquisition or relocation of any residences; however, easement acquisition is required over eight industrial/commercial and five residential properties.¹ Properties recommended for fee simple acquisition in the two build alternatives would be for the purpose of gaining the required property interest to prevent incompatible land uses in the RPZ for Runways 11 and 29. Easement acquisition is proposed to clear existing obstructions and/or to prevent obstructions in the future. None of the properties to be acquired or eased would affect minority or low-income populations.

- Alterations of surface traffic patterns –

Alternative 2 would require a slight realignment of Airport Drive. Alternative 3 would also require this realignment, as well as moving Lawrence Hayden Road approximately 700 feet to the west, and construction of an additional airport access road. The relocation of Lawrence Hayden Road under Alternative 3 will slightly alter existing traffic patterns. The inclusion of an additional right-angle turn in Lawrence Hayden Road and the elimination of direct access from Huckleberry Way

¹ Project plan presented by Delta Airport Consultants at airport Public Meeting, May 24, 2004. (Regenesis)



onto Lawrence Hayden Road may have a slowing effect on traffic; however, the impacts of these changes will be insignificant.

Flights were forecast in the Master Plan Update to increase by 7,200 operations (17%) for single-engine small planes over 12 years. This increase would primarily be composed of small planes for recreational users. Although the percent increase is significant, the proportion of surface traffic contributed by the airport to the Hollywood/California/Lexington Park area would remain small².

- Disruption of established communities –

Possible community disruptions come from 1) noise, 2) traffic, and 3) air emissions. Noise is addressed in Section A of this chapter. Based on interviews with four Wildewood residents (development adjacent to the airport), noise is noticeable at times, but generally not an issue. Small jets, and the potential for increased numbers of jets, are a noise concern.

There will be no significant disruption of existing communities due to traffic, as surface traffic patterns are not expected to change. The airport road feeds onto the main highway and into well-developed areas of the towns of California and Lexington Park, thus disruption of any communities is expected to remain minimal after full implementation of the sponsor's proposed action.

Regarding air emissions, the small projected increase in number of flights, and in size of aircraft will have no significant impact on air quality. Air quality is addressed in Section E of this chapter.

² Visual assessments of area, May 2004 (Regenesis)



- Creation of an appreciable change in employment –
Employment at the airport is not expected to increase. Currently the airport is understaffed, and any project changes will simply restore employment to normal levels--one airport manager.
- Environmental justice: “disproportionate impact” to minority and/or low- income populations –
Disproportionate impacts upon minority and/or low-income populations based on local demographics are not anticipated with any of the considered alternatives.

The California and Lexington Park greater municipal areas, including the airport and extending approximately seven miles to the south, have marginally lower income levels than the rest of the county (20.6% of households below \$25,000/year income level, versus 18.2% county-wide) and are slightly more racially diverse (30% minority versus 18%)³. These trends, which may be due to a greater extent of urbanization and development in the area, did not drive location of the airport near this area.

Looking at specific neighborhoods near the airport, the Wildewood development is considered a preferred community to live in based on several resident interviews. There is one lower-income area (trailer park) further away from the airport near Lexington Park, which is not expected to experience any impact from the sponsor’s proposed action or other alternatives.

Future development in the airport area is expected as higher-cost home development and retail/commercial expansion along the highway continues.

³ Calculated from data and charts found in Lexington Park Development District Concept Plan, St. Mary's County, March 2004 draft, Chapter 2



3. Mitigation

As neither the sponsor's proposed action nor the alternatives would require the relocation of residences or businesses, significantly change surface traffic patterns, disrupt established communities or planned development, or create an appreciable change in employment, no mitigation measures would be required.

D. INDUCED SOCIOECONOMIC IMPACTS

FAA Order 5050.4A defines induced socioeconomic impacts as “shifts in patterns of population movement and growth, public service demands and changes in business and economic activity to the extent influenced by the airport development.” The order also states that induced socioeconomic impacts will normally not be significant except where there are also significant impacts in other categories, especially noise and land use, or direct social impacts.

Construction of Alternative 2 or 3 would not require the acquisition of any residences. Neither alternative would result in material changes in the patterns of population movements or growth in public service demands. Accordingly, no mitigation measures would be required, with the exception of the provisions set forth in the Uniform Act.

E. AIR QUALITY

As noted in Chapter 3, the United States Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS) to protect public health, the environment, and the quality of life from air pollution. The standards are set for what are referred to as the “criteria” air pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), and sulfur oxides, (SO). The NAAQS standards are provided in **Table 4-3**.



Table 4-3
U.S. Environmental Protection Agency
National Ambient Air Quality Standards

Pollutant	Averaging Period	Primary Standards	Secondary Standards
Carbon monoxide (CO)	8-hour ¹	9 ppm (10 mg/m ³)	None
	1-hour ¹	35 ppm (10 mg/m ³)	None
Lead (Pb)	Quarterly average	1.5 µg/m ³	Same as Primary
Nitrogen dioxide (NO ₂)	Annual Arithmetic Mean	0.053 ppm (100 µg/m ³)	Same as Primary
Ozone (O ₃)	8-hour ⁵	0.08 ppm	Same as Primary
	1-hour ⁶	0.12 ppm	Same as Primary
Particulate matter (PM ₁₀)	Annual ² Arithmetic Mean	50 µg/m ³	Same as Primary
	24-hour ¹	150 µg/m ³	
Particulate matter (PM _{2.5})	Annual ³ Arithmetic Mean	15 µg/m ³	Same as Primary
	24-hour ⁴	65 µg/m ³	
Sulfur Oxides (SOx)	Annual Arithmetic Mean	0.03 ppm	
	24-hour ¹	0.14 ppm	
	3-hour ¹		0.5 ppm (1300 µg/m ³)

¹ Not to be exceeded more than once per year.

² To attain this standard, the expected annual arithmetic mean PM₁₀ concentration at each monitor within an area must not exceed 50 µg/m³.

³ To attain this standard, the 3-year average of the annual arithmetic mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15 µg/m³.

⁴ To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 µg/m³.

⁵ To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

⁶ (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤, 1, as determined by appendix H.

(b) The 1-hour NAAQS will no longer apply to an area one year after the effective date of the designation of that area for the 8-hour ozone NAAQS. The effective designation date for most areas is June 15, 2004. (40 CFR 50.9; see Federal Register of April 30, 2004 (69 FR 23996).

ppm = parts per million by volume

mg/m³ = milligrams per cubic meter of air

µg/m³ = micrograms per cubic meter of air

Source: U.S. Environmental Protection Agency

In accordance with the Clean Air Act (CAA), all areas within the state of Maryland are designated with respect to the NAAQS as either attainment, non-attainment, or unclassifiable. An area with air pollutant levels lower than the NAAQS is designated attainment; an area with



air pollutant levels higher than the NAAQS is designated non-attainment. An area may be designated unclassifiable when there is a lack of data to form a basis of attainment status.

1. Existing Air Quality

Meteorological Conditions

Chapter 3 of this EA addresses climatic variables as they relate to the operation of the airport's runways. Meteorological conditions also affect levels of air pollutants. The factors that affect air pollution include the following:

- Temperature
- Horizontal wind speed and direction, including local meteorological winds such as sea breezes, mountain/valley upslope/downslope winds, and urban/rural circulations
- Atmospheric stability, which affects the dilution rate of pollutants

Based on historical air monitoring data, St. Mary's County, has been designated as an attainment area for all of the criteria pollutants. The general conformity requirements of the CAA do not apply to the project, and no further action is necessary.

Airport-Related Sources of Air Pollutant Emissions

Airport-related sources of air pollutants include aircraft, ground support equipment (GSE), auxiliary power units, motor vehicle operations, construction activities, and on-site stationary sources.

Exhaust gases from aircraft engines are predominantly composed of nitrogen, oxygen, and water vapor, which are compounds that normally are not considered air pollutants. To a lesser extent, aircraft emit CO, nitrous oxides (NO_x), particulate matter (PM), and volatile organic compounds (VOC), including hydrocarbons (HC) and sulfur oxides (SO_x). The amount of pollutants emitted depends on many factors, such as engine type,



aircraft type, and operational mode. The four operational modes of aircraft are taxi/idle, approach, climb-out, and takeoff.

Airport configurations affect emissions as well. Airport capacity and operational profiles are directly related to the time spent in each operational mode. In addition, the physical and meteorological characteristics of the airport are significant, as wind patterns, altitude, and temperature affect the amount and dispersion of emissions.

Motor vehicle emissions contribute to the total amount of CO, NO_x, PM, VOC, and SO_x in an airport emissions inventory. The emissions are a function of traffic volume, roadway conditions, distance traveled, motor vehicle fleet characteristics and meteorological circumstances. On-site motor vehicle activity arises from passenger, employee, and cargo vehicles using airport roadways and parking lots. Off-site airport traffic is fundamentally indistinct from non-airport motor vehicle traffic, as it enters all parts of the regional roadway network.

GSE and support vehicles are much like motor vehicles, as their emissions depend on fuel consumption and distance traveled. Thus, emissions from GSE depend on the airport layout and vehicle energy efficiency. This type of equipment includes tow tugs, tractors, belt loaders, and military ground equipment.

There are various stationary and point sources found at airports. Fuel storage and transfer facilities are potential sources of VOC/HC emissions. Usually, these emissions are low because of containment vessels. However, emissions from these sources vary with tank type, fuel type, fuel throughput volume, ambient temperature, and the presence or absence of a vapor recovery system. Indoor heating units and water reduction facilities are also point sources. Such facilities typically operate conforming to regulatory permits, which limit air emissions. In addition, training fires are treated as point sources.



Dust and particulate emissions may occur temporarily at airports during construction and land-clearing activities. Erosion control measures are typically taken to minimize these fugitive dust and particulate emissions. Construction equipment and vehicles also emit CO, NO_x, PM, VOC/HC, and SO_x.

Table 4-4 provides a summary of the sources and types of air emissions associated with each source.

2. Summary

The proposed improvements at 2W6 that represent the potential to increase air pollutant emissions over the long term are the rehabilitation and extension of Runway 11-29 and the construction of a full parallel taxiway. Emissions from other airport-related sources are independent of the proposed improvements, as the number of aircraft operations remains the same regardless of the project alternative selected (No Action or either of the build alternatives). To evaluate the effects of the rehabilitation and extension of Runway 11-29 on air quality, air pollutant emission inventories were prepared for existing (2003) and future (2008) development alternatives.



Table 4-4
Captain Walter Francis Duke Regional Airport
Airport-Related Sources of Air Emissions

Sources	Emissions	Characteristics
Aircraft	<ul style="list-style-type: none"> • CO • NO_x • PM • SO_x • VOC 	Exhaust products of fuel combustion that vary greatly depending on aircraft engine type, power setting, and period of operation. Aircraft altitude precludes measurable offsite ground-level effects from aircraft at an altitude of 3,000 feet or more.
Motor vehicles	<ul style="list-style-type: none"> • CO • NO_x • PM • SO_x • VOC 	Exhaust products of fuel combustion from patron traffic approaching, departing, and moving about the airport site. Emissions fluctuate with vehicle type, distance traveled, operating speed, and ambient conditions. Onsite emissions are confined to access/egress roadways and parking facilities. Offsite emissions are often indistinguishable from those of background traffic.
Ground support equipment and vehicles	<ul style="list-style-type: none"> • CO • NO_x • PM • SO_x • VOC 	Exhaust products of fuel combustion from service trucks, tow tugs, belt loaders, and other portable equipment.
Fuel storage and transfer facilities	<ul style="list-style-type: none"> • VOC 	Emissions formed from the evaporation and vapor displacement of fuel from storage tanks and fuel transfer facilities. Emissions vary with fuel use, storage tank type, refueling method, fuel type, vapor recovery, and meteorology.
Space heating and incineration facilities	<ul style="list-style-type: none"> • CO • NO_x • PM • SO_x • VOC 	Exhaust products of fossil fuel combustion from boilers dedicated to indoor heating requirements and emissions from incinerators used for waste reduction. These sources are often permitted through a regulatory agency.
Construction activities	<ul style="list-style-type: none"> • CO • NO_x • PM • SO_x • VOC 	Exhaust products of fuel combustion from construction equipment and vehicles; dust (e.g., soil and concrete) generated during construction and land-clearing activities released into the air by wind and machinery.

Source: Environmental Science Associates, 2002.



3. Methodology

The air quality analysis was performed using the EPA- and FAA-required Emissions and Dispersion Modeling System (EDMS - Version 4.2). The EDMS incorporates airport data related to the aircraft fleet mix, number of operations, and taxi/idle times in mode that are specific to 2W6. **Table 4-5** provides the results of the EDMS model. Airport data used and the EDMS outputs for this analysis can be reviewed in **Appendix G**.

Table 4-5
Captain Walter Francis Duke Regional Airport
Aircraft-Related Emissions

Year	Alternative	Source	Emissions (tons per year)*							
			CO	THC	NMHC	VOC	NO _x	SO _x	PM-10	PM-2.5
2003	Existing	Aircraft	131.02	1.97	1.97	1.91	1.24	0.09	0.00	0.00
		GSE/APU	3.68	0.51	0.16	0.17	0.66	0.10	0.03	0.08
		Roadways	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Parking Lots	0.37	0.05	0.05	0.05	0.03	0.00	0.00	0.00
		Total	135.07	2.53	2.18	2.13	1.93	0.19	0.03	0.08
2008	1 & 2	Aircraft	141.64	6.19	6.19	6.38	1.45	0.11	0.00	0.00
		GSE/APU	7.57	0.92	0.29	0.30	0.77	0.11	0.03	0.07
		Roadways	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Parking Lots	0.36	0.05	0.05	0.05	0.03	0.00	0.00	0.00
		Total	149.57	7.16	6.53	6.73	2.25	0.22	0.03	0.07
2008	3	Aircraft	144.51	5.37	5.37	5.51	1.52	0.14	0.00	0.00
		GSE/APU	7.79	2.40	0.31	0.32	0.78	0.11	0.03	0.29
		Roadways	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Parking Lots	0.40	0.06	0.05	0.05	0.03	0.00	0.00	0.00
		Total	152.70	7.83	5.73	5.88	2.33	0.25	0.03	0.29

Note: * EDMS reports emissions to the thousandths place. The numbers were rounded to the hundredths place for reporting purposes.
Source: Delta Airport Consultants, Inc.

4. Environmental Impacts

Based on the results of the analysis, air pollutant emissions would increase from 2003 to 2008 as expected. Although operations remain static with each of the considered alternatives, fleet mix varies slightly in Alternative 3 from those of No Action and Alternative 2 due to additional jet operations. However, the change in emissions is not



considered significant, and therefore no alternative is considered to have an impact on regional air pollutant emissions.

5. Mitigation

2W6 is located in St. Mary's County, an area designated as an attainment area for all of the criteria pollutants. Therefore, the general conformity requirements of the CAA do not apply to the proposed project. Given the proposed projects, even if 2W6 were located in a non-attainment area, the estimated increase in pollutants would fall below the levels at which a determination of general conformity with a State Implementation Plan would be required.

Notably, there would be air pollutant emissions associated with construction of the proposed improvements. The level of emissions would vary depending on the type of equipment, meteorological conditions, and duration of the construction activity. However, the effects of these emissions can be considered short-term and local in nature and would not require mitigation.

F. WATER QUALITY

The Clean Water Act requires that airport proprietors establish water quality standards and control discharges into surface and subsurface waters. Particular concerns include the preservation of existing drainage; the protection of aquifers from fuel spills, discharge of deicing fluids, and aircraft washing runoff; and control of sedimentation and erosion during construction.

Operators of industrial plants, including airports, are required to obtain storm water permits under the 1987 amendments to the Clean Water Act. The National Pollutant Discharge Elimination System (NPDES) permit requires (1) submission of information regarding existing programs to control pollutants and (2) field screening of major outfalls to detect improper



discharges. All discharges of storm water runoff must be identified and characterized, including those containing deicing fluids, liquid fuels, and chemicals used for maintenance.

1. Summary

Proper construction and operation techniques, mitigation measures, and adherence to the NPDES permit would prevent significant impacts to water quality as a result of implementation of either build alternatives.

Although construction and operation activities could affect surface and ground water resources, most potential impacts would be avoided or minimized by the use of standard construction techniques and operational mitigation measures.

2. Methodology

The layout of the considered alternatives were examined to estimate potential affects on surface and ground water resulting from the short-term impacts of construction, as well as the long-term impact of maintenance and operational activities, stream modification, and increased storm water drainage of the various development projects.

3. Environmental Impacts

The area of impact for water quality impacts encompasses areas that could be affected by construction activity and waters receiving storm water runoff. Construction and operation of new airport facilities and other projects may have short- and long-term impacts on surface and ground water quality. Impacts would be minimized by the use of best management practices during construction and by following guidelines set forth in the NPDES permit.



a. Alternative 1

The No Action alternative would not result in construction or operation of any new or modified airport facilities. No impacts to surface or ground water would be anticipated. The existing impervious surfaces and resulting storm water runoff volumes would remain unchanged.

b. Build Alternatives (2 & 3)

In both build alternatives, construction and operation of development areas could have short- and long-term impacts on the ground and surface water resources described in Chapter 3, Section E.3.

Impacts that could occur as a result of the development include increased runoff, increased water degradation, and altered drainage patterns. Degradation of water quality might be due to fuel spills, lubricant leakage, and deicing runoff from increased aircraft operations.

Best management practices, such as proper erosion control, reseeding, and adherence to the NPDES permit, would be used during construction to minimize potential water quality impacts. Operational controls, as well as mitigation measures, would also be used to minimize potential water quality impacts. These practices and controls would facilitate water quality standards being met. Therefore, potential impacts to surface and ground water would not be significant.

4. Mitigation

Because standard design and operational measures would adequately prevent or mitigate any impacts, no additional mitigation measures are required.



G. DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(f) LANDS

Section 4(f) of the Department of Transportation Act provides that the secretary of transportation shall not approve any program or project that requires the use of any publicly owned park or other protected resource unless there is no feasible and prudent alternative to the use of such land, and that such a program or project should include all possible planning to minimize any adverse effects resulting from the use of land. Section 4(f) lands include public parks; recreation areas; or land that is a historic site of national, state, or local significance as determined by the officials having jurisdiction.

According to FAA Order 1050.1E, a significant impact would occur when a proposed action would eliminate or severely degrade the purpose of use for which the section 4(f) lands were established and mitigation would not reduce the impact to levels that would allow the purpose or use to continue.

In consideration of the criteria specified in Section 4(f) of the Department of Transportation Act, no impacts to a resource are foreseen as a result of the implementation of the sponsor's proposed action as no publicly owned park or other protected resource is located within or adjacent to the projects area of potential effect (APE).

H. HISTORIC, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Historic, architectural, archaeological, and cultural resources were reviewed for this EA in accordance with the National Historic Preservation Act of 1966 and the Archaeological and Historic Preservation Act of 1974.

The National Historic Preservation Act (NHPA) of 1966, as amended, establishes the National Historic Preservation Program, which includes directives for the identification, assistance, and



protection of historic properties. The NHPA also establishes the Advisory Council on Historic Preservation to advise the president and Congress on historic preservation matters, to recommend measures to coordinate federal historic preservation activities, and to comment on federal actions affecting properties included in or eligible for inclusion in the National Register of Historic Places (NRHP).

The Archaeological and Historic Preservation Act of 1974 requires the survey, recovery, and preservation of significant and prehistoric data that may be destroyed or irreparably lost as a result of federal, federally funded, or federally licensed projects.

1. Summary

An archaeological and architectural Phase I survey was performed by Coastal Carolina Research, Inc., to determine if any cultural, archaeological, or architectural resources existed within the project area. The study was done in compliance with Section 106 of the National Historic Preservation Act of 1966, and the Advisory Council on Historic Preservation's regulations for compliance with Section 106, codified as 36 CFR Part 800.

The APE for the archaeological survey consisted of 26 parcels within the 114-acre airport (portions of existing airport property not previously graded or constructed) and another 55 acres in its immediate vicinity that will be affected by the sponsor's proposed action. The survey of the potentially affected architectural resources included the airport buildings and resources adjacent to or visible from the APE.

During the architectural survey, only one resource older than 50 years (ca. 1950 house, located on the east side of Clarks Mill Road) was identified and recorded in the project area. The property was not recommended as eligible for the NRHP. No archaeological sites were identified during the survey. The study in its entirety can be reviewed in **Appendix H.**



2. Methodology

The scope of the surveys was consistent with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*, and the report of findings was prepared in accordance with the "Guidelines for Phase I Surveys, Phase II Testing, Phase III Mitigation, and Cultural Resource Reports," prepared by the Maryland Division of Culture and History, Historic Preservation Unit, dated 1991. The architectural and archaeological surveys were conducted during November and December 2004.

The cultural resources survey was designed to determine if archaeological or architectural resources that are on, or potentially eligible for, the NRHP are located within the APE. Resources were assessed against the criteria of eligibility for the NRHP in order to determine their potential for eligibility.

Due to the steep slopes and many prior surface disturbances in the project area, archaeological testing was limited. Subsurface testing was undertaken in a saddle between two steep hills near the airport entrance. Both hilltops had been disturbed by the installation of obstruction lights. During the survey shovel tests were employed. These test were generally 30 centimeters in diameter and were excavated into the subsoil or sterile soil with fill from them screened through 0.25-inch mesh screen. Records of the shovel tests were maintained and photographs were used to document the general conditions of the project area. The entire airport was visually inspected; however, all but one area near the entrance road had been graded or filled. The steeply sloping areas were not inspected.

Fieldwork for the architectural investigation was conducted by vehicle and on foot. All previously unrecorded buildings and structures adjacent to, or visible from the airport, or within the 65 DNL noise contours, that were 50 years old or older were recorded. A review of early soils maps at the county agricultural extension office indicated that only



one previously unrecorded building within the architectural APE was older than 50 years. A Maryland architectural form was completed for this house.

3. Environmental Impacts

The APE for historic, architectural, archaeological, and cultural resources involved the 26 parcels on the airport and 55 acres adjacent to the airport, including open areas, wooded slopes, and developed areas.

In accordance with 36 CFR, Section 800, the potential for the alternatives under consideration to alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP is assessed in the following sections.

a. Alternative 1

Alternative 1, the No Action alternative, would not materially alter the current conditions at 2W6. Accordingly, no significant impacts would occur.

b. Build Alternatives (2 & 3)

During the survey of the proposed improvements, one historic resource was recorded and no archaeological sites were located. The resource recorded did not retain those qualities that would meet the criteria for eligibility for the NRHP and was recommended as not eligible. The proposed improvements to 2W6 will have no effects on historic properties.



4. Mitigation

None of the alternatives under consideration will affect cultural resources. Accordingly, no mitigation would be required and no further archaeological work will be necessary. See Correspondence and Coordination in **Appendix I** for further details of this finding.

I. BIOTIC COMMUNITIES

Biotic communities may be directly or indirectly affected by aviation development and aviation activities. Specifically, development that affects existing watercourses or vegetation may alter wildlife habitat in the area, resulting in potentially significant impacts to flora and fauna.

1. Summary

To determine the presence of biotic communities or critical habitat, an on-site field investigation was conducted by Mill Creek Environmental Consultants, Ltd., on and in the vicinity of the 2W6. No endangered or threatened species or critical habitats were observed.

However, the Maryland Department of Natural Resources (MDNR) did suggest that the forested area within the project site contains Forest Interior Dwelling Bird (FIDS) habitat and offered guidelines to help minimize the project's impacts on FIDS and other native forest plants and wildlife. Correspondence is located in **Appendix I**.

2. Methodology

In conjunction with the wetlands study, Mill Creek Environmental Consultants, Ltd. also conducted a survey of listed endangered, threatened, or special concern (ETS) species of fauna or flora. The research took place on the airport property as well as thirty-six additional tracts of land that were identified as areas that could potentially be impacted as a result of



airport activities. This study was conducted from November 2003 through October 2004. Information from the U.S. Fish and Wildlife Service (USFWS) and the Maryland Department of Natural Resources, Wildlife and Heritage Division were used in addition to the field inspection to aid in the research. The report can be found in its entirety in **Appendix D**.

3. Environmental Impacts

a. Alternative 1

Alternative 1, the No Action alternative, would not materially alter the current conditions at 2W6. Accordingly, no significant impacts would occur.

b. Build Alternatives (2 & 3)

Both Alternatives 2 and 3 would require obstruction removal, which includes cutting of existing trees and grading of terrain on approximately 57 and 106 acres, respectively, beneath the protected airspace for Runway 11-29 to eliminate obstructions to the FAR Part 77 surfaces as shown on Exhibits 2-1 through 2-4. As the tree removal is proposed to comply with FAR Part 77 surface criteria, it is exempt from requirements set forth in Maryland's Forest Conservation Act (FCA).

However, as the other construction projects will require grading on more than 40,000 square feet, compliance with the FCA will be necessary. Two documents must be submitted, a forest stand delineation (FSD) and a forest conservation plan (FCP). The FSD identifies forest stands, specimen trees, and sensitive areas such as steep slopes, hydric or erodible soils, critical habitat areas, streams, and floodplains. The FCP outlines the impacts to and retention of priority areas identified in the FSD and establishes thresholds for clearing, afforestation, and reforestation.



4. Mitigation

MDNR provided guidelines for minimizing impacts to FIDS, suggesting that forest habitat should not be disturbed or removed during the April-August breeding period. If possible, the obstruction removal will not be accomplished during those months to minimize impacts to species.

An FSD and FCP will be submitted to MDNR for review and approval to comply with the FCA for construction activities. The FCP will be completed during preliminary design engineering for the sponsor's proposed action.

J. ENDANGERED AND THREATENED SPECIES OF FLORA AND FAUNA

Section 7 of the Endangered Species Act, as amended, requires federal agencies to ensure that any proposed action does not jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of associated habitat. Section 7a (3) also requires that consultation occur with the U.S. Fish and Wildlife Service regarding the presence of threatened and endangered species within the project area. Under the act, an "endangered" species is defined as any species that is in danger of extinction throughout all, or a significant portion, of its range. A "threatened" species is considered to be any species that is likely to become an endangered species within the foreseeable future.

To determine the presence of threatened or endangered species or critical habitat, an on-site field investigation was conducted by Mill Creek Environmental Consultants, Ltd. (see **Appendix D**) on and in the vicinity of the airport. No threatened or endangered species were observed.

There are three federally listed species and five state-listed species occurring in St. Mary's County. The federally listed species include the Dwarf Wedge Mussel (endangered), Northeastern Beach Tiger Beetle (threatened), and the Bald Eagle (threatened). The state-listed



species include two birds, one amphibian, and two insects. Nonetheless, correspondence with the USFWS and MDNR revealed that no federally or state-listed species would be affected by the proposed project (see **Appendix I**).

K. WETLANDS

Executive Order 11990, *Protection of Wetlands*, issued May 24, 1977, is implemented by DOT Order 5660.1A, *Preservation of the Nation's Wetlands*. The executive order requires federal agencies to avoid, to the extent possible, the adverse effects associated with the destruction or modification of wetlands wherever there is a practicable alternative. FAA Order 5050.4A requires that these orders be reviewed to determine their applicability.

Section 47e (11) (f) of FAA Order 5050.4A states that impact categories other than wetlands should be used to determine whether impacts on wetlands are significant. The handbook states that “consideration shall be given to impacts on water quality, biotic community disruption, flood and storm hazards, development or secondary (induced) activities or services, and construction.”

1. Summary

Seven wetlands, totaling approximately 27 acres, were identified during the field investigation of the Captain Walter Francis Duke Regional Airport, as discussed in Chapter 3, Section E.6. The field investigation was limited to the existing airport property and those areas proposed for obstruction removal off airport property but within proposed areas of property interest acquisition.



2. Methodology

The project area was investigated for the presence or absence of wetlands by Mill Creek Environmental Consultants, Ltd. The routine criteria outlined in the *Corps of Engineers Wetland Delineation Manual*, Environmental Laboratory 1987, as modified by the 1992 Regulatory Guidance Letter, were used in this investigation. This approach recognizes the three parameters of vegetation, soils, and hydrology to identify and delineate wetlands. Prior to initiating fieldwork, background research was conducted including review of U.S. Geological Survey (USGS) quadrangle maps of the area; National Wetlands Inventory (NWI) products; Soil Conservation Service (SCS) soil surveys; and information from Maryland, St. Mary's, and local government data. Data on soils, vegetation, and hydrology were collected during a period from May 8, 2004, to October 12, 2004, by qualified wetland biologists. The complete wetland report is presented in **Appendix E**.

The wetland boundaries were surveyed and added to a previously surveyed site map presenting the proposed improvements. Wetland impacts were computed by comparing wetland boundaries to the limits of the build alternatives. A jurisdictional determination (JD) with the Army Corps of Engineers was performed on October 19, 2005. A copy of the JD letter is located in **Appendix J**.

3. Environmental Impacts

The area of impact for wetlands was limited to existing airport property and those areas proposed for obstruction removal off airport property.



a. Alternative 1

The No Action alternative would not result in construction or operation of new or modified airport facilities. Therefore, no impacts to wetlands are anticipated.

b. Alternative 2

Alternative 2 would encroach upon four (Areas A, C, D, and F) of the seven wetland areas identified. The majority of wetland Area A would be affected by the grading limits for the relocation and extension of Taxiway A, as well as obstruction removal. The other wetland areas would be affected by proposed obstruction removal only. **Exhibit 4-4** illustrates the location of wetlands in relation to Alternative 2, and **Table 4-6** details impacts to each wetland area.

c. Alternative 3

Alternative 3 would encroach upon all wetland areas identified except Area X. Portions or all of wetland areas A, B, C, and G would be affected by obstruction removal and grading limits for the relocation and extension of Taxiway A, apron construction, runway extension, and road relocations. The other wetland areas would be affected by proposed obstruction removal. **Exhibit 4-5** illustrates the location of wetlands in relation to Alternative 3, and Table 4-6 details impacts to each wetland area.



Exhibit 4-4

Wetland Impacts: Alt 2



Exhibit 4-5

Wetland Impacts: Alt 3



Table 4-6
Captain Walter Francis Duke Regional Airport
Wetland Impacts

Wetland Area	Wetland Area (Acres)	Wetland Impacts – Grading		Wetland Impacts – Obstruction Removal		Total Wetland Impacts	
		Alt. 2	Alt. 3	Alt. 2	Alt. 3	Alt. 2	Alt. 3
A	± 2.2	±1.2	±1.2	±0.3	±0.3	±1.5	±1.5
B	± 0.04	0.0	0.04	0.0	0.0	0.0	±0.04
C	± 1.9	0.0	±1.9	±0.1	0.0	±0.1	±1.9
D	± 5.7	0.0	0	±1.4	±1.4	±1.4	±1.4
F	± 8.8	0.0	0	±1.4	±1.4	±1.4	±1.4
G	± 7.8	0.0	±0.2	0.0	±6.2	0.0	±6.4
X	± 0.4	0.0	0.0	0.0	0.0	0.0	±0.0
Totals	± 26.8	±1.2	±3.34	±3.2	±9.3	±4.4	±12.64

Sources: Wetlands Survey and Delineation, Mill Creek Environmental Consultants, Ltd., May 2005
Delta Airport Consultants, Inc.

4. Mitigation

Mitigation will include a 1:1 replacement ratio for affected emergent wetlands and a 2:1 ratio for affected scrub-shrub or forested wetlands as required by MDE (see **Table 4-7**). The estimated mitigation for the sponsor's proposed action is between 20 and 25 acres. A Joint Permit Application has been filed with the MDE and ACOE for approval (see **Appendix J**).

Table 4-7
Captain Walter Francis Duke Regional Airport
Wetland Mitigation

Wetland Area	Wetland Area (Acres)	Wetland Type	Mitigation Ratio*	Estimated Mitigation Acreage (Sponsor's Preferred Alt)
A	± 2.2	PEM/PSS	1:1/2:1	1.5 - 3.0
B	± 0.04	PEM	1:1	0.04
C	± 1.9	PEM/PSS	1:1/2:1	1.9 - 3.8
D	± 5.7	PSS/PFO	2:1	2.8
F	± 8.8	OW/PEM/PFO	2:1	1.4 - 2.8
G	± 7.8	PSS/PFO	2:1	12.8
X	± 0.4	PEM	1:1	0
Totals	± 26.8			20.4 - 25.2

Notes: *Mitigation ratio is based upon requirements set forth by the Maryland Department of the Environment

OW – Open Water

PEM – Palustrine, emergent

PSS – Palustrine, scrub-shrub

PFO – Palustrine, forested

Source: Wetlands Survey and Delineation, Mill Creek Environmental Consultants, Ltd., May 2005



L. FLOODPLAINS

Floodplains are defined as the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas on offshore islands and including, at a minimum, that area subject to a one percent or greater chance of flood in any given year (i.e., the area that would be inundated by a 100-year flood). Executive Order 11988 further directs federal agencies to take action to reduce the risk of flood loss; to minimize impacts of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains.

Further, Executive Order 11988 defines the critical-action floodplain as “the 500-year floodplain.” A critical action is defined in the order as “any activity for which even a slight chance of flooding would be too great.” However, according to FAA Order 5050.4A, Para. 47 (12) (c), “if the proposed action and reasonable alternatives are not within the limits of a base floodplain (i.e., 100-year flood area) and would not indirectly support secondary development within a base floodplain, nor otherwise significantly impact a base floodplain, it may be assumed that there are no floodplain impacts.”

U.S. DOT Order 5650.2, *Floodplain Management and Protection*, contains DOT’s policies and procedures for implementing Executive Order 11988. The executive order and the DOT order establish policy to avoid taking an action within a 100-year floodplain where practicable. Every effort must be made to minimize the potential risks to human safety and property damage and the adverse effects on natural and beneficial floodplains.

St. Mary’s County, like other Maryland counties, participates in the National Flood Insurance Program (NFIP). As part of their participation, the St. Mary’s County Department of Land Use and Growth Management regulates development and activities in floodplains through their floodplain management program. Chapter 76 of the Zoning Ordinance provides a complete description of the floodplain management regulations for St. Mary’s County.



2W6 is located in areas of minimal flooding as noted on Exhibit 3-8. Therefore, none of the alternatives present floodplain encroachment.

M. COASTAL ZONE MANAGEMENT PROGRAMS AND COASTAL BARRIERS

Detailed procedures for determining federal consistency with approved coastal zone management programs are contained in the Coastal Zone Management Act of 1972 and subsequent National Oceanic and Atmospheric Administration (NOAA) regulations. The Coastal Barriers Resources Act of 1982 prohibits, with some exceptions, federal financial assistance for development within the Coastal Barrier Resource System.

Coordination with MDE's federal consistency coordinator indicated that the sponsor's proposed action is consistent with the state's Coastal Zone Management Program, conditioned upon approval from Maryland's Nontidal Wetlands and Waterways Division for proposed impacts to nontidal wetlands and waterways (see **Appendix I**, Correspondence and Coordination). A copy of this EA has been submitted to the consistency coordinator to facilitate the state's final review.

N. WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act of 1968 describes those river areas eligible to be included in a system that is protected under the act as free flowing and possessing outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. FAA Order 5050.4A states that adverse impacts to an inventory river would include the following:

- Destruction or alteration of the free-flowing nature of the river
- Introduction of visual, audible, or sensory intrusions that are out of character with the river or alter its setting
- Deterioration of water quality



- Transfer of property interests without adequate restrictions for protecting the river or its surrounding environment

The U.S. Department of the Interior maintains a national inventory of river segments that appear to qualify for inclusion in the National Wild and Scenic River System. A review of the inventory database indicated that the North Branch Potomac River is not listed in the inventory; however, a portion of the Wicomico River watershed, a designated Scenic River under the Maryland Scenic River Act in 1968, is located within St. Mary's County. **Exhibit 4-6** illustrates that the airport is located outside the watershed. Accordingly, no adverse or significant impacts are expected to occur and no mitigation measures would be required.

O. FARMLANDS

The Farmland Protection Act (FPA) of 1981 authorizes the U.S. Department of Agriculture to develop criteria for identifying the effects of federal programs on the conversion of farmland to non-agricultural uses. The prime and unique farmland regulations require that the U.S. Department of Agriculture determine whether land affected by any proposed action is prime and unique farmland.

If the proposed project involves the acquisition of farmland that would be converted to non-agricultural use, it must be determined whether any of that land is protected by the FPA.

None of the land proposed to be developed or acquired is currently designated as prime farmland, and it is unlikely that it would ever be converted to agricultural use. Therefore, no adverse or significant impacts are expected to occur, and no mitigation measure would be required.



Exhibit 4-6



P. ENERGY SUPPLY AND NATURAL RESOURCES

The effects of airport development on energy and natural resources are generally related to the amount of energy required for aircraft, ground support vehicles, airport lighting, and terminal and other facilities. FAA Order 1050.1E indicates that, for most airport actions, changes in energy or other natural resource consumption will not result in significant impacts.

FAA Order 1050.1E identifies two types of energy use to be considered in determining the environmental impact of proposed development:

- Uses that relate to changed demands for stationary facilities (e.g., airfield lighting and terminal building heating).
- Uses that involve the movement of air and ground vehicles.

The proposed development shall be examined to identify any proposed major changes in these uses that would have a measurable effect on local supplies.

With respect to the use of natural resources, FAA Order 1050.1E states that “use of natural resources other than for fuel need be examined only if the action involves a need for unusual materials or those in short supply.”

1. Summary

There are several different categories considered for the analysis of energy supplies and natural resources. Considerations for the alternatives are limited to supply and consumption factors. Presently, electricity is supplied to 2W6 by Southern Maryland Electric Cooperative (SMECO).



2. Environmental Impacts

A review of existing energy facilities was conducted to estimate the potential effects of energy supply and natural resources for each of the alternatives. The area of impact for energy impacts consists of the proposed construction limits and related fuel and energy consumption.

a. Alternative 1

The No Action alternative would not result in construction or operation of new or modified airport facilities. Therefore, no changes on energy demand, aircraft operating times, fuel consumption, or off-airport impacts would occur.

b. Build Alternatives (2 & 3)

It is not anticipated that increases in energy consumption for the build alternatives will adversely affect the area's local energy supply.

3. Mitigation

None of the alternatives under consideration would result in significant impacts with respect to energy supplies and natural resources, and no mitigation would be required.

Q. LIGHT EMISSIONS

Lighting required for airfield and terminal areas, obstruction marking, navigational aids, and automobile parking facilities is the chief contributor to light emissions from an airport. Airport-related light emissions are considered to have a noticeable adverse impact if light is directed toward residential areas. An analysis is necessary when the proposed project includes the



introduction of new airport lighting facilities that may affect residential or other sensitive land uses. However, this typically occurs only in unusual circumstances when high-intensity strobe lights shine directly into residential areas.

As an existing facility, 2W6 is a fully lighted airfield providing 24-hour-a-day services. The airfield maintains existing runway lights, taxiway lights, parking apron floodlights, threshold lights, and pavement edge lights. Each of these fixtures is designed to emit light visible only in specific directions or in certain areas. There have been no public complaints received by airport management relative to existing airport lighting.

In Alternative 1, No Action, the lighting systems would remain in their current location and no additional facilities would be constructed. Accordingly, no light emission impacts would occur under this alternative.

Alternatives 2 and 3 propose an upgrade to the existing rotating beacon. No other new lighting is proposed. The beacon upgrade would not be significantly different than the existing beacon and no residences are within the visual impact zone for the proposed beacon. Therefore, the approach lights would not create a significant impact.

R. SOLID WASTE DISPOSAL

The addition and/or demolition of certain facilities at an airport can result in the generation of additional solid waste. Airfield improvements, however, do not normally have a direct effect on solid waste collection or disposal, other than that associated with construction. In addition to being a repository for solid waste, waste disposal sites associated with construction activity are also artificial attractants to birds. Accordingly, because of the potential for bird strikes, disposal sites in the vicinity of an airport are incompatible with safe flight operations.



The primary considerations in the evaluation of potential solid waste impacts include the following:

- Potential for solid waste generation as a result of routine airport operations.
- Potential for temporary generation of solid wastes due to demolition and construction activities from the proposed action.
- Potential for runway facilities to be operated adjacent to active landfills that accept putrifiable wastes where a bird-strike hazard may be present.
- Airport operator's ability to comply with FAA Order 5200.5A, *Waste Disposal Sites on or Near Airports*.

1. Summary

No significant change in the generation of solid waste at 2W6 is expected to occur as a result of any of the alternatives under consideration. Solid waste generation is projected to increase through 2022, primarily due to increased numbers of airport users/tenants and aircraft operations. These increases would not be a consequence of the implementation of any of the alternatives under consideration, and existing solid waste disposal facilities have sufficient capacity to accommodate projected solid waste levels.

Jordan, Jones, & Goulding (JJG) completed a "Site Assessment Report: Captain Walter Francis Duke Regional Airport" (**Appendix K**) to research the history of waste disposal to the west of Runway 11 and assess potential effects on the proposed taxiway relocation and Runway 11 extension. It was determined that neither build alternative would be affected by previous landfill activities near the site.



2. Methodology

JJG conducted a site visit to observe conditions in the area of the proposed taxiway relocation/extension and runway extension. Subsequently, aerial photos from 1964 through 1998, specifically 1964, 1972, 1980, 1989, and 1998, were reviewed in the Leonardtown Service Center to identify areas of past waste disposal in the proposed Runway 11 extension area. The Solid Waste Program administrator of MDE was contacted to perform an MDE record search for landfills in the area. JJG also reviewed a Maryland Department of Health report which summarized solid waste disposal in Maryland. Finally, JJG reviewed two previous studies performed by GeoTechnologies, Inc., dated March and June 1995. The reports were prepared in support of the Runway 29 extension.

3. Environmental Impacts

a. Alternative 1

Since no construction activities are associated with the No Action alternative, construction or demolition debris (with the exception of debris associated with normal maintenance activities) would not need to be disposed of.

b. Alternative 2

Alternative 2 primarily focuses on obstruction removal and parallel taxiway relocation and extension but does include some minor construction off airport property. Solid waste will be generated from obstruction removal (trees); however, all will be disposed of in compliance with local and state regulations. The minor construction project, realigning Airport Drive, will have no direct



impact on solid waste collection, control, or disposal other than that associated with the construction itself.

c. Alternative 3

The primary focus of Alternative 3 is on obstruction removal, parallel taxiway relocation and extension, Runway 11 extension, and apron development, but also includes some construction off airport property. Solid waste will be generated from obstruction removal (trees) and other projects; however, all will be disposed of in compliance with local and state regulations. The off-airport construction projects, the realignment of Airport Drive and relocation of Lawrence Hayden Road, will have no direct impact on solid waste collection, control, or disposal other than that associated with the construction itself.

4. Mitigation

As the Site Assessment Report did not identify landfill activity within the limits of the sponsor's proposed action and the implementation of the proposed action would not result in significant solid waste impacts, no mitigation measures will be required.

S. CONSTRUCTION IMPACTS

Potential impacts from construction activity are not expected to be significant, provided that all activities are carried out in accordance with established Best Management Practices (BMPs). Construction impacts are not generally considered to be significant because they (1) result solely from construction operations and (2) are limited to specific construction periods.



1. Environmental Impacts and Mitigation

Construction activity could generate impacts with respect to air quality, equipment noise, and water quality. A brief description of each of these potential impacts and associated mitigation follows.

a. Air Quality

Under Alternatives 2 and 3 construction activities could result in short-term and temporary emissions of air pollutants from a variety of sources, such as exhaust from construction equipment and vehicles, evaporation of hydrocarbons from curing asphalt, and fugitive dust. Trucks hauling construction materials to and from the site would release exhaust emissions over the area. As a result of wind erosion, the dispersion of exposed, fugitive dust has the greatest nuisance potential. Dust generation is highly variable. The amount of dust on a given day depends on the types and amount of construction activity and on meteorological and soil conditions. Although construction activities may have a noticeable effect within a short distance from the project site, the potential for nuisance is limited and the effect is temporary. As described in Section E of this chapter, no significant air quality impacts would result from construction activity.

b. Equipment Noise

Alternatives 2 and 3 would produce temporary increases in ambient noise levels during periods of active construction. Heavy construction equipment operations will generate noise; however, it is expected that this noise would occur during daylight hours.



c. Water Quality

Water pollution may arise during the project primarily from erosion of exposed land surfaces. Water pollution can be mitigated by the implementation of BMPs. BMPs are defined as a practice, or combination of practices, determined to be the most effective means of reducing the amount of pollution generated by non-point sources to a level compatible with water quality goals. The design will include practices to minimize the impact on the surrounding areas. The use of erosion and sedimentation controls will be required throughout the duration of the removal period.

It will be obligatory for the contractor to submit, for approval, a Storm Water Pollution Prevention Plan in accordance with the Clean Water Act prior to beginning the project to ensure adherence to BMPs during construction. This plan will outline the contractor's erosion and sediment control practices, as well as his or her "good housekeeping" methods for waste disposal and spill prevention. Good housekeeping practices reduce the possibility of accidental spills, improve the response time if spills occur, and reduce safety hazards. Examples of good housekeeping on a construction project may include the following:

- **Materials Management:** Neat and orderly storage for any chemicals, pesticides, fertilizers, fuels, and so on, that are being stored at the site
- **Waste Disposal:** Regular garbage, rubbish, construction waste, and sanitary waste disposal
- **Spill Response:** Prompt cleanup of any spills of liquid or dry materials that have occurred
- **Off-site Tracking:** Cleanup of sediments that have been tracked by vehicles or have been transported by wind or storm water about the site or



onto nearby roadways

Management practices to minimize the potential for fuel/oil spills during construction should be implemented. Such practices typically include the following:

- Designation of a centralized fueling and storage area for all equipment
- Where feasible, construction of a containment berm around fueling area
- Location of equipment and materials to clean up petroleum spills in fueling areas and on fuel trucks
- Performance of regular preventative maintenance on all equipment to prevent leaks

Applicable provisions within FAA Advisory Circular 150/5370-10A, *Standards for Specifying Construction of Airports*, Item P156, “Temporary Air and Water Pollution, Soil Erosion, and Siltation Control,” should be incorporated into project specifications to minimize any impacts to adjacent or nearby properties. Erosion and sedimentation controls usually consist of silt fencing; sediment traps (less than 5-acre drainage area); sediment basins (greater than 5-acre drainage area); erosion control blankets on steep slopes and swales; inlet protection; and seeding.

2. Mitigation

Alternative 1, No Action, would present no significant construction impacts. Alternatives 2 and 3 can be completed without any appreciable construction impacts to the surrounding environment since BMPs will be followed for sediment control and standard construction procedures. In the event of conflict between these requirements and the pollution control laws, rules or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations will apply.



T. HAZARDOUS MATERIALS

Two federal statutes govern hazardous materials: the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund) and the Resource Conservation and Recovery Act (RCRA). Although there is some overlap, CERCLA focuses on inactive sites needing remediation while RCRA focuses on current handling and disposal practices. Most materials and practices at airports are governed by one or both of these laws.

Federal, state, and local laws strictly regulate the handling and disposal of hazardous substances and hazardous materials. A hazardous substance is any substance that, when released to the environment, may present danger to public health, welfare, or the environment. A hazardous material is any substance that may – because of its quantity, concentration, physical, chemical, or toxic characteristics – cause death or serious illness or pose a substantial present or potential hazard to human health or the environment when improperly handled.

Most regulated hazardous wastes are products of industrial processes not usually in place at airports. However, many airport materials are among the hundreds of materials subject to RCRA regulatory control, including solvents, deicing chemicals, and fuels contaminated with hazardous substances.

The area of impact for hazardous material impacts consists of areas that would be directly affected by construction and operation of either build alternatives. Potential impacts could result from construction activities that disturb existing hazardous materials or contaminated soils, causing them to be released into the surrounding environment. Additionally, impacts could also be caused by the introduction and use of hazardous materials, such as fuels, lubricants, solvents, degreasers, cleansers, hydraulic fluids, and deicing agents in the newly developed areas. Also, the increased use and volume of these hazardous materials could increase the risk of accidental spills or leaks and result in the release of these products into the environment.



FAA Order 5050.4A does not include a discussion of the threshold of significance for hazardous materials; therefore, a potentially significant impact was assumed to be defined as the spread of a known hazardous materials source, or increased risk of release related to implementation of Alternative 2 or 3.

Due to the nature of the projects proposed in the build alternatives, no hazardous waste is likely to be generated. Additionally, there will be no use of hazardous materials with the exception of fuel during construction at 2W6; therefore, no impact in this category is anticipated.

U. CUMULATIVE IMPACTS

Under CEQ guidelines, a cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such action. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.”

According to FAA Order 5050.4A, in developing an EA for a preferred federal action, it is essential to assess the cumulative impact of the preferred action and the consequences of subsequent related actions. There are three types of actions normally considered: 1) connected actions, which are those closely related or interdependent; 2) incremental actions, which, when viewed with other preferred actions, have cumulatively significant impacts; and 3) similar actions, which, when viewed with other reasonable foreseeable or preferred agency actions, have similarities such as common timing or geography.

This EA documents the airport-related projects anticipated to occur within the next five years after completion of the EA. The collective group of projects does not result in the disruption to natural habitat, wildlife, or the surrounding environment. Most of the proposed projects are located entirely within the limits of the existing dedicated airport property, and no significant



off-airport environmental impacts are anticipated. A “Survey of Cumulative Impacts of Proposed Improvements” was completed by Regenesis (see **Appendix L**). According to the report, water quality impacts were of greatest concern; however, the use of BMPs during the construction of these projects will minimize the short-term impacts from earth-disturbing activities. Therefore, the proposed projects, when evaluated with other past and foreseeable projects, will not incrementally cause an adverse impact upon any of the environmental categories evaluated in this document. All projects remain subject to local, state, and federal environmental permitting guidelines.

V. CONSISTENCY WITH OTHER PLANS

The sponsor’s proposed action is in conformity with 2W6’s existing ALP and does not conflict with federal, state, and local plans or objectives. Appropriate coordination will be maintained with governmental agencies, including the FAA, on issues such as the following:

1. Property Interest Acquisition (fee simple and avigation easement)
2. Wetland Impacts (Army Corps of Engineers and Maryland Department of the Environment)
3. Forest Conservation Law Mitigation (MDNR)

W. ADVERSE IMPACTS WHICH CANNOT BE AVOIDED

Fee simple acquisition of portions of six commercial/industrial properties and easement acquisition of both commercial and private properties will be necessary for obstruction removal and prevention. Obstruction removal is necessary to improve the safety and efficiency of 2W6. Impacts to wetlands due to both obstruction removal and grading impacts are also necessary, but will be mitigated. The relocation of Lawrence Hayden Road is required for the runway extension, and the realignment of Airport Drive is necessary for the taxiway relocation. While



the impacts to these resources are unavoidable, they are not significant, and efforts will be undertaken to further minimize all impacts.

X. METHODS TO MITIGATE ADVERSE IMPACTS

The No Action alternative has no impacts and would not require mitigation. The sponsor's preferred action, Alternative 3, will require the clearing of approximately 106 acres of forest which is exempt under the Maryland Forest Conservation Act; however, mitigation will be required to comply with the act for grading areas exceeding 40,000 square feet. An FSD and FCP will be completed and coordinated with MDNR during design of the preferred action.

Alternative 3 will also affect approximately 13 acres of wetlands due to the removal of obstructions, taxiway relocation/extension, runway extension, and other proposed development projects. This EA has demonstrated that impacts to nontidal wetlands are unavoidable and necessary with the preferred action. Wetland mitigation will be coordinated with the FAA, ACOE, and MDE. A Joint Permit Application (JPA) has been submitted through MDE and ACOE for approval. The FAA will be involved in the coordination process but will not assist in negotiating the necessary mitigation.

Maryland law requires 2W6 to coordinate with MDE in accordance with Maryland Nontidal Wetlands Regulations. The regulations were enacted in 1989 in an attempt to attain no net overall loss in nontidal wetland acreage and function, to strive for a net resource gain over present conditions, and to prevent further degradation and losses of wetlands wherever possible. The statute requires specific acreage replacement ratios which provide a low-end replacement ratio of 1:1 for emergent nontidal wetlands and a high end ratio of 3:1 for forested wetlands designated as being of special state concern.

The wetland delineation report and the ACOE's coordination information and JD are included in Appendices E and J, respectively.



Y. MITIGATION SUMMARY

1. Fee Simple and Easement Acquisition

Alternatives 2 and 3 do not involve the acquisition or relocation of any residential properties; however, portions of six commercial/industrial properties would be acquired in fee simple for RPZ control and road relocation for Alternative 3. Because the acquisition of these properties would not require the relocation of any businesses, no significant impacts are anticipated.

The two development alternatives would also require easement acquisition over 13 commercial/industrial and residential properties to eliminate incompatible land uses and obstructions in the future, as shown on Exhibits 2-5 and 2-6.

2. Wetland Impacts

The sponsor's proposed action will require the clearing of trees on approximately 9.3 acres and grading of approximately 3.3 acres of delineated wetlands. Coordination with the FAA, MDE, and ACOE will be necessary. A JPA detailing the impacts and mitigation proposal has been submitted to MDE and ACOE for their review and approval (**Appendix J**).

3. Forest Conservation Law Mitigation

The sponsor's proposed action will require the clearing of approximately 106 acres of forest; however, under the Maryland Forest Conservation Act tree clearing to protect FAR Part 77 surfaces is exempt. Mitigation is necessary for the proposed construction projects (runway extension, taxiway extension/relocation,



road relocation, etc.) as the area to be graded exceeds 40,000 square feet. An FSD and FCP will be completed by a qualified professional (MD licensed forester, landscape architect, or as determined by MDNR) and submitted for approval prior to implementation of the sponsor's proposed action. Further coordination and mitigation requirements with MDNR will be completed during preliminary design of the sponsor's proposed action.

4. Preparation of Erosion and Sedimentation Control Plan

An Erosion and Sedimentation Control Plan will be completed during design of the proposed action to meet Maryland's Erosion and Sediment Control Guidelines for State and Federal Projects (January 1990, revised January 2004), pursuant to the Environment Article, Title 4, Subtitle 1, Annotated Code of Maryland and COMAR 26.17.01. The plan will include sufficient information to evaluate the site conditions, environmental characteristics of the affected areas, potential impacts of the proposed grading on water resources, and effectiveness and acceptability of measures proposed to minimize soil erosion and off-site sedimentation.

5. Application of Best Management Practices (BMPs)

The implementation of BMPs will minimize construction impacts associated with the preferred alternative. BMPs are defined as a practice or combination of practices that are determined to be the most effective means of reducing the amount of pollution generated by non-point sources to a level compatible with water quality goals. The design of the airport will include practices to minimize the impact on the surrounding areas. The use of erosion and sedimentation controls will be required throughout the removal period.

Chapter Five
DOCUMENT PREPARATION

The individuals who were primarily responsible for the preparation of this EA are listed below, together with their qualifications. The list includes persons affiliated with the Federal Aviation Administration, Captain Walter Francis Duke Regional Airport, Delta Airport Consultants, Inc., Mill Creek Environmental Consultants, Ltd., Jordan, Jones, and Goulding, Inc., S&ME, Inc., Regenesys, and Coastal Carolina Research, Inc.

Federal Aviation Administration

Frederick W. Olison, REM. – B.S., Engineering, 11+ years experience. Registered Environmental Manager, National Registry of Environmental Professionals, Environmental Specialist. FAA project manager, responsible for overall FAA review of EA document.

Jennifer Mendelsohn – Environmental Protection Specialist, Airports Division, Washington Airports District Office. B.S., Environmental Science, M.A., Environmental Management, 9 years experience. Responsible for detailed FAA evaluation of all parts of the Draft EA.

Captain Walter Francis Duke Regional Airport

George Erichsen – Director, St. Mary’s County Department of Public Works and Transportation.

Delta Airport Consultants, Inc.

Roy G. Lewis, A.A.E. – B.S. Aviation Management, 27 years experience. Responsible for project oversight, consultant team coordination, and overall document review.

Colleen M. Angstadt – M.S. and B.S. Geoenvironmental Studies, 6 years experience. Project manager - responsible for overall EA document preparation, environmental agency coordination,



and public information.

Delta Airport Consultants, Inc. Technical Support.

Mill Creek Environmental Consultants, Ltd.

Robert A. Neely – Ph.D. Ecological Sciences (upon dissertation completion); M.S. Forestry & Wildlife Management; B.A. English/Biology, - 24+ years of natural resources management experience and regulatory agency coordination. Principal expertise in the areas of biological surveys of both plant and animal species, and identification and delineation of wetlands and mitigation activities associated with project impacts to these type ecosystems. Project manager and principal investigator for ETS Species Survey and Wetlands Survey, Delineation and Permit Applications.

Jordan, Jones, and Goulding, Inc.

Michael T. Feeney, P.E. – B.S. and M.S. Civil Engineering, 27 years experience. Project director for Site Assessment.

Leo. F. Gentile, P.G. – B.S. and M.S. Geology, 25 years experience. Project geologist for Site Assessment.

S & ME, Inc.

Dina L. Pittman, P.E. – B.S., Environmental Engineering, 10 years experience. Project manager/environmental engineer for Stormwater Pollution Prevention Plan.

Edmund Woloszyn, Jr., R.E.M. – M.S. Marine, Earth and Atmospheric Sciences; B.S. Marine Biology, 16 years experience. Industrial services manager and assistant project manager for the Stormwater Pollution Prevention Plan.



Coastal Carolina Research, Inc.

Loretta Lautzenheiser – B.S. Anthropology, M.A. Anthropology, 22 years of cultural resource management experience. Project principal investigator for Cultural Resources Survey.

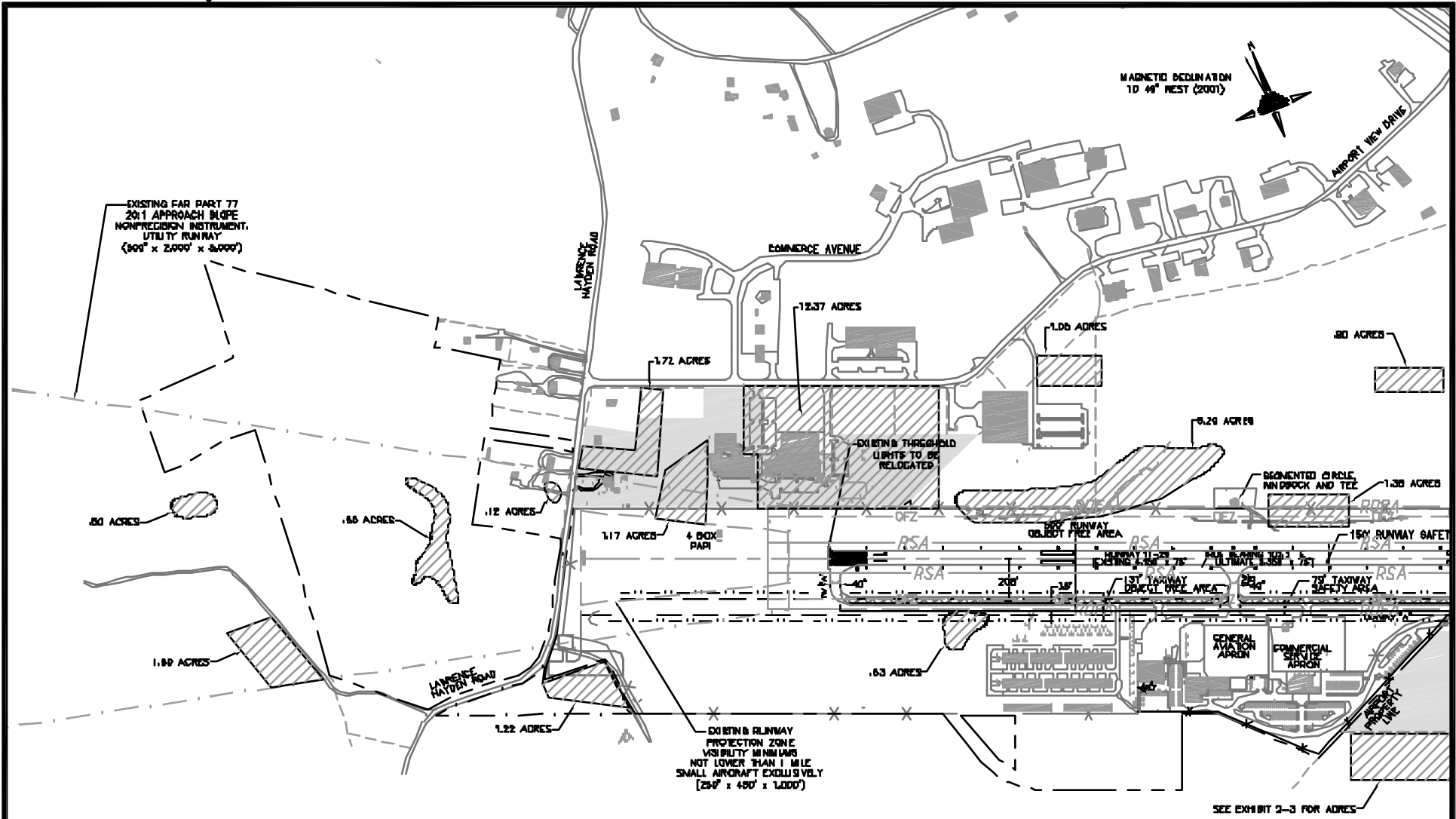
Michael D. Scholl, RPA – PhD. Anthropology (enrolled); M.A. and B.A. Anthropology. 5 years experience as archaeological consultant. Cultural Resources Survey, document preparation.

Regenesis

Joel Glanzburg, Design and management of green building and ecological restoration projects, 10 + years experience. Principal investigator for Survey of Social and Economic Impacts and Cumulative Impacts.

David Jaber – M.S. Environmental Engineering and B.S. Chemical Engineering. Technical assistance for Survey of Social and Economic Impacts and Cumulative Impacts.



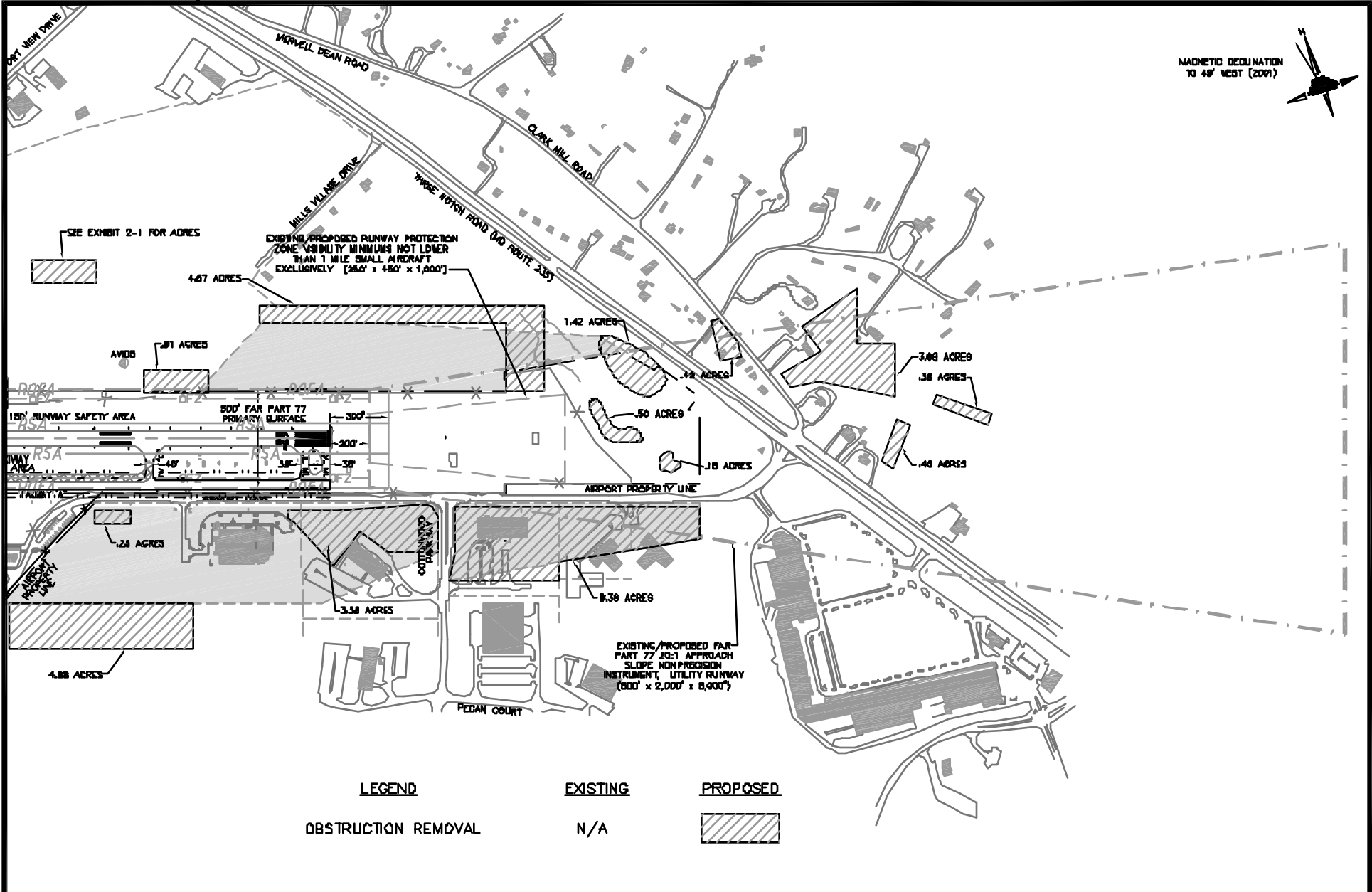


LEGEND	EXISTING	PROPOSED
OBSTRUCTION REMOVAL	N/A	

OBSTRUCTION REMOVAL - RUNWAY 11 END (ALT 2) CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S

**EXHIBIT
2-1**





LEGEND

OBSTRUCTION REMOVAL

EXISTING

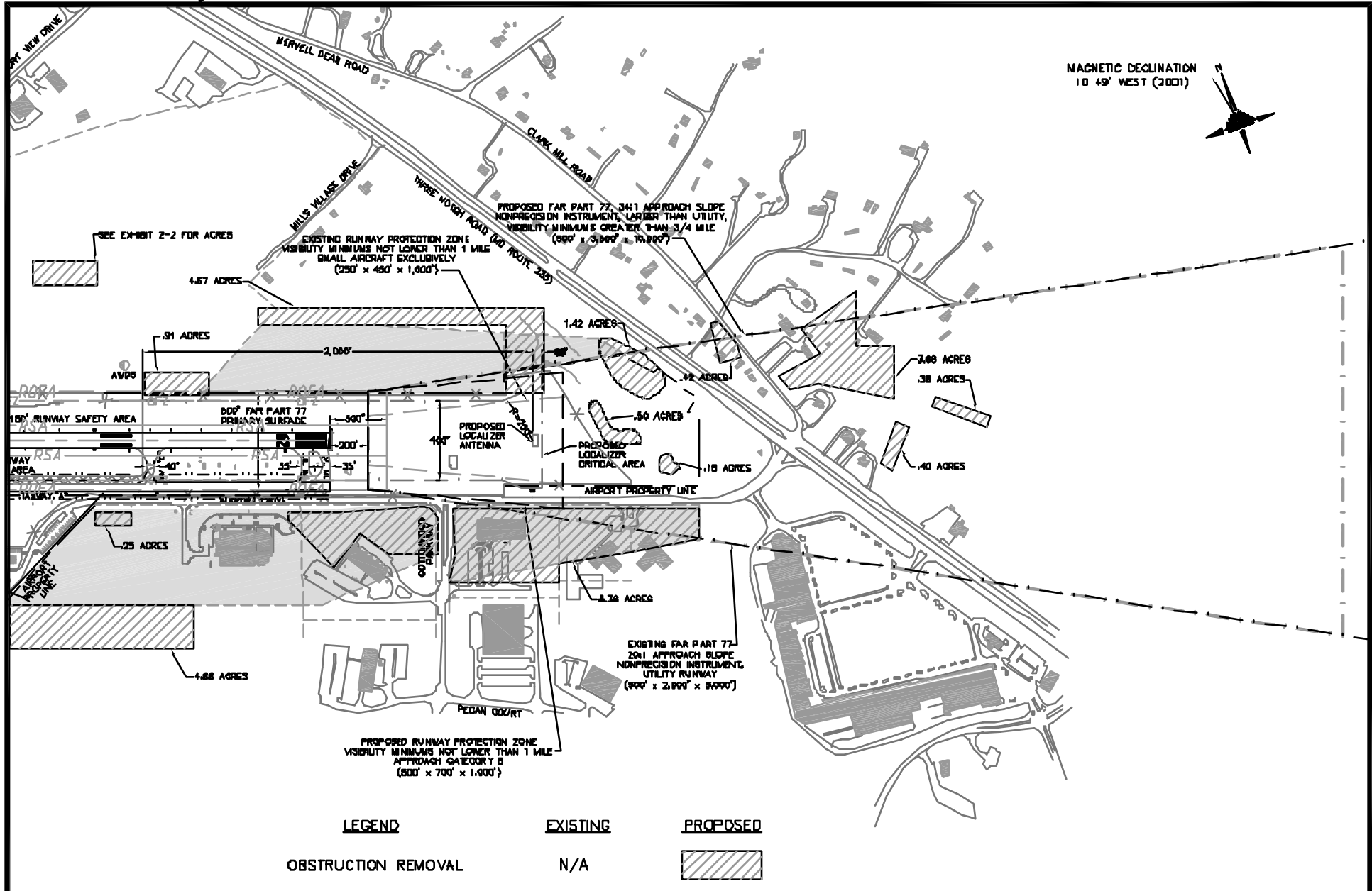
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PROPOSED



**OBSTRUCTION REMOVAL - RUNWAY 29 END (ALT 2)
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S**

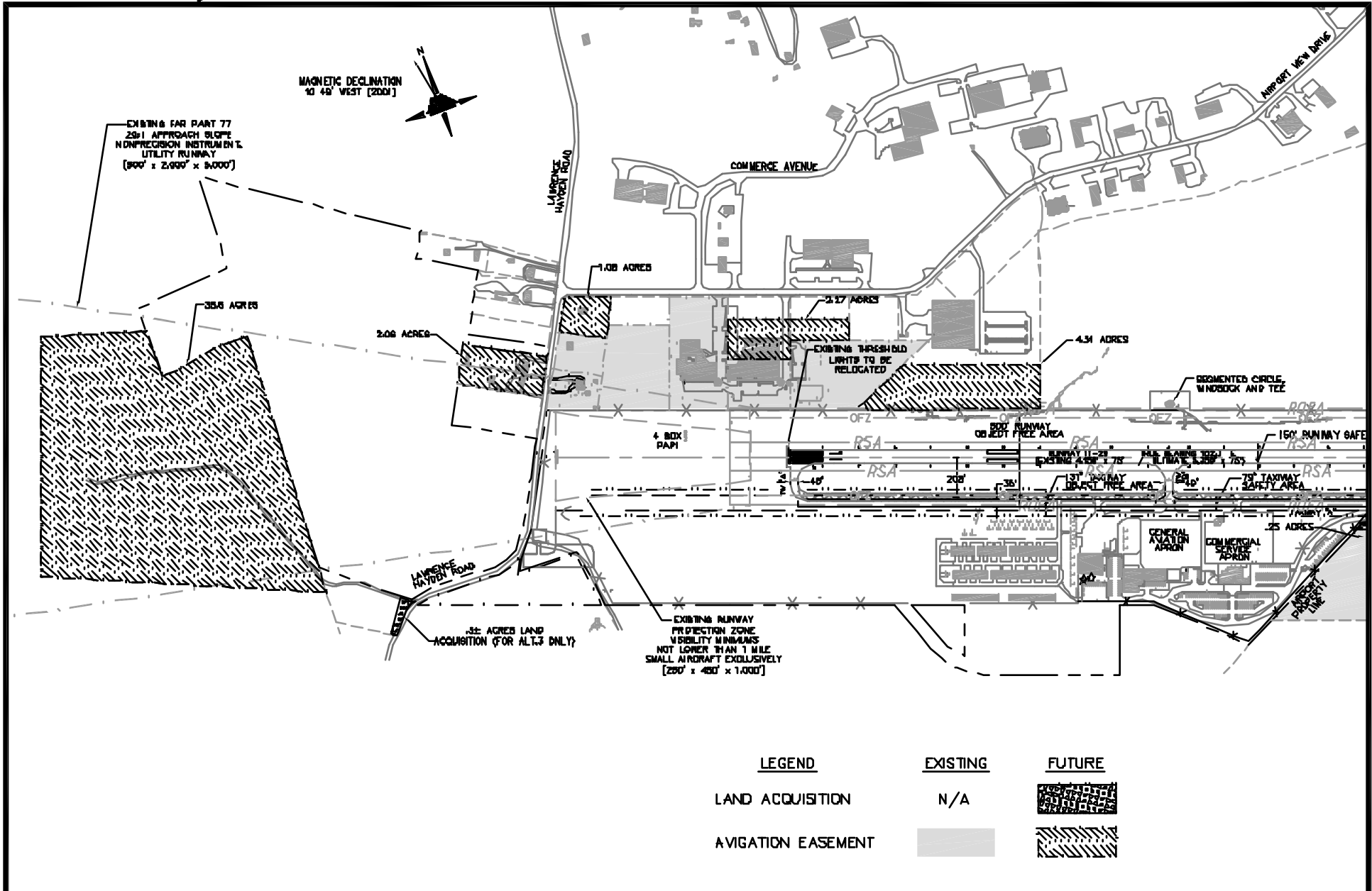
**EXHIBIT
2-3**



OBSTRUCTION REMOVAL - RUNWAY 29 (ALT 3) CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S

**EXHIBIT
2-4**

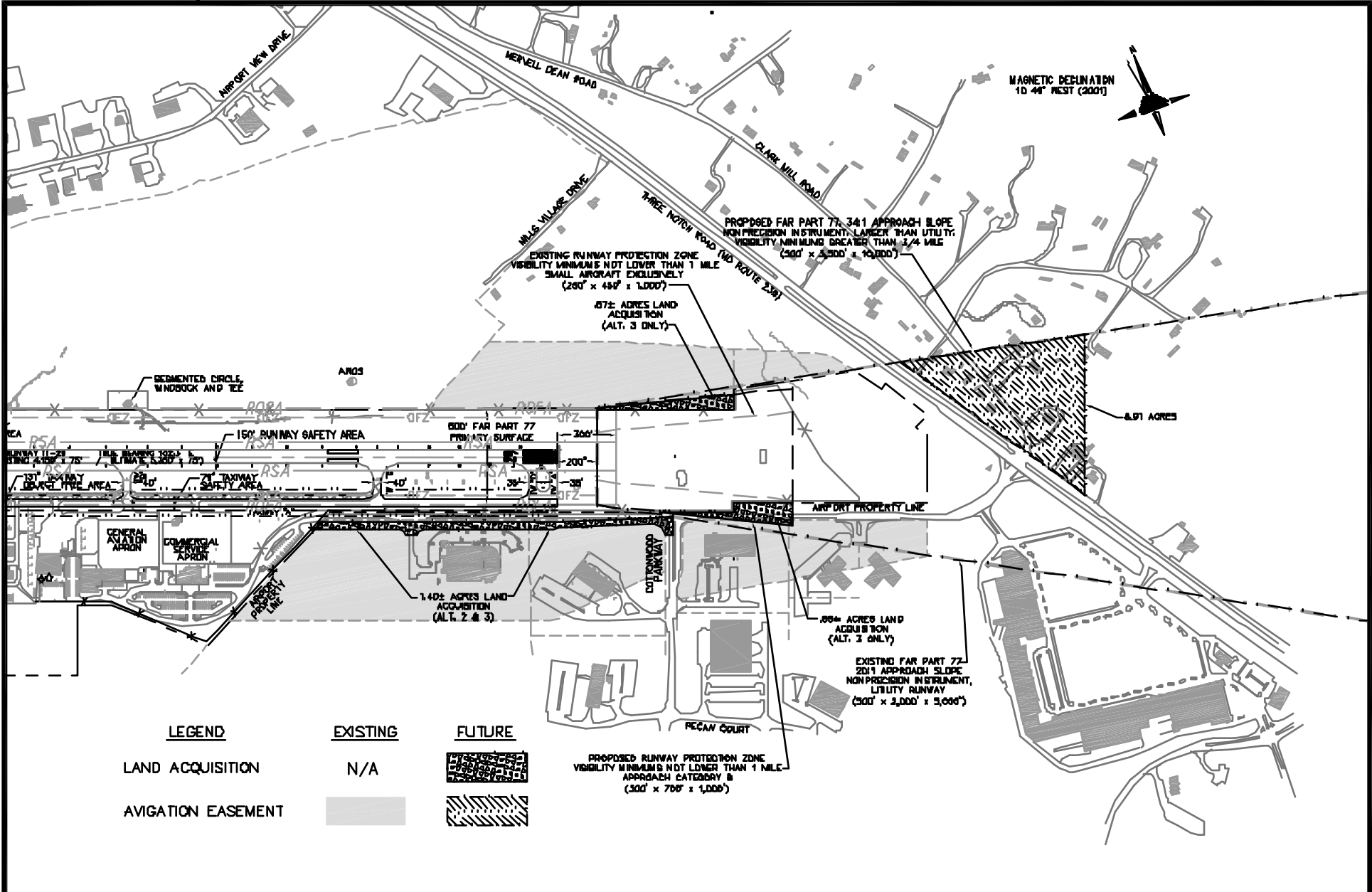




**PROPERTY INTEREST ACQUISITION - RUNWAY 11 END
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S**

**EXHIBIT
2-6**





MAGNETIC DECLINATION
10 44' WEST (2001)



LEGEND	EXISTING	FUTURE
LAND ACQUISITION	N/A	
AVIGATION EASEMENT		

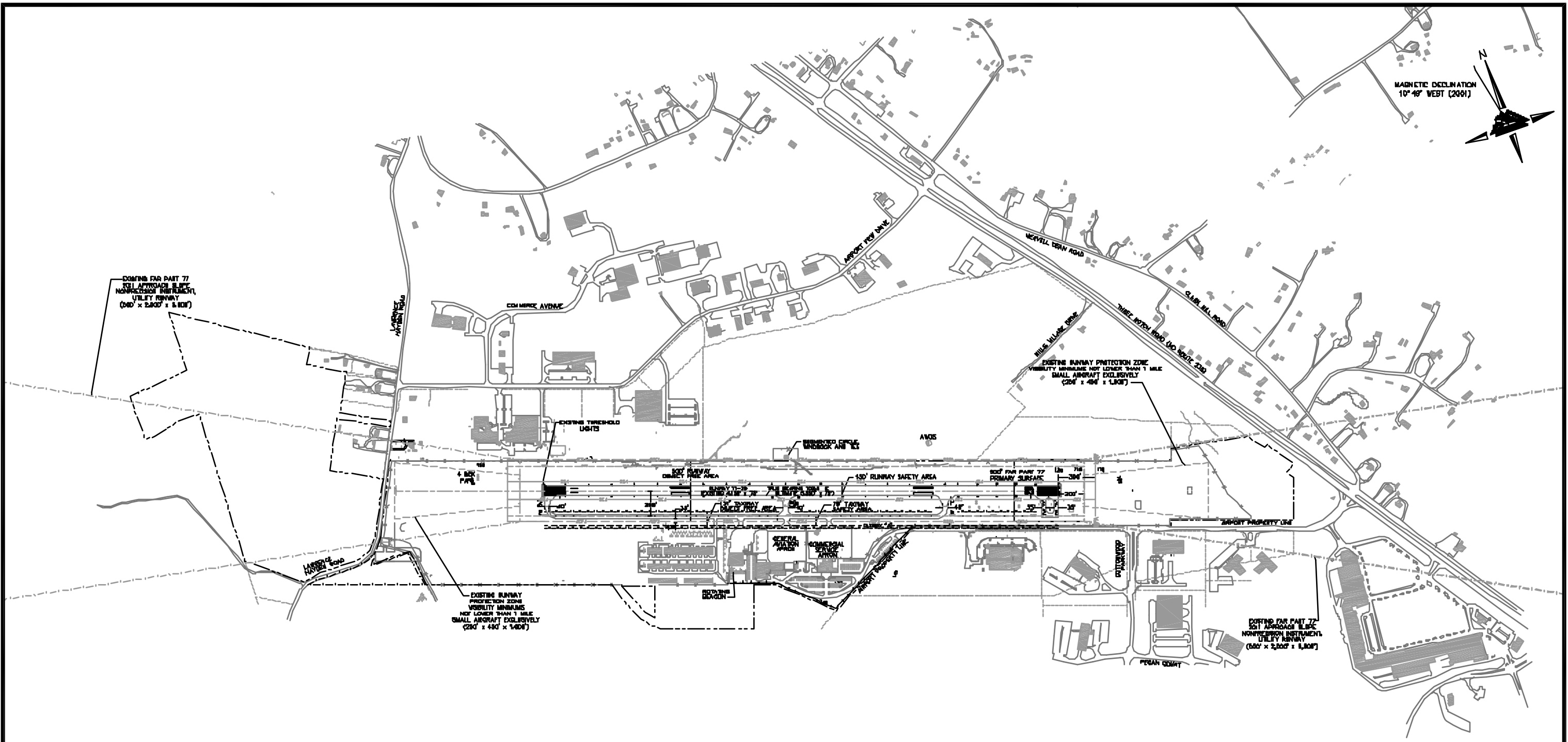
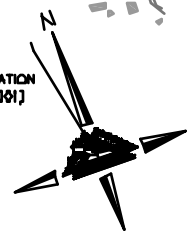
PROPOSED RUNWAY PROTECTION ZONE
VISIBILITY MINIMUMS NOT LOWER THAN 1 MILE
APPROACH CATEGORY B
(500' x 700' x 1,000')

PROPERTY INTEREST ACQUISITION - RUNWAY 29 END CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S

**EXHIBIT
2-6**



MAGNETIC DECLINATION
10° 46' WEST (2001)



EXISTING FAR PART 77
S11 APPROACH BLADE
NONPRECISION INSTRUMENT
UTILITY RUNWAY
(500' x 2,000' ± 1,000')

EXISTING RUNWAY PROTECTION ZONE
VISIBILITY MINIMUMS NOT LOWER THAN 1 MILE
SMALL AIRCRAFT EXCLUSIVELY
(200' x 400' ± 1,000')

EXISTING RUNWAY
PROTECTION ZONE
VISIBILITY MINIMUMS
NOT LOWER THAN 1 MILE
SMALL AIRCRAFT EXCLUSIVELY
(200' x 400' ± 1,000')

EXISTING FAR PART 77
S11 APPROACH BLADE
NONPRECISION INSTRUMENT
UTILITY RUNWAY
(500' x 2,000' ± 1,000')



EXISTING AIRPORT LAYOUT - NO ACTION CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S

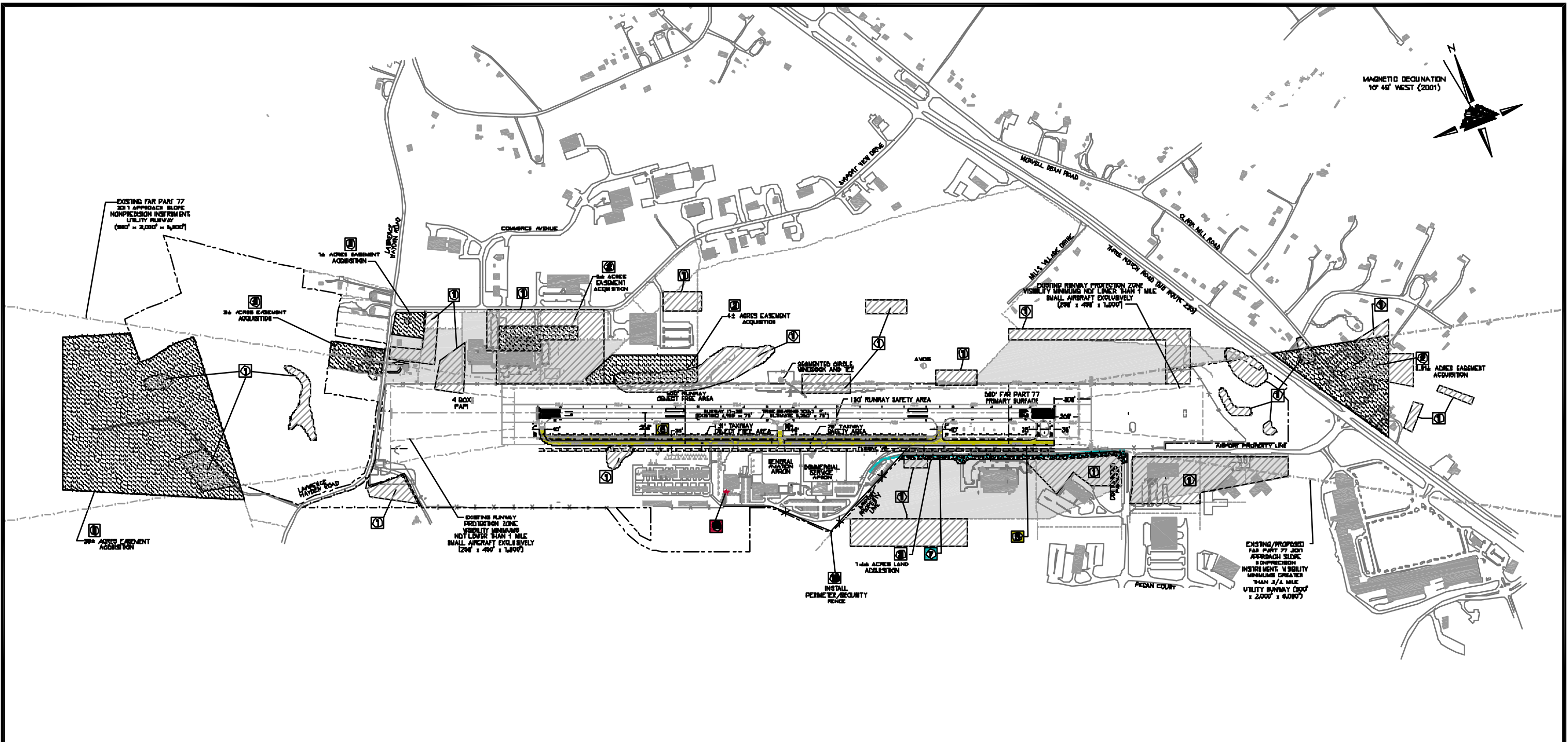
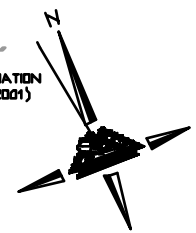
**EXHIBIT
2-7**

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ISSUED BY: LCB CHECKED BY: CMA SCALE: 1"=800' DATE: FEBRUARY 2004

MAGNETIC DECLINATION
10° 44' WEST (2001)



PROPOSED PROJECTS

- ① OBSTRUCTION REMOVAL
- ② PROPERTY INTEREST ACQUISITION
- ③ RELOCATE TAXIWAY 'A' & EXTEND (EAST)
- ④ REALIGN AIRPORT DRIVE
- ⑤ UPGRADE ROTATING BEACON
- ⑥ INSTALL PERIMETER/SECURITY FENCE

LEGEND		
	EXISTING	PROPOSED
RUNWAY OBJECT FREE AREA	—RFA—	—RFA—
RUNWAY SAFETY AREA	—RSA—	—RSA—
AIRPORT PROPERTY LINE	—APL—	—APL—
FENCE LINE	—FL—	—FL—
AVIATION EASEMENT	—AE—	—AE—
LAND ACQUISITION (FEE SIMPLE)	N/A	—LA—
DEMOLITION	N/A	—D—
OBSTRUCTION REMOVAL	N/A	—OR—
OBSTRUCTION TOWER/LIGHT	—OTL—	—OTL—
ROTATING BEACON	—RB—	—RB—



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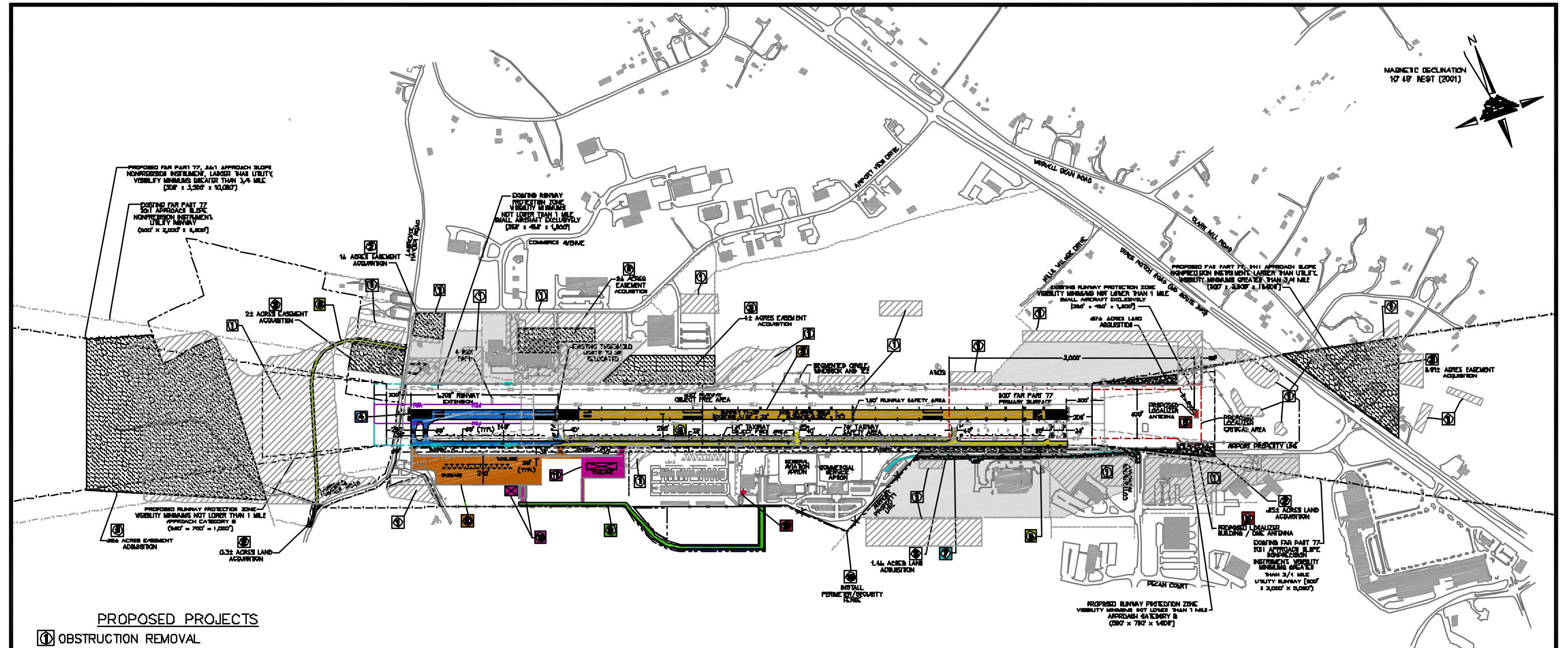
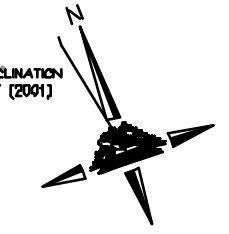


**ALTERNATIVE 2
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S**

**EXHIBIT
2-8**

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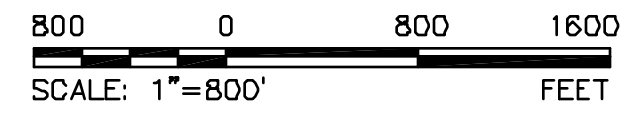
MAGNETIC DECLINATION
10° 49' WEST (2001)



PROPOSED PROJECTS

- ① OBSTRUCTION REMOVAL
- ② PROPERTY INTEREST ACQUISITION
- ③ OVERLAY/STRENGTHEN RUNWAY 11-29 PAVEMENT (30,000 LBS. SW)
- ④ EXTEND RUNWAY & PARALLEL TAXIWAY WEST
- ⑤ RELOCATE TAXIWAY 'A' & EXTEND (EAST)
- ⑥ RELOCATE LAWRENCE HAYDEN ROAD
- ⑦ REALIGN AIRPORT DRIVE
- ⑧ INSTALL LOCALIZER/DME ANTENNAS & BUILDING
- ⑨ CONSTRUCT AIRPORT ACCESS ROAD
- ⑩ CONSTRUCT WEST APRON & CONNECTING TAXIWAYS
- ⑪ CONSTRUCT T-HANGARS, CONVENTIONAL HANGAR, AUTO PARKING & APRON
- ⑫ UPGRADE ROTATING BEACON
- ⑬ INSTALL PERIMETER/SECURITY FENCE

LEGEND		
	EXISTING	PROPOSED
RUNWAY OBJECT FREE AREA	—	—
RUNWAY SAFETY AREA	—	—
AIRPORT PROPERTY LINE	—	—
FENCE LINE	—	—
AVIATION EASEMENT	—	—
LAND ACQUISITION (FEE SIMPLE)	N/A	—
DEMOLITION	N/A	—
OBSTRUCTION REMOVAL	N/A	—
OBSTRUCTION TOWER/LIGHT	—	—
ROTATING BEACON	—	—



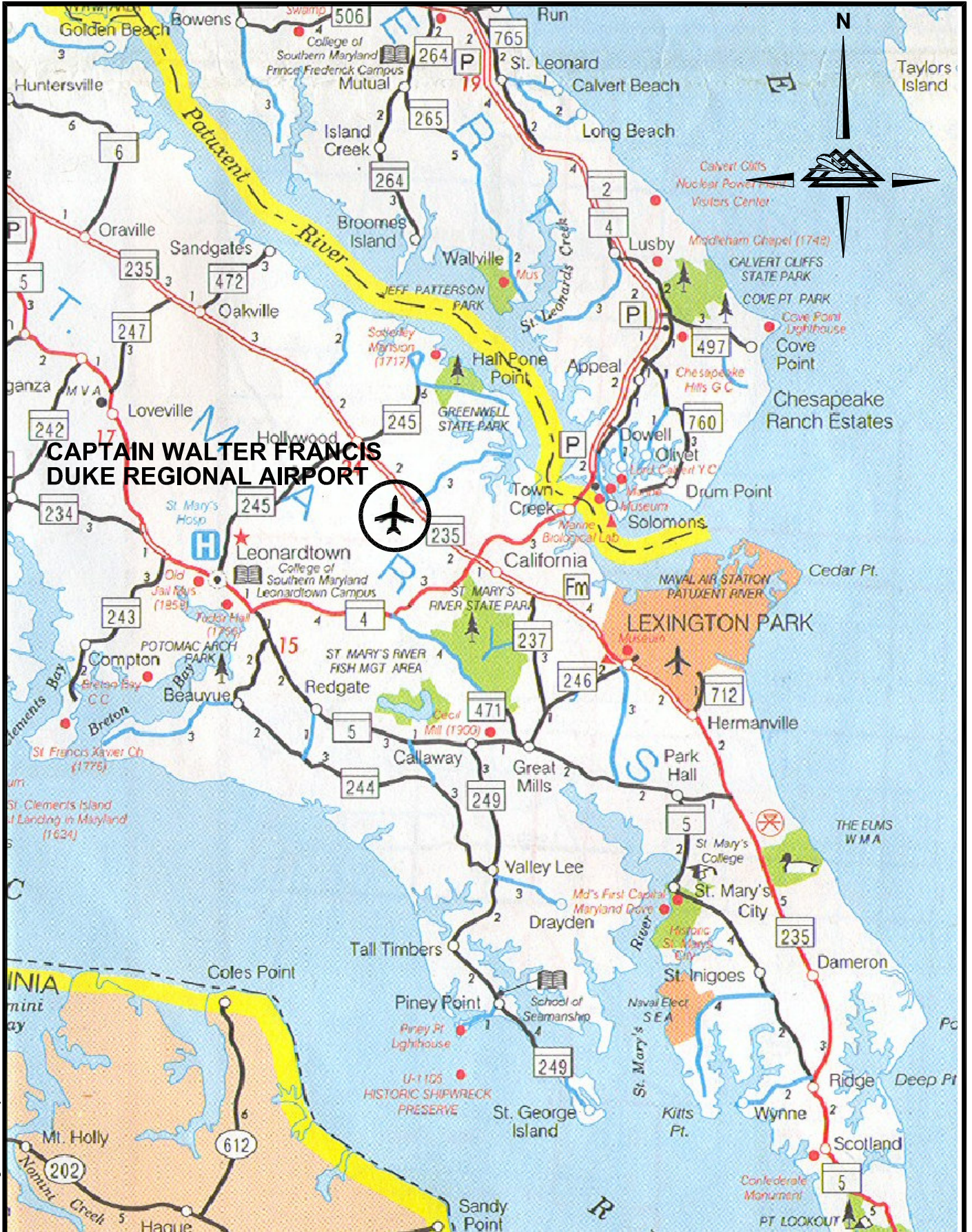
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**ALTERNATIVE 3
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S**

**EXHIBIT
2-9**

ISSUED BY: LMS DESIGNED BY: CMA SCALE: 1"=800' DATE: FEBRUARY 2004



**CAPTAIN WALTER FRANCIS
DUKE REGIONAL AIRPORT**



LOCATION MAP

CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT

EXHIBIT

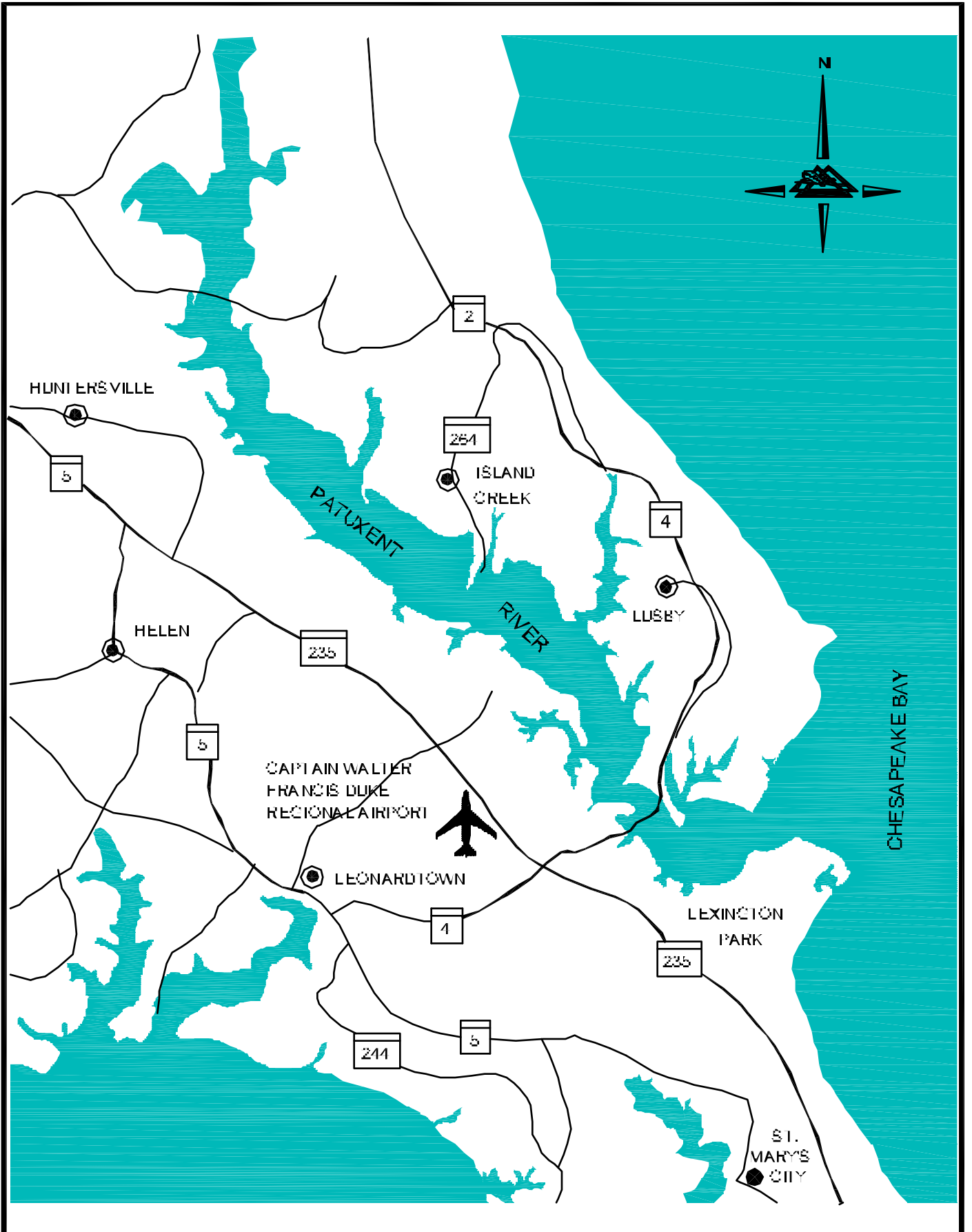
3-1

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DRAWN BY: BNK CHECKED BY: CMA SCALE: NONE DATE: DECEMBER 2005



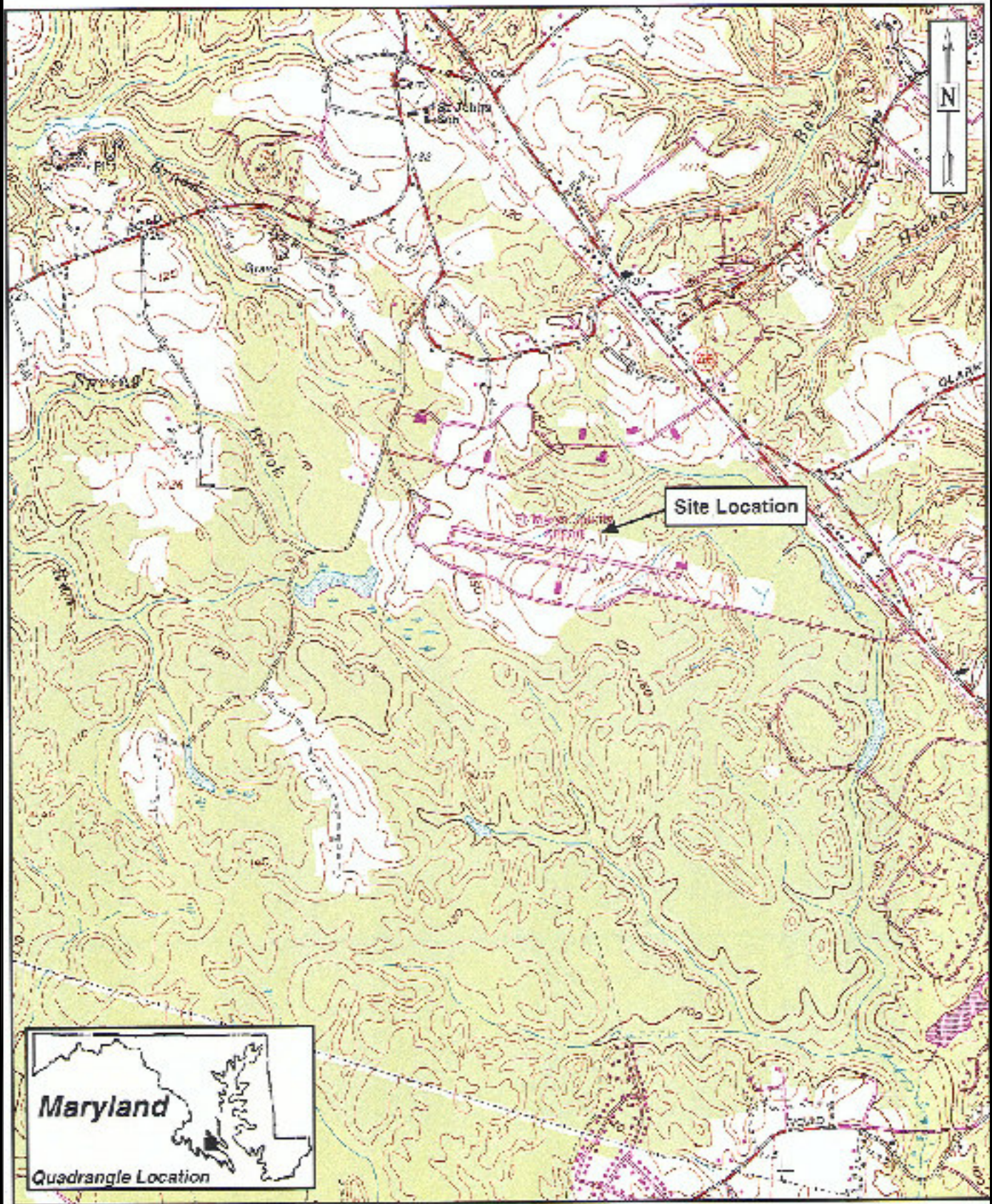
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VICINITY MAP
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT

EXHIBIT
3-2

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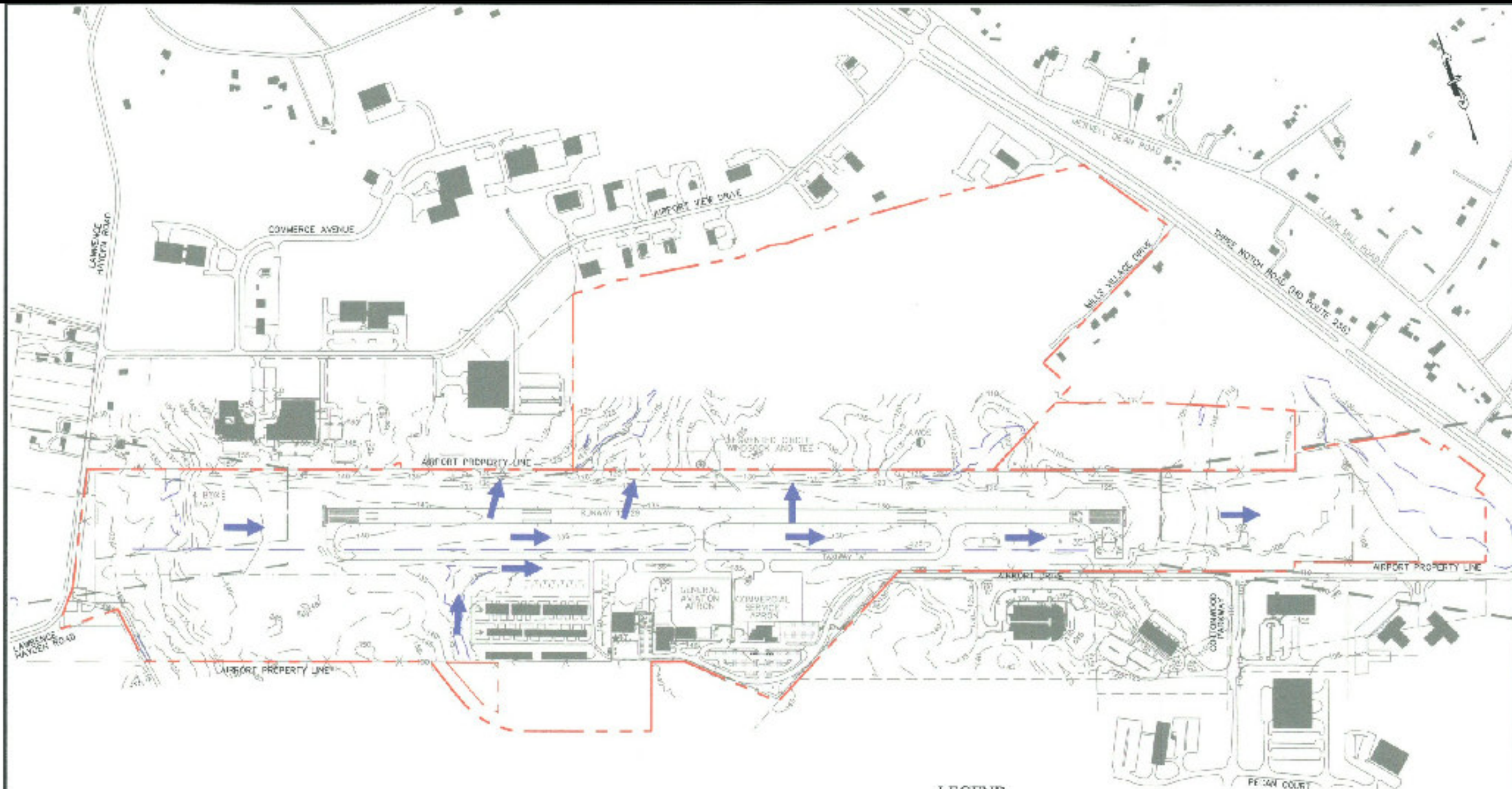
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USGS QUAD MAP
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT

EXHIBIT
3-6

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LEGEND

- FLOW DIRECTION
- WATER LINE



SITE PLAN
 CAPTAIN WALTER FRANCIS DUKE
 REGIONAL AIRPORT AT ST. MARY'S
 LEONARDTOWN, MARYLAND

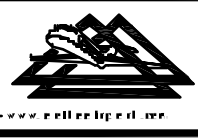
<p>S&ME <small>ENVIRONMENTAL SERVICES ENGINEERING - DESIGN</small></p>	BILLYE BUNCH 3111 GREENPARK DRIVE FOLKERS BLVD FOLKERS BLVD FOLKERS BLVD MD 21155	
	SCALE: 1" = 500' JOB NO: 1040-03-722	DRAWN BY: JCJ DATE: MARCH 2004

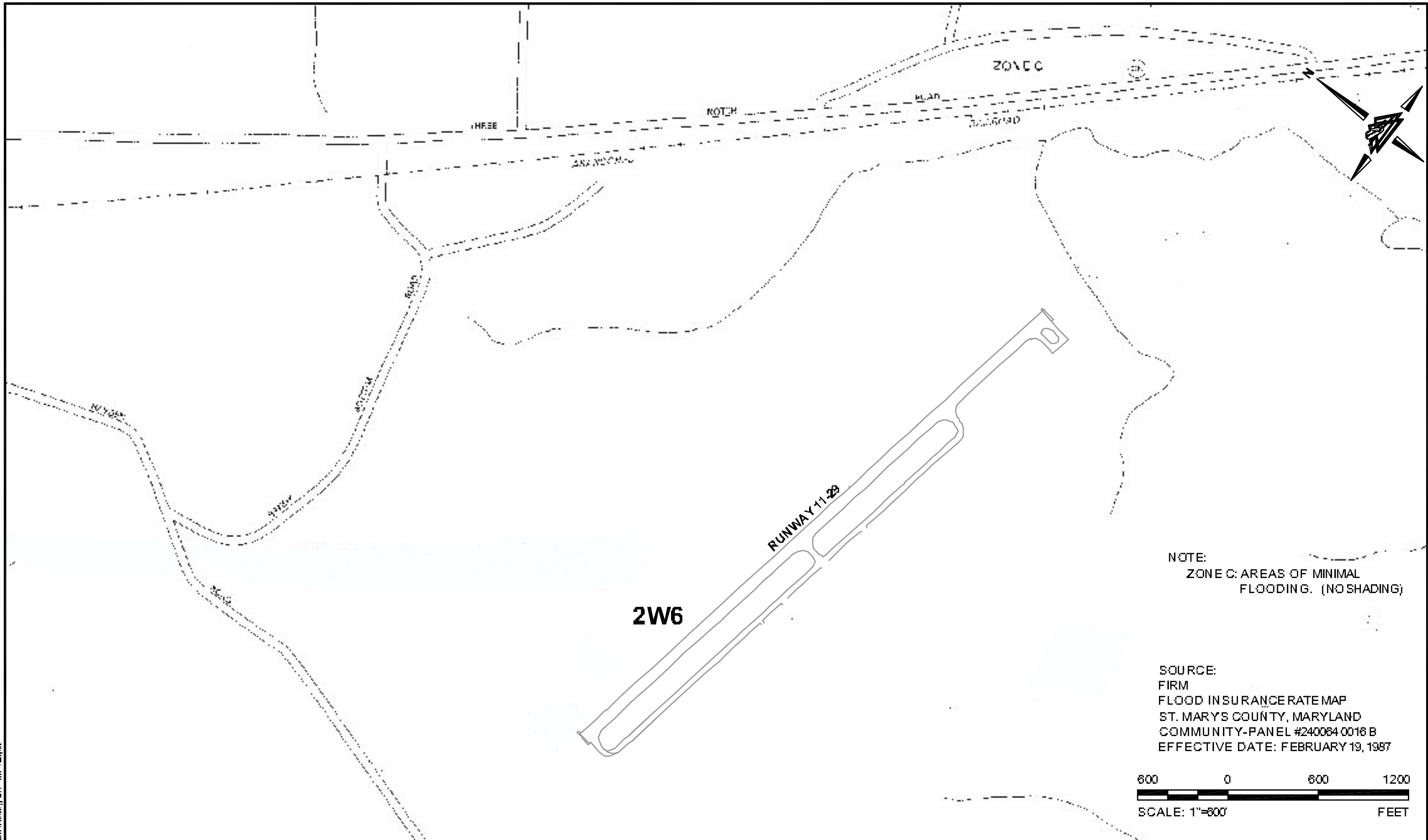
SOURCE: DELTA AIRPORT CONSULTANTS, INC., CHARLOTTE, NORTH CAROLINA

STORM WATER DRAINAGE PATTERN CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT

DRAWN BY: **DNK** CHECKED BY: **CMA** SCALE: **NONE** DATE: **DECEMBER 2003**

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NOTE:
 ZONE C: AREAS OF MINIMAL
 FLOODING. (NO SHADING)

SOURCE:
 FIRM
 FLOOD INSURANCE RATE MAP
 ST. MARY'S COUNTY, MARYLAND
 COMMUNITY-PANEL #240084-0018 B
 EFFECTIVE DATE: FEBRUARY 19, 1987



FLOOD INSURANCE RATE MAP
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT

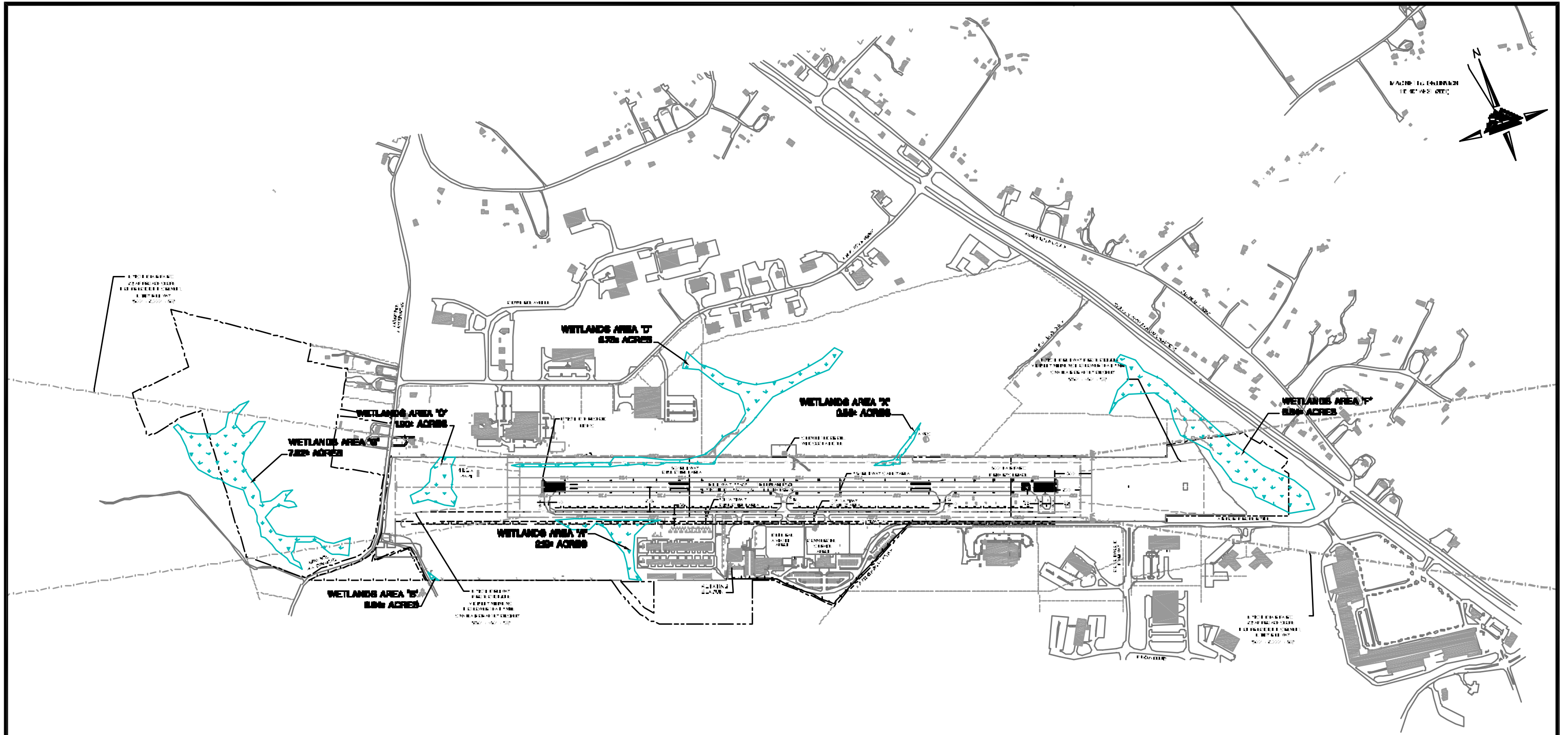
EXHIBIT
 3-8

DRAWN BY: CHK: CHECKED BY: CMA SCALE: 1"=800' DATE: 11/20/2006

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LEGEND

- AIRPORT PROPERTY LINE
- WETLANDS

SOURCE: MILL CREEK ENVIRONMENTAL CONSULTANTS WETLAND SURVEY AND DELINEATION REPORT 2005



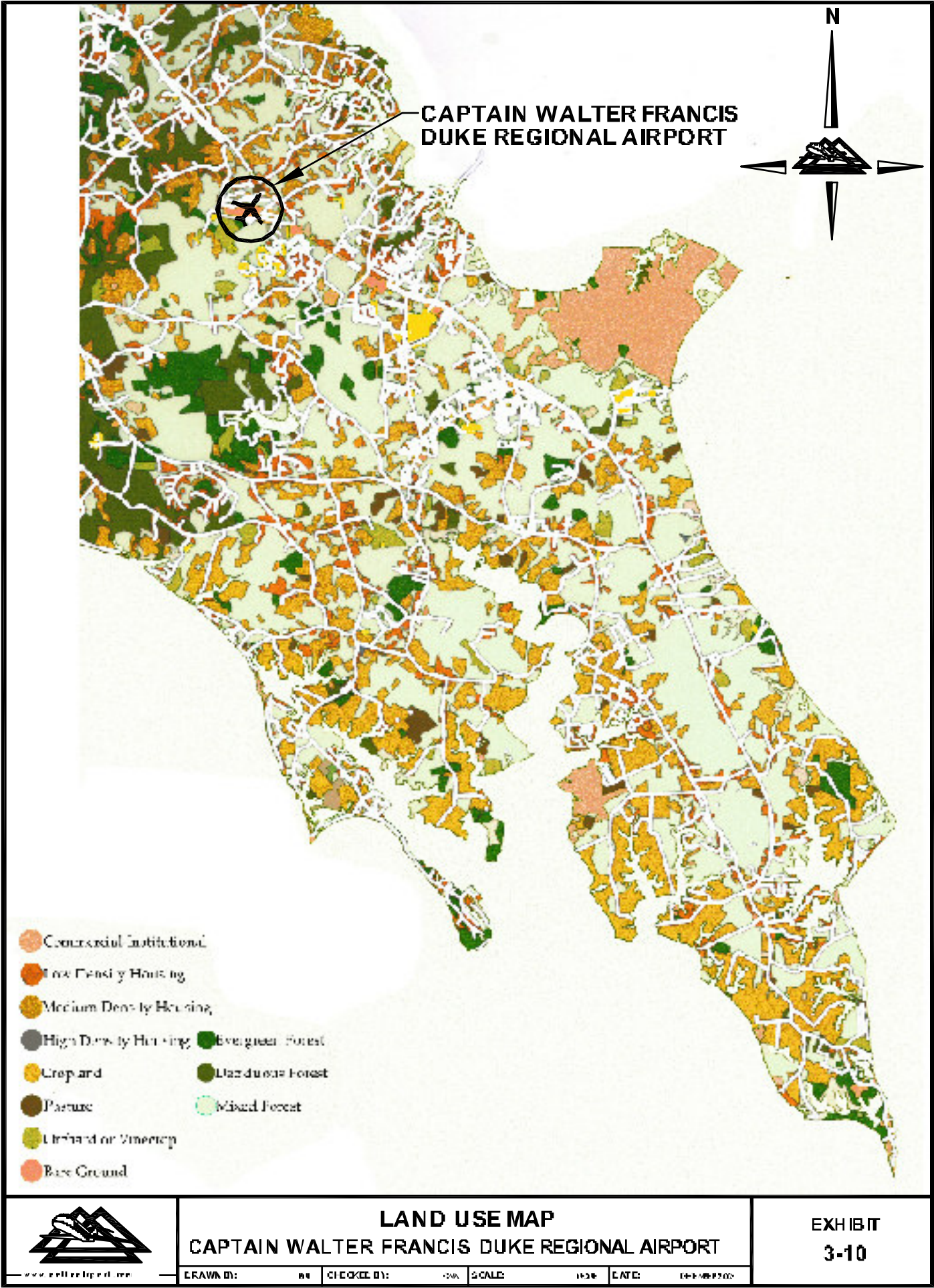
**WETLANDS
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S**

**EXHIBIT
3-9**

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ISSUED BY: [] DATE: [] CHECKED BY: [] DATE: [] DRAWN BY: [] DATE: []



**CAPTAIN WALTER FRANCIS
DUKE REGIONAL AIRPORT**

N

- Commercial/Institutional
- Low Density Housing
- Medium Density Housing
- High Density Housing
- Evergreen Forest
- Crop and Pasture
- Hardwood Forest
- Mixed Forest
- Urban and Suburban
- Barren Ground

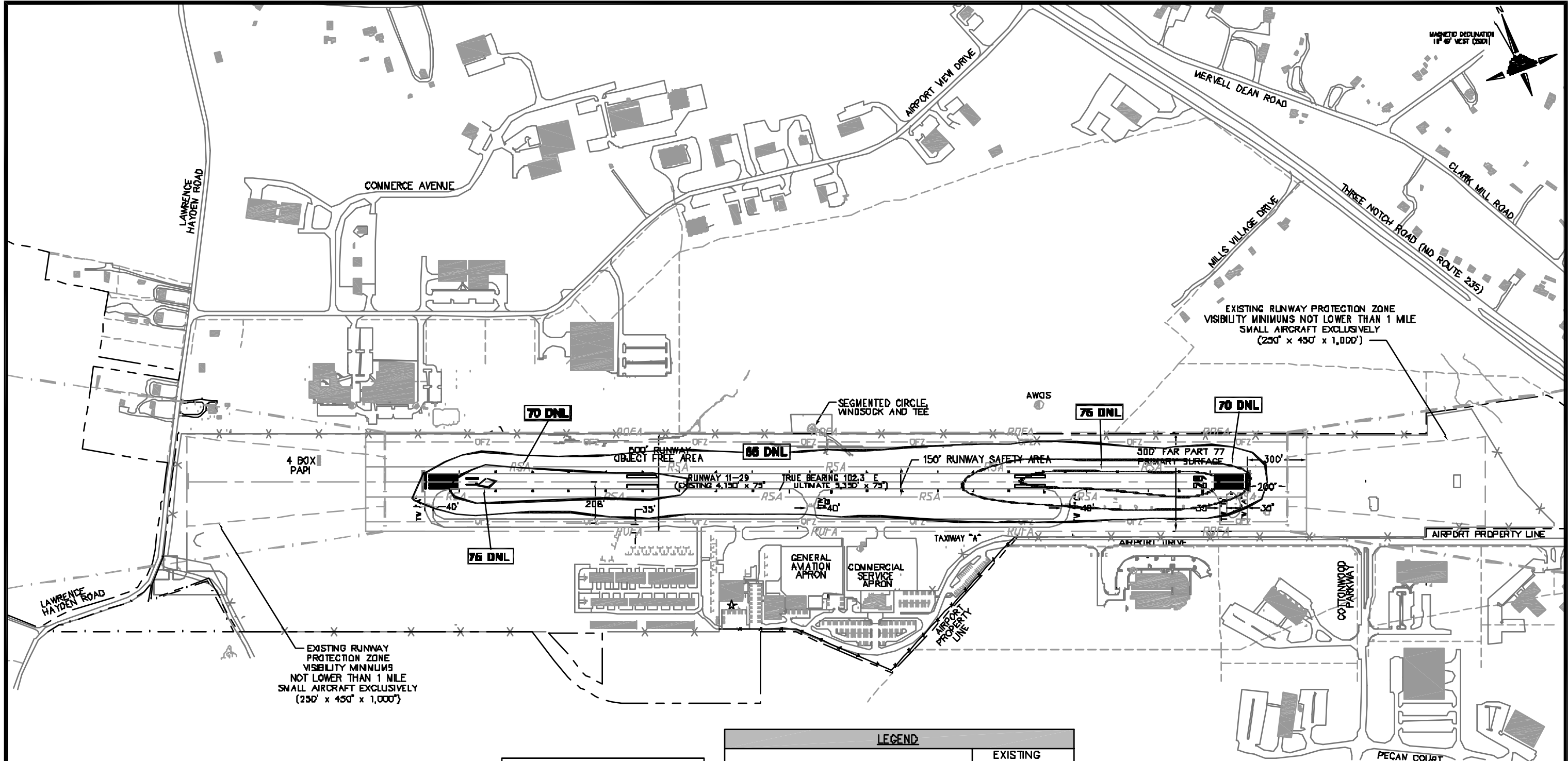


**LAND USE MAP
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT**

**EXHIBIT
3-10**

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DRAWN BY: [] CHECKED BY: [] DATE: []



EXISTING RUNWAY PROTECTION ZONE
 VISIBILITY MINIMUMS
 NOT LOWER THAN 1 MILE
 SMALL AIRCRAFT EXCLUSIVELY
 (250' x 450' x 1,000')

EXISTING RUNWAY PROTECTION ZONE
 VISIBILITY MINIMUMS NOT LOWER THAN 1 MILE
 SMALL AIRCRAFT EXCLUSIVELY
 (250' x 450' x 1,000')

RUNWAY 11-29		
DNL	ACRES	SQ. MILES
75	2.3	.003
70	10.8	.017
65	34.0	.053

LEGEND	
	EXISTING
RUNWAY OBJECT FREE AREA	ROFA
RUNWAY SAFETY AREA	RSA
AIRPORT PROPERTY LINE	---
FENCE LINE	X
OBSTRUCTION TOWER/LIGHT	⊙
ROTATING BEACON	★
SEGMENTED CIRCLE, WINDSOCK & TEE	⊙

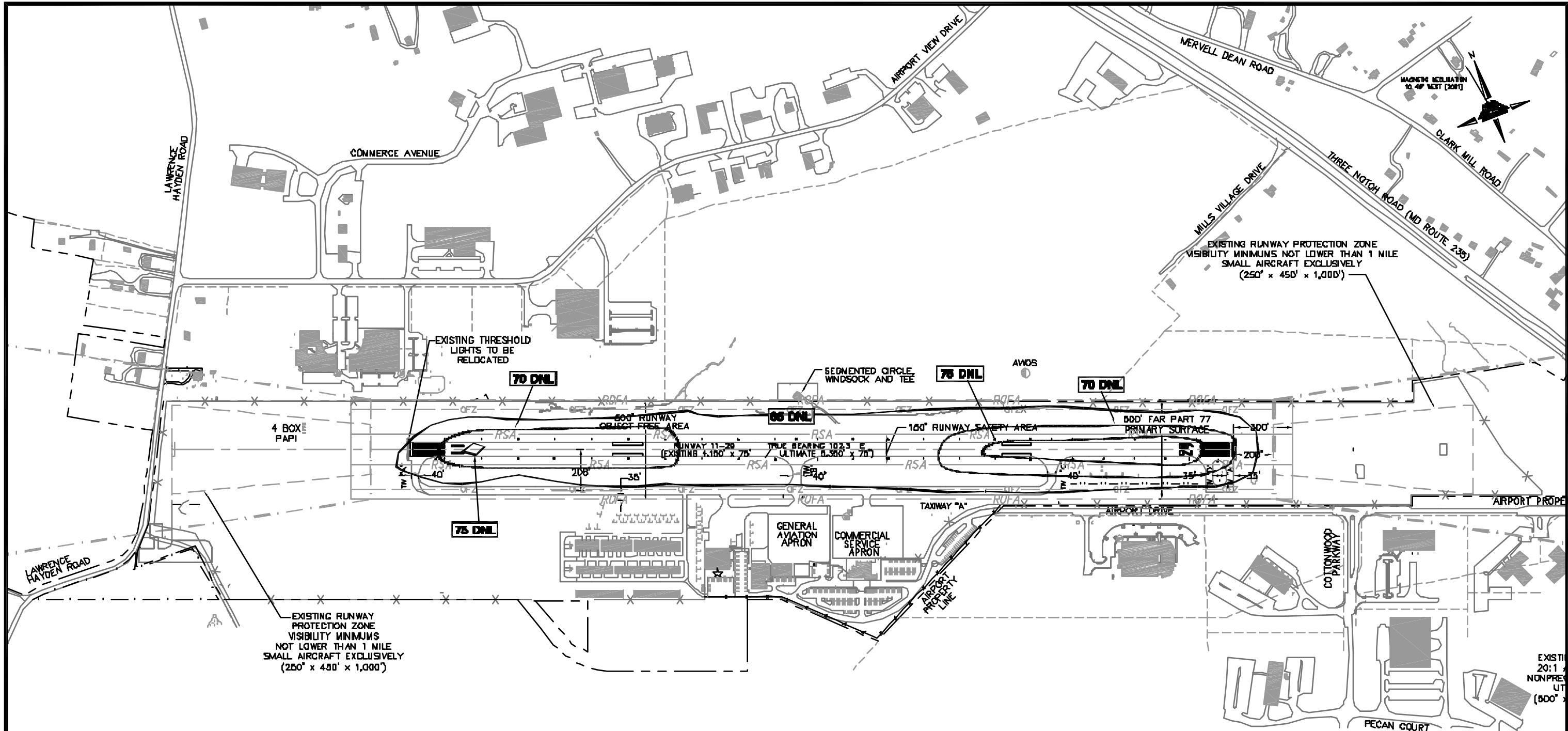
DRAWING: 00124-3-11.dwg LAYOUT: 3-11



**EXISTING (2003) NOISE CONTOURS
 CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S**

**EXHIBIT
 3-11**

DATE: DECEMBER 2003 SCALE: 1"=500'



EXISTING RUNWAY PROTECTION ZONE
VISIBILITY MINIMUMS
NOT LOWER THAN 1 MILE
SMALL AIRCRAFT EXCLUSIVELY
(250' x 450' x 1,000')

EXISTING RUNWAY PROTECTION ZONE
VISIBILITY MINIMUMS NOT LOWER THAN 1 MILE
SMALL AIRCRAFT EXCLUSIVELY
(250' x 450' x 1,000')

RUNWAY 11-29		
DNL	ACRES	SQ. MILES
75	2.9	.004
70	12.8	.019
65	36.8	.057

LEGEND	
	EXISTING
RUNWAY OBJECT FREE AREA	ROFA
RUNWAY SAFETY AREA	RSA
AIRPORT PROPERTY LINE	---
FENCE LINE	X
OBSTRUCTION TOWER/LIGHT	●
ROTATING BEACON	☆

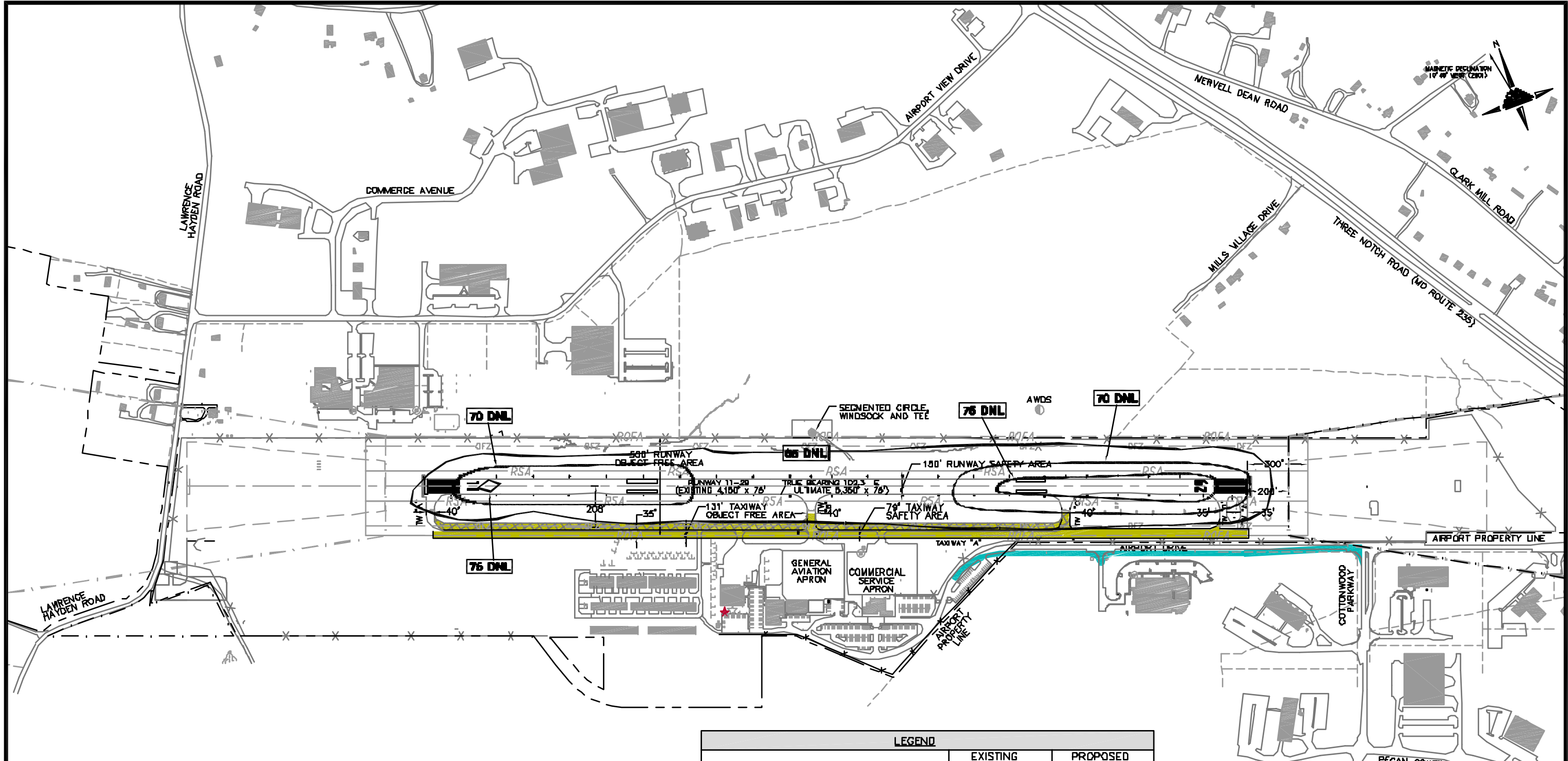
**FUTURE (2008) NOISE CONTOURS - ALTERNATIVE 1 (NO ACTION)
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S**

**EXHIBIT
4-1**

DRAWING: 00124-001-4-1.dwg LAYOUT: 4-1



DATE: DECEMBER 2003 SCALE: 1"=500'



PROPOSED PROJECTS

- ① OBSTRUCTION REMOVAL
- ② PROPERTY INTEREST ACQUISITION
- ④ RELOCATE TAXIWAY 'A' & EXTEND (EAST)
- ⑦ REALIGN AIRPORT DRIVE
- ⑧ UPGRADE ROTATING BEACON
- ⑨ INSTALL PERIMETER/SECURITY FENCE

RUNWAY 11-20		
DNL	ACRES	SQ. MILES
75	2.9	.004
70	12.8	.019
65	36.8	.057

LEGEND		
	EXISTING	PROPOSED
RUNWAY OBJECT FREE AREA	ROFA	N/A
RUNWAY SAFETY AREA	RSA	N/A
AIRPORT PROPERTY LINE	---	---
FENCE LINE	X	X
DEMOLITION	N/A	XXXX
OBSTRUCTION TOWER/LIGHT	⊙	⊙
ROTATING BEACON	☆	★

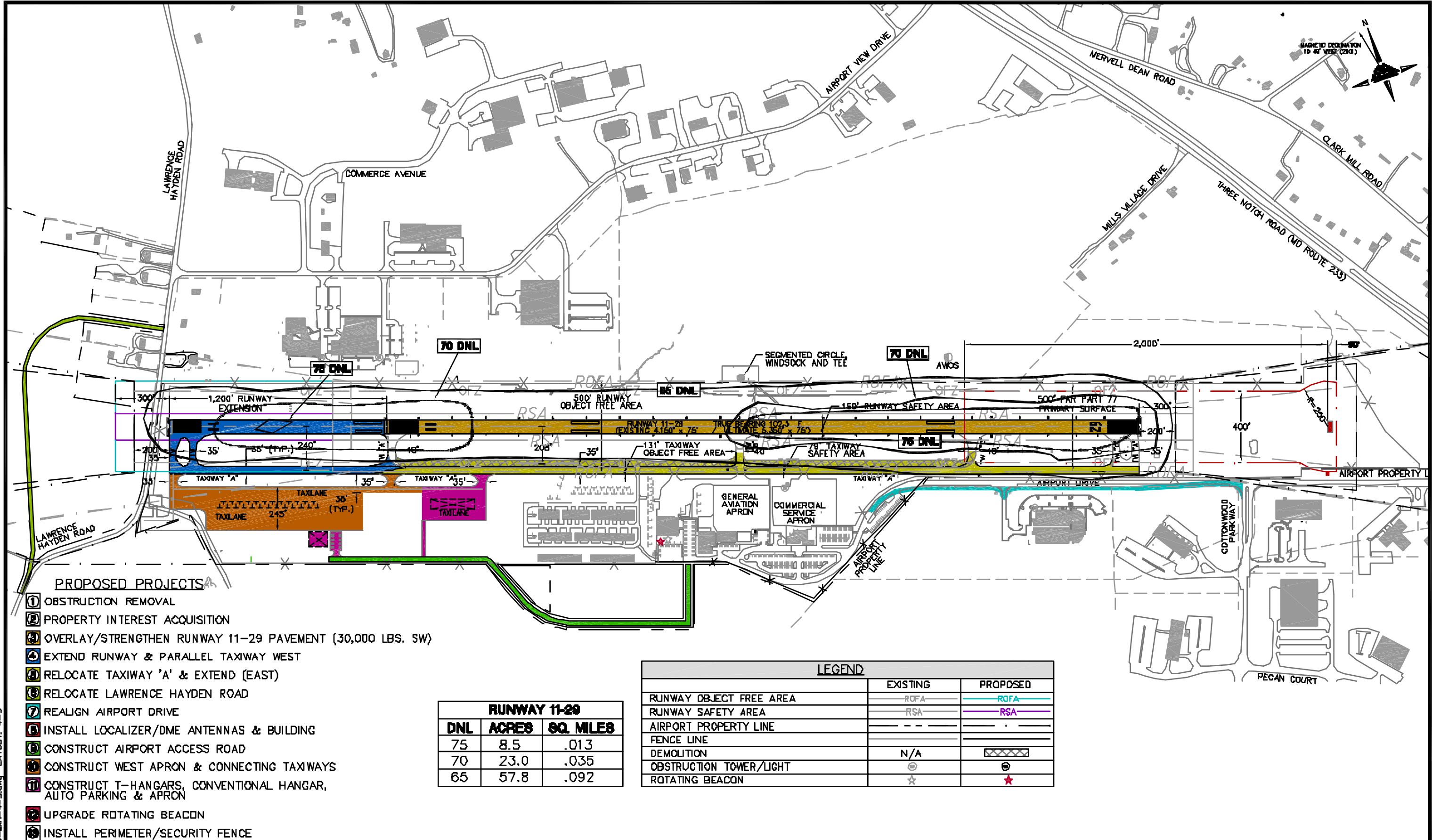
**FUTURE (2008) NOISE CONTOURS - ALTERNATIVE 2
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S**

**EXHIBIT
4-2**

DRAWING: 00124-001-4-2.dwg LAYOUT: 4-2



ISSUED BY: LCB CHECKED BY: CMA SCALE: 1"=500' DATE: DECEMBER 2003



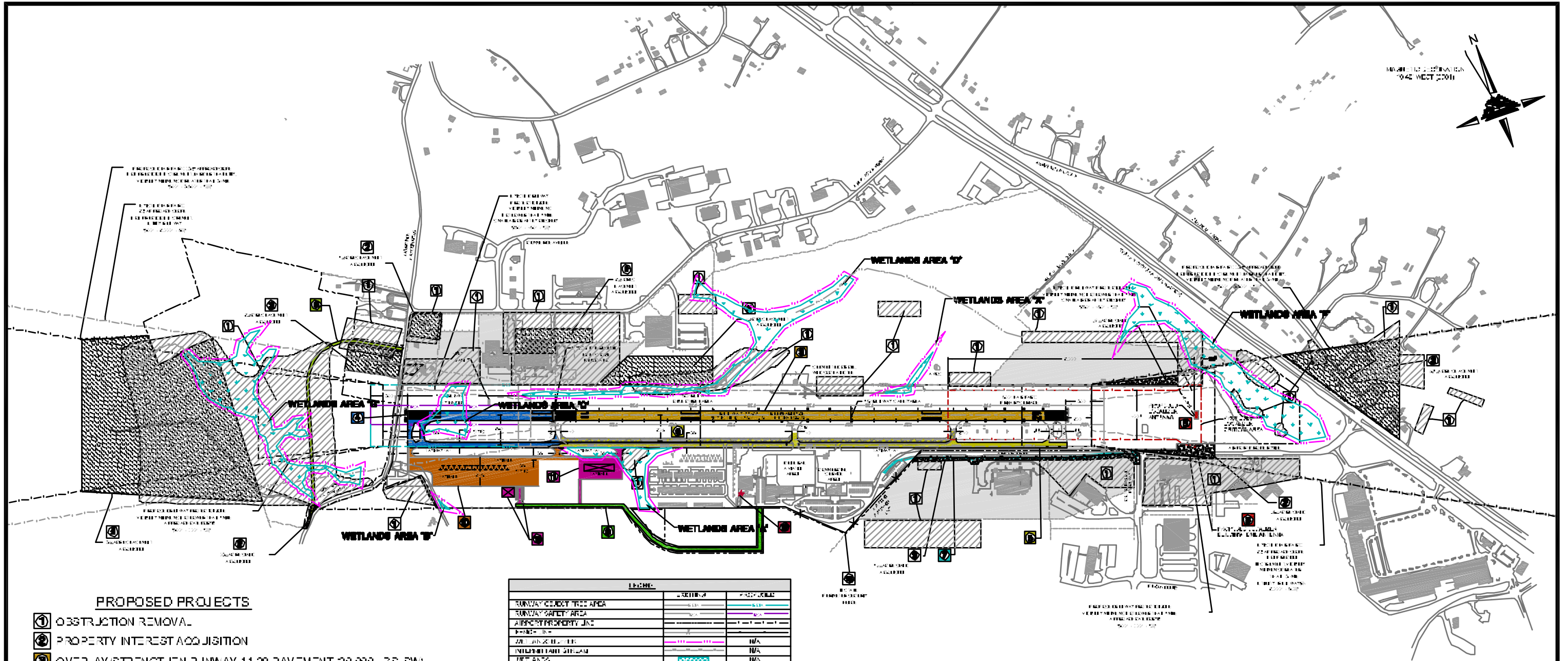
DRAWING: 00124-001-4-3.dwg LAYOUT: 4-3



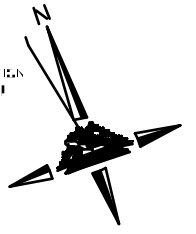
**FUTURE (2008) NOISE CONTOURS - ALTERNATIVE 3
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S**

DRAWN BY: VCS CHECKED BY: CMA SCALE: 1"=500' DATE: DECEMBER 2003

**EXHIBIT
4-3**



MAP SHEET DESIGNATION
1045 WEST 2001



PROPOSED PROJECTS

- ① OBSTRUCTION REMOVAL
- ② PROPERTY INTEREST ACQUISITION
- ③ OVERLAY/STRENGTHEN RUNWAY 11-29 PAVEMENT (30,000 LBS. SQ);
- ④ EXTEND RUNWAY & PARALLEL TAXIWAY WEST
- ⑤ RELOCATE TAXIWAY 'A' & EXTEND (EAST);
- ⑥ RELOCATE LAWRENCE HAYDEN ROAD
- ⑦ REALIGN AIRPORT DRIVE
- ⑧ INSTALL LOCALIZER/DME ANTENNAS & BUILDING
- ⑨ CONSTRUCT AIRPORT ACCESS ROAD
- ⑩ CONSTRUCT WEST APRON & CONNECTING TAXIWAYS
- ⑪ CONSTRUCT T-HANGARS, CONVENTIONAL HANGAR, AUTO PARKING & APRON
- ⑫ UPGRADE ROTATING BEACON
- ⑬ INSTALL PERIMETER SECURITY FENCE

PROJECT	WETLAND	WETLAND BUFFER
RUNWAY CENTER LINE AREA	WETLAND	WETLAND BUFFER
RUNWAY SAFETY AREA	WETLAND	WETLAND BUFFER
AIRPORT PROPERTY LINE	WETLAND	WETLAND BUFFER
APRON	WETLAND	WETLAND BUFFER
TAXIWAY	WETLAND	WETLAND BUFFER
WETLANDS	WETLAND	WETLAND BUFFER
PERIMETER FENCEMENT	WETLAND	WETLAND BUFFER
LANDSCAPE PLANTING	WETLAND	WETLAND BUFFER
CONSTRUCTION	WETLAND	WETLAND BUFFER
OBSTRUCTION REMOVAL	WETLAND	WETLAND BUFFER
PERIMETER SECURITY FENCE	WETLAND	WETLAND BUFFER
ROTATING BEACON	WETLAND	WETLAND BUFFER

AREA #	WETLAND AREA (ACRES)	WETLAND IMPACTS	WETLAND BUFFER IMPACTS	ACOE ZONE
A	1.22 ACRES	1.15 ACRES	1.08 ACRES	WATER COURSE
B	1.04 ACRES	1.04 ACRES	1.04 ACRES	WATER COURSE
C	1.18 ACRES	1.18 ACRES	1.18 ACRES	WATER COURSE
D	1.57 ACRES	1.4 ACRES	1.4 ACRES	WATER COURSE
E	1.22 ACRES	1.14 ACRES	1.08 ACRES	WATER COURSE
F	1.72 ACRES	1.64 ACRES	1.58 ACRES	WATER COURSE
X	1.04 ACRES	0 ACRES	0 ACRES	WATER COURSE
TOTALS	12.99 ACRES	11.78 ACRES	11.42 ACRES	



TOXICITY OF ENVIRONMENTAL JURISDICTIONAL DETERMINATION
SOURCE: DELTA AIRPORT CONSULTANTS & MILL CREEK ENVIRONMENTAL CONSULTANTS LTD. WETLAND SURVEY & DELINEATION REPORT, 2005

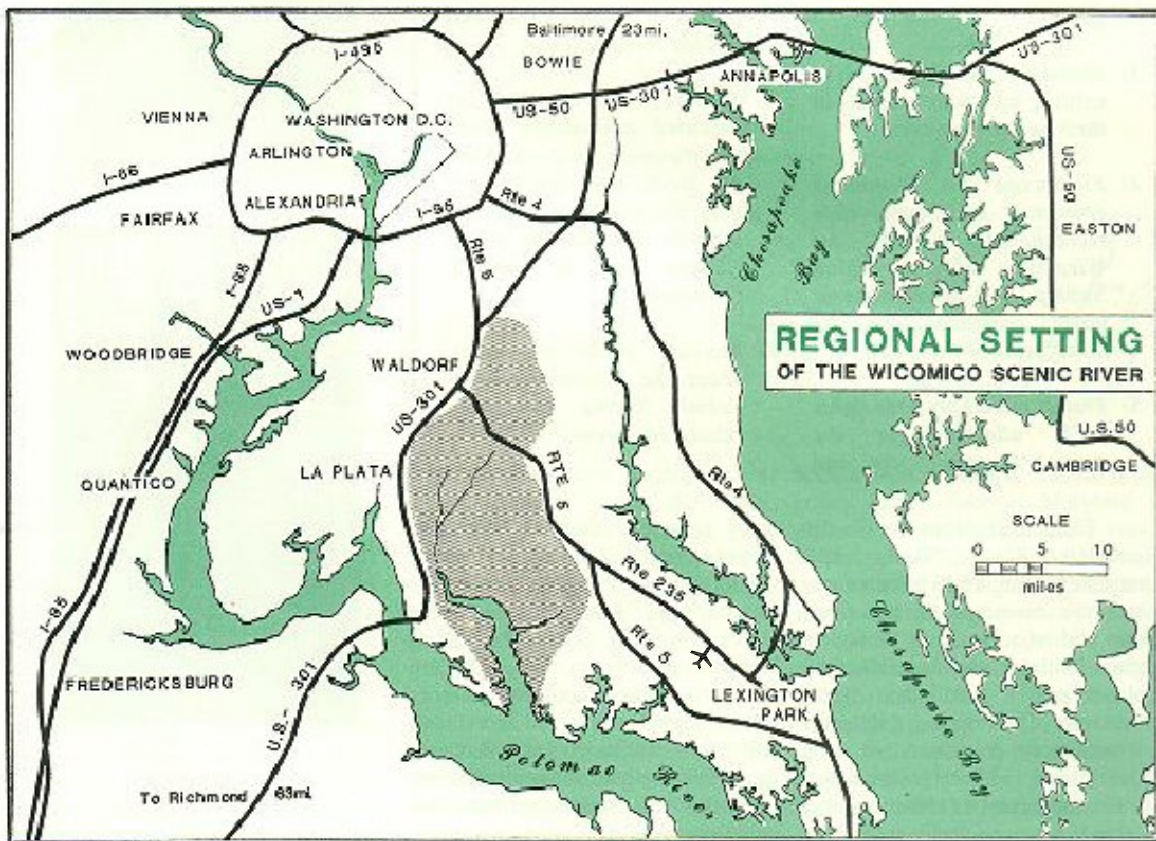
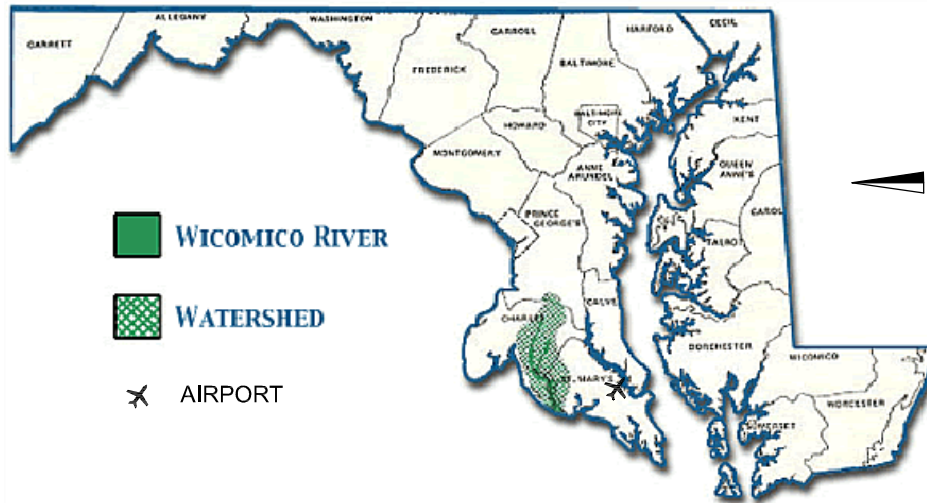
**WETLAND IMPACTS: ALTERNATIVE 3
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT AT ST. MARY'S**

**EXHIBIT
4-5**

DELTA AIRPORT CONSULTANTS & MILL CREEK ENVIRONMENTAL CONSULTANTS LTD.



PROJECT NO.	1045	DESIGNED BY:	CMA	SCALE:	1"=800'	DATE:	DECEMBER 2005
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DRAWING: 00124-ext-4.6.dwg LAYOUT: Layout1



www.deltaairport.com

**WICOMICO RIVER WATERSHED
CAPTAIN WALTER FRANCIS DUKE REGIONAL AIRPORT**

DRAWN BY: DWS CHECKED BY: CMA SCALE: NONE DATE: DECEMBER 2005

**EXHIBIT
4-6**