SECTION 9.0 FINDINGS

This section contains the following Findings.

9.1 MassDOT Aeronautics Draft Section 61 Findings

Massachusetts Department of Transportation
Aeronautics Division

Section 61 Finding (MGL Chapter 30, Section 61)

Project:	Capital Improvements Plan (CIP)
Project Location:	Provincetown Municipal Airport
Project Proponent:	Provincetown Airport Commission
EEA Number:	13789

This Section 61 Findings for the proposed CIP projects has been prepared pursuant to Massachusetts General Laws, Chapter 30, Section 61 and 301 CMR 11.07. As a state agency, the Massachusetts Department of Transportation Aeronautics Division (MassDOT) is required to review, evaluate and determine the environmental impacts of its actions and issue a Finding. The MassDOT action is to fund a percentage of the construction and mitigation costs.

The Findings are based on the information presented in the FEIR/EA (EEA #13789) which outlines the measures that will be implemented by the Provincetown Municipal Airport Commission to minimize the unavoidable environmental impacts associated with the projects.

CIP Project Summary

The Provincetown Municipal Airport Commission proposes a Capital Improvements Plan (CIP) of safety and facility improvements at Provincetown Municipal Airport (Airport). The purpose of the CIP project elements is to enhance Airport safety and security and enhance the efficiency of the Airport to more fully meet the current and anticipated demand. The CIP projects are needed because certain airfield facilities do not meet current FAA safety and security standards and the Airport's current parking and terminal facilities can not efficiently meet current and projected demand. Implementation of the CIP will fulfill the mission of the Airport to operate a safe, secure, and reliable primary service airport receiving scheduled airline passenger service. The projects are listed below.

Proposed CIP Projects

- Westerly Taxiway System Improvements
- Relocate East End TW
- Reconstruct Easterly End of Partial Parallel TW
- Reconstruct Terminal Apron
- Install TW Edge Lights and Construct Electric Vault
- Rehabilitate or Replace Sightseeing Shack
- Improve Access Road to Approach Lights (MALSF)
- Construct Service Access Roads to AWOS and LES
- Install Perimeter Fence
- Expand Turf Apron

- Expand Auto Parking
- Expand Terminal Building

MEPA History

A MEPA Certificate on the Environmental Notification Norm (ENF) was issued for the project on May 26, 2006. A MEPA Certificate on the NPC/Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) was issued on July 18, 2007. A Certificate on the FEIR/EA was issued on February 17, 2012 stating that the FEIR/EA adequately and properly complied with MEPA and its implementing regulations.

Summary of Impacts

The CIP projects will have unavoidable impacts to wetland, coastal dune, cultural grasslands and species habitat. Impacts have been minimized through design alternatives, construction timing and methods, and long-term operational mitigation measures. A summary of impacts for each element of the CIP is presented in Table 1.

Mitigation Measures

Measures have been incorporated in the design phase, construction phase mitigation, and operational phase.

Design Phase Mitigation

- Wetland Restoration
- Coastal Dune Restoration
- Cultural Grassland Restoration
- Stormwater Management
- Landscaping and Building Design

Construction Phase Mitigation

- Construction Management Plan
- Turtle Protection Plan

Operational Mitigation

- Vegetation Management Plan
- Invasive Species Management Plan
- Operational Mitigation Plan
- Stormwater Management Plan
- TDM Measures

Mitigation Implementation Schedule

Mitigation measures (summarized in Table 2) and outlined in detail in the FEIR document and permits will be incorporated into all contract documents to insure implementation. The Airport Commission will be the responsible party for implementation of the mitigation measures.

Table 1 Summary Of Impacts And Proposed Mitigation Measures For Preferred Alternatives For CIP Projects

PROPOSED ALTERATION					PROPOSED MITIGATION		
Project	**Type of Resource Area**	**Area of Proposed Alteration (SF)**	**Species Habitat**	**Description of Proposed Alteration**	**Description of Proposed Mitigation**	**Area of Proposed Mitigation (SF)**	
(1) Westerly TW System Improvements	IVW	28,655 (Wetland I)	EBT, ES(B)	Fill	On-site wetland restoration	Areas A & C	
	Coastal Dune	6,460	EBT, ES(N)		On-site dune creation	Areas A & C	
	Cultural Grassland	No Net Loss	EBT, VS		On-site cultural grassland creation/restoration	No Net Loss	
(2) Relocate East End TW	IVW	28,300 (Wetland B)	EBT, ES(B)	Fill	On-site wetland restoration	Areas A & C	
	Coastal Dune	5,000	EBT, ES(N)		On-site dune creation	Areas A & C	
	Cultural Grassland	No Net Loss	EBT, VS		On-site cultural grassland creation/restoration	No Net Loss	
(3) Reconstruct Terminal Apron	--	--		--	--	--	
(4) Reconstruct Easterly End of Partial Parallel TW	--	--		--	--	--	
(5) Install TW Lighting and Construct Electric Vault	Cultural Grassland	No Net Loss	EBT, VS	--	On-site cultural grassland restoration	--	
(6) Repair Sightseeing Shack	--	--		--	--	--	
(7) Improve Access Road to Approach Lights (MALSF)	BVW	960 (Wetland C/J/FK)		Fill	On-site wetland restoration	Area B	
(8) Construct Service Access Roads LES Road	Coastal Dune	7,610	EBT, ES(N)	Fill	On-site dune creation	Areas A & C	
(8) Construct Service Access Roads AWOS Road	IVW	290 (Wetland H)	EBT	Fill	On-site wetland restoration	Areas A & C	
	Coastal Dune	10,560	EBT, ES(N)	Fill	On-site dune creation	Areas A & C	
(9) Install Perimeter Fence (REVISED alternative) "Concept 6"	BVW	1,152 (direct)[1] 8,972 (indirect/secondary) (Wetland C/J/FK)	(EBT)	Direct Impact consists of Fill for Fence Post Installation and maintenance. Indirect/Secondary Impact consists of Vegetation Maintenance[1].	On-site wetland restoration	Area B	
	IVW	25,648 (direct) 3,952 (indirect/secondary)	EBT, ES(B)		On-site wetland restoration	Areas A & C	
					On-site wetland enhancement	Wetland H & I	
	Coastal Dune	8,060 (direct) 24,028 (indirect/secondary)	EBT, ES(N)	Fill	On-site dune creation	Areas A & C	
(10a) Expand Auto Parking (Phase 1)	Coastal Dune	7,315	EBT, ES(N)	Fill	On-site dune creation	Areas A & C	
(10b) Auto Parking (Phase 2) "Concept 4"	Coastal Dune	5,707	EBT, ES(N)	Fill			
(11) Expand Terminal Building (Vertical Expansion)	--	--		--	--	--	
(12) Expand Turf Apron	Cultural Grassland	No Net Loss	EBT, VS	--	On-site cultural grassland restoration		
TOTAL DIRECT ALTERATION: (SF)	IVW	82,893		**TOTAL ON-SITE MITIGATION: (SF)**	On-site IVW restoration	Net Change in Area (SF)	
						78,000	-4,893 (~1:1)
					On-site wetland enhancement	616,350	(~7.4:1)
	BVW	2,112			On-site BVW restoration	5,000	+2,888 (~2.4:1)
	Coastal Dune	50,712 (includes Parking Phases 1 & 2)			On-site Dune creation	27,500	-23,212 (~0.5:1)
							-7,212 (~0.9:1)
	Cultural Grassland	No Net Loss			On-site Cultural Grassland restoration No Net Loss	On-site cultural grassland creation/restoration	No Net Loss

[1] Direct fence impacts have been calculated based upon direct fill for the fence posts and conversion of forested and dense shrub areas to low growing communities as a result of vegetation management. Indirect/secondary impacts are based upon areas where either 1) vegetation is already open and/or low-growing and will not require vegetation management, or else 2) consists of a monoculture of *Phragmites*.

EBT = Eastern Box Turtle Habitat
ES(B) = Eastern Spadefoot Toad Breeding Habitat
ES(N) = Eastern Spadefoot Toad Non-Breeding Habitat
VS = Vesper Sparrow Habitat

Table 2 Schedule of Implementation of Mitigation		
Issues	**Mitigation**	**Implementation Schedule**
Auto Parking	TDM Measures	Currently, During Project Construction, and Operation
Wetlands	Design Modifications; Implement Wetland Restoration Plan	During Design and Construction
Coastal Dunes	Design Modifications; Implement Wetland Restoration Plan	During Design and Construction
Cultural Grasslands	Design Modifications; Implement Coastal Dune Restoration Plan	During Design and Construction
Invasive Species Management	Implement Invasive Species Management Plan	During Design and Construction
Stormwater Management	Implement Stormwater Management Design for Auto Parking	During Design and Construction
Rare Species Habitat	Implement Resource Mitigation Plans; Implement Construction Management Plan and Turtle Protection Plan Implement Operational Mitigation, VMP, and Invasive Species Plans	During Design, Construction, and Operational Phases
Visual	Finalize and Implement Landscape Plan	During Design and Construction
Hazardous Materials	Dispose of all construction materials in accordance with all regulations.	As Needed
Construction Impacts	Implement Construction Management Plan	Construction Phase
Source: FEIR/EA/DRI,EEA No. 13789, 2009		

Findings

The Massachusetts Department of Transportation Aeronautics Division finds that with implementation by the Airport Commission of the mitigation measures described above, all practicable means and measures will have been taken to avoid or minimize adverse impacts to the environment relating to the proposed Provincetown Municipal Airport CIP projects. These proposed measures will be included as conditions of the funding provided by MassDOT.

Print Name: _____ Date_____

Title: _____ Mass DOT Aeronautics Division

9.2 MA DEP Draft Section 61 Findings

Massachusetts Department of Environmental Protection

Section 61 Findings (MGL Chapter 30, Section 61)

Project:	Capital Improvements Plan (CIP)
Project Location:	Provincetown Municipal Airport
Project Proponent:	Provincetown Airport Commission
EEA Number:	13789

This Section 61 Findings for the proposed CIP projects has been prepared pursuant to Massachusetts General Laws, Chapter 30, Section 61 and 301 CMR 11.07. As a state agency, the Massachusetts Department of Environmental Protection (DEP) is required to review, evaluate and determine the environmental impacts of its actions and issue a Finding. The DEP action is to review the project for impacts to wetlands and determine if the project is in compliance with the Massachusetts Wetland Protection Act and Section 401 of the Clean Water Act.

The Findings are based on the information presented in the FEIR/EA (EEA #13789) which outlines the measures that will be implemented by the Provincetown Municipal Airport Commission to minimize the unavoidable environmental impacts associated with the projects.

CIP Project Summary

The Provincetown Municipal Airport Commission proposes a Capital Improvements Plan (CIP) of safety and facility improvements at Provincetown Municipal Airport (Airport). The purpose of the CIP project elements is to enhance Airport safety and security and enhance the efficiency of the Airport to more fully meet the current and anticipated demand. The CIP projects are needed because certain airfield facilities do not meet current FAA safety and security standards and the Airport's current parking and terminal facilities can not efficiently meet current and projected demand. Implementation of the CIP will fulfill the mission of the Airport to operate a safe, secure, and reliable primary service airport receiving scheduled airline passenger service. The projects are listed below.

Proposed CIP Projects

- Westerly Taxiway System Improvements
- Relocate East End TW
- Reconstruct Easterly End of Partial Parallel TW
- Reconstruct Terminal Apron
- Install TW Edge Lights and Construct Electric Vault
- Rehabilitate or Replace Sightseeing Shack
- Improve Access Road to Approach Lights (MALSF)
- Construct Service Access Roads to AWOS and LES
- Install Perimeter Fence
- Expand Turf Apron

- Expand Auto Parking
- Expand Terminal Building

MEPA History

A MEPA Certificate on the Environmental Notification Norm (ENF) was issued for the project on May 26, 2006. A MEPA Certificate on the NPC/Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) was issued on July 18, 2007. A Certificate on the FEIR/EA was issued on February 17, 2012 stating that the FEIR/EA adequately and properly complied with MEPA and its implementing regulations.

Summary of Impacts

The CIP projects will have unavoidable impacts to wetland, coastal dune, cultural grasslands and species habitat. Impacts have been minimized through design alternatives, construction timing and methods, and long-term operational mitigation measures. A summary of impacts for each element of the CIP is presented in Table 1.

Mitigation Measures

Measures have been incorporated (Table 2) in the design phase, construction phase mitigation, and operational phase to avoid, minimize, and mitigate impacts to natural resources and specifically to rare species and rare species habitat. All proposed measures are listed in Table 2. However, this Finding relates only those measures relevant to wetlands and water quality.

Design Phase Mitigation

- Wetland Restoration
- Coastal Dune Restoration
- Cultural Grassland Restoration
- Stormwater Management
- Landscaping and Building Design

Construction Phase Mitigation

- Turtle Protection Plan
- Construction Management Plan

Operational Mitigation

- Vegetation Management Plan
- Invasive Species Management Plan
- Safety/Security Fence Wildlife Mitigation Plan
- Stormwater Management Plan
- TDM Measures

Table 1 Summary Of Impacts And Proposed Mitigation Measures For Preferred Alternatives For CIP Projects

PROPOSED ALTERATION					PROPOSED MITIGATION		
Project	**Type of Resource Area**	**Area of Proposed Alteration (SF)**	**Species Habitat**	**Description of Proposed Alteration**	**Description of Proposed Mitigation**	**Area of Proposed Mitigation (SF)**	
(1) Westerly TW System Improvements	IVW	28,655 (Wetland I)	EBT, ES(B)	Fill	On-site wetland restoration	Areas A & C	
	Coastal Dune	6,460	EBT, ES(N)		On-site dune creation	Areas A & C	
	Cultural Grassland	No Net Loss	EBT, VS		On-site cultural grassland creation/restoration	No Net Loss	
(2) Relocate East End TW	IVW	28,300 (Wetland B)	EBT, ES(B)	Fill	On-site wetland restoration	Areas A & C	
	Coastal Dune	5,000	EBT, ES(N)		On-site dune creation	Areas A & C	
	Cultural Grassland	No Net Loss	EBT, VS		On-site cultural grassland creation/restoration	No Net Loss	
(3) Reconstruct Terminal Apron	--	--		--	--	--	
(4) Reconstruct Easterly End of Partial Parallel TW	--	--		--	--	--	
(5) Install TW Lighting and Construct Electric Vault	Cultural Grassland	No Net Loss	EBT, VS	--	On-site cultural grassland restoration	--	
(6) Repair Sightseeing Shack	--	--		--	--	--	
(7) Improve Access Road to Approach Lights (MALSF)	BVW	960 (Wetland C/J/FK)		Fill	On-site wetland restoration	Area B	
(8) Construct Service Access Roads LES Road	Coastal Dune	7,610	EBT, ES(N)	Fill	On-site dune creation	Areas A & C	
(8) Construct Service Access Roads AWOS Road	IVW	290 (Wetland H)	EBT	Fill	On-site wetland restoration	Areas A & C	
	Coastal Dune	10,560	EBT, ES(N)	Fill	On-site dune creation	Areas A & C	
(9) Install Perimeter Fence (REVISED alternative) **"Concept 6"**	BVW	1,152 (direct)[1] 8,972 (indirect/secondary) (Wetland C/J/FK)	(EBT)	Direct Impact consists of Fill for Fence Post Installation and maintenance. Indirect/Secondary impact consists of Vegetation Maintenance[1].	On-site wetland restoration	Area B	
	IVW	25,648 (direct) 3,952 (indirect/secondary)	EBT, ES(B)		On-site wetland restoration	Areas A & C	
					On-site wetland enhancement	Wetland H & I	
	Coastal Dune	8,060 (direct) 24,028 (indirect/secondary)	EBT, ES(N)	Fill	On-site dune creation	Areas A & C	
(10a) Expand Auto Parking (Phase 1)	Coastal Dune	7,315	EBT, ES(N)	Fill	On-site dune creation	Areas A & C	
(10b) Auto Parking (Phase 2) **"Concept 4"**	Coastal Dune	5,707	EBT, ES(N)	Fill			
(11) Expand Terminal Building (Vertical Expansion)	--	--		--	--	--	
(12) Expand Turf Apron	Cultural Grassland	No Net Loss	EBT, VS	--	On-site cultural grassland restoration		
TOTAL DIRECT ALTERATION: (SF)	IVW	82,893		**TOTAL ON-SITE MITIGATION: (SF)**	On-site IVW restoration	Net Change in Area (SF) 78,000	**-4,893 (~1:1)**
					On-site wetland enhancement	616,350	**(~7.4:1)**
	BVW	2,112			On-site BVW restoration	5,000	**+2,888 (~2.4:1)**
	Coastal Dune	50,712 (includes Parking Phases 1 & 2)			On-site Dune creation	27,500	**-23,212 (~0.5:1)**
							-7,212 (~0.9:1)
	Cultural Grassland	No Net Loss			On-site Cultural Grassland restoration No Net Loss	On-site cultural grassland creation/restoration	No Net Loss

[1] Direct fence impacts have been calculated based upon direct fill for the fence posts and conversion of forested and dense shrub areas to low growing communities as a result of vegetation management. Indirect/secondary impacts are based upon areas where either 1) vegetation is already open and/or low-growing and will not require vegetation management, or else 2) consists of a monoculture of *Phragmites*.

EBT = Eastern Box Turtle Habitat
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VS = Vesper Sparrow Habitat

Mitigation Implementation Schedule

Mitigation measures (summarized in Table2) and outlined in detail in the FEIR document and permits will be incorporated into all contract documents to insure implementation. The Airport Commission will be the responsible party for implementation of the mitigation measures.

Table 2 Schedule of Implementation of Mitigation

Issues	Mitigation	Implementation Schedule
Auto Parking	TDM Measures	Currently, During Project Construction, and Operation
Wetlands	Design Modifications; Implement Wetland Restoration Plan	During Design and Construction
Coastal Dunes	Design Modifications; Implement Wetland Restoration Plan	During Design and Construction
Cultural Grasslands	Design Modifications; Implement Coastal Dune Restoration Plan	During Design and Construction
Invasive Species Management	Implement Invasive Species Management Plan	During Design and Construction
Stormwater Management	Implement Stormwater Management Design for Auto Parking	During Design and Construction
Rare Species Habitat	Implement Resource Mitigation Plans; Implement Construction Management Plan and Turtle Protection Plan Implement Operational Mitigation, VMP, and Invasive Species Plans	During Design, Construction, and Operational Phases
Visual	Finalize and Implement Landscape Plan	During Design and Construction
Hazardous Materials	Dispose of all construction materials in accordance with all regulations.	As Needed
Construction Impacts	Implement Construction Management Plan	Construction Phase

Source: FEIR/EA/DRI,EEA No. 13789, 2009

Findings

The Massachusetts Department of Environmental Protection finds that with implementation by the Airport Commission of the mitigation measures described above, all practicable means and measures will have been taken to avoid or minimize adverse impacts to the environment relating to the proposed Provincetown Municipal Airport CIP projects. These proposed measures will be included as conditions in the permits/variances issued by DEP. This Finding is limited to the subject matter jurisdiction of the permits sought from the DEP.

Print Name: _____ Date: _____

Title: _____ MassDEP

9.3 MA NHESP Draft Section 61 Findings

Massachusetts Natural Heritage and Endangered Species Program
Section 61 Finding (MGL Chapter 30, Section 61)

Project:	Capital Improvements Plan (CIP)
Project Location:	Provincetown Municipal Airport
Project Proponent:	Provincetown Airport Commission
EEA Number:	13789

This Section 61 Findings for the proposed CIP projects has been prepared pursuant to Massachusetts General Laws, Chapter 30, Section 61 and 301 CMR 11.07. As a state agency, the Massachusetts Natural Heritage and Endangered Species Program (NHESP) is required to review, evaluate and determine the environmental impacts of its actions and issue a Finding. The NHESP action is to review the project for impacts to rare species and determine if the project is in compliance with the Massachusetts Endangered Species Act (MESA).

The Findings are based on the information presented in the FEIR/EA (EEA #13789) which outlines the measures that will be implemented by the Provincetown Municipal Airport Commission to minimize the unavoidable environmental impacts associated with the projects.

CIP Project Summary

The Provincetown Municipal Airport Commission proposes a Capital Improvements Plan (CIP) of safety and facility improvements at Provincetown Municipal Airport (Airport). The purpose of the CIP project elements is to enhance Airport safety and security and enhance the efficiency of the Airport to more fully meet the current and anticipated demand. The CIP projects are needed because certain airfield facilities do not meet current FAA safety and security standards and the Airport's current parking and terminal facilities can not efficiently meet current and projected demand. Implementation of the CIP will fulfill the mission of the Airport to operate a safe, secure, and reliable primary service airport receiving scheduled airline passenger service. The projects are listed below.

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- Construct Service Access Roads to AWOS and LES
- Install Perimeter Fence
- Expand Turf Apron
- Expand Auto Parking
- Expand Terminal Building

MEPA History

A MEPA Certificate on the Environmental Notification Norm (ENF) was issued for the project on May 26, 2006. A MEPA Certificate on the NPC/Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) was issued on July 18, 2007. A Certificate on the FEIR/EA was issued on February 17, 2012 stating that the FEIR adequately and properly complied with MEPA and its implementing regulations.

Summary of Impacts

The CIP projects will have unavoidable impacts to wetland, coastal dune, cultural grasslands and species habitat. Impacts have been minimized through design alternatives, construction timing and methods, and long-term operational mitigation measures. A summary of impacts for each element of the CIP is presented in Table 1.

Mitigation Measures

Measures have been incorporated in the design phase, construction phase mitigation, and operational phase to avoid, minimize, and mitigate impacts to natural resources and specifically to rare species and rare species habitat. All proposed measures are listed in Table 2. However, this Finding discusses only those measures relevant to rare species.

Design Phase Mitigation

- Wetland Restoration
- Coastal Dune Restoration
- Cultural Grassland Restoration
- Stormwater Management
- Landscaping and Building Design

Construction Phase Mitigation

- Turtle Protection Plan,
- Construction Management Plan

Operational Mitigation

- Vegetation Management Plan
- Invasive Species Management Plan
- Safety/Security Fence Wildlife Mitigation Plan
- Stormwater Management Plan
- TDM Measures

Table 1 Summary Of Impacts And Proposed Mitigation Measures For Preferred Alternatives For CIP Projects

PROPOSED ALTERATION					PROPOSED MITIGATION		
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	IVW	25,648 (direct) 3,952 (indirect/secondary)	EBT, ES(B)		On-site wetland restoration	Areas A & C	
					On-site wetland enhancement	Wetland H & 1	
	Coastal Dune	8,060 (direct) 24,028 (indirect/secondary)	EBT, ES(N)	Fill	On-site dune creation	Areas A & C	
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(11) Expand Terminal Building (Vertical Expansion)	--	--		--	--	--	
(12) Expand Turf Apron	Cultural Grassland	No Net Loss	EBT, VS	--	On-site cultural grassland restoration		
TOTAL DIRECT ALTERATION: (SF)	IVW	82,893		**TOTAL ON-SITE MITIGATION: (SF)**	On-site IVW restoration	Net Change in Area (SF)	
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	BVW	2,112			On-site BVW restoration	5,000	+2,888 (~2.4:1)
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							-7,212 (~0.9:1)
	Cultural Grassland	No Net Loss			On-site Cultural Grassland restoration No Net Loss	On-site cultural grassland creation/restoration	No Net Loss

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Mitigation Implementation Schedule

Mitigation measures outlined in detail in the FEIR/EA document and permits will be incorporated into all contract documents to insure implementation. The Airport Commission will be the responsible party for implementation of the mitigation measures.

Table 2 Schedule of Implementation of Mitigation

Issues	Mitigation	Implementation Schedule
Auto Parking	TDM Measures	Currently, During Project Construction, and Operation
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Coastal Dunes	Design Modifications; Implement Wetland Restoration Plan	During Design and Construction
Cultural Grasslands	Design Modifications; Implement Coastal Dune Restoration Plan	During Design and Construction
Invasive Species Management	Implement Invasive Species Management Plan	During Design and Construction
Stormwater Management	Implement Stormwater Management Design for Auto Parking	During Design and Construction
Rare Species Habitat	Implement Resource Mitigation Plans; Implement Construction Management Plan and Turtle Protection Plan Implement Operational Mitigation, VMP, and Invasive Species Plans	During Design, Construction, and Operational Phases
Visual	Finalize and Implement Landscape Plan	During Design and Construction
Hazardous Materials	Dispose of all construction materials in accordance with all regulations.	As Needed
Construction Impacts	Implement Construction Management Plan	Construction Phase

Source: FEIR/EA/DRI,EEA No. 13789, 2009

Findings

The Massachusetts Natural Heritage and Endangered Species Program finds that with implementation by the Airport Commission of the mitigation measures described above, all practicable means and measures will have been taken to avoid or minimize adverse impacts to the environment relating to the proposed Provincetown Municipal Airport CIP projects. These proposed measures will be included as conditions in the Conditional No Take determination issued by NHESP. This Finding is limited to the subject matter jurisdiction of the MESA.

Print Name: _____ Date:_____

Title: _____ Mass NHESP

9.4 Section 4(f) Evaluation

Section 4(f) Evaluation

Submitted pursuant to 49 USC 303(c)

Capital Improvements Plan
Provincetown Municipal Airport

1. Introduction

The Provincetown Municipal Airport (Airport) is within the Cape Cod National Seashore (CCNS) sited on approximately 322 acres of federally owned land administered by the National Park Service (NPS).The Provincetown Municipal Airport Commission proposes a Capital Improvements Plan (CIP) of safety and facility improvements at the Airport.

This Section 4(f) Evaluation is based on, and incorporates by reference, the 2010 Final Environmental Impact Report /Environmental Assessment/Section 4(f) (FEIR/EA) and presents potential effects to parklands as a result of the proposed project. This Evaluation demonstrates that there is no prudent and feasible alternative that would avoid using the land, and that all possible planning to minimize harm has been incorporated into the project design.

Title 49, USC Section 1653, 4(f) of the Department of Transportation Act of 1966 [now codified at 49 USC Section 303(c)] states that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly-owned land of a public park, recreational area, or wildlife and waterfowl refuge of national, state, or local significance or land of an historic site of national, state, or local significance as determined by the official having jurisdiction over the site only if:

(1) there is no prudent and feasible alternative that would avoid using that land, and
(2) the program or project includes all possible planning to minimize harm resulting from the use.

As a modal administration within the U.S. DOT, the Federal Aviation Administration (FAA) is responsible for Section 4(f) determinations for airport actions. The FAA's Office of Airports (ARP) is responsible for reviewing and deciding on projects the airport sponsors propose for public-use airports.

In general, a Section 4(f) "use" occurs with a Department of Transportation (DOT) project or program when 1) Section 4(f) land is permanently incorporated into a transportation facility; 2) when there is a temporary occupancy of Section 4(f) land that is adverse in terms of section 4(f) preservationist purposes as determined by specified criteria (*23 CFR Section 771.135(p)(7)*; and 3) when Section 4(f) land is not incorporated into the transportation project, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired (constructive use) *23 CFR Section 771.135(p)(1 and 2)*.

This Section 4(f) Evaluation has been prepared in accordance with the Airports Desk Reference Chapter 7, October 2007 and FAA NEPA Implementing Instructions for Airport Actions. Consistent with FAA Order 1050.1E the term Section 4(f) will be used in this document. Consultation has been initiated with the Department of the Interior, National Park Service, Cape Cod National Seashore (CCNS), and is ongoing for the project.

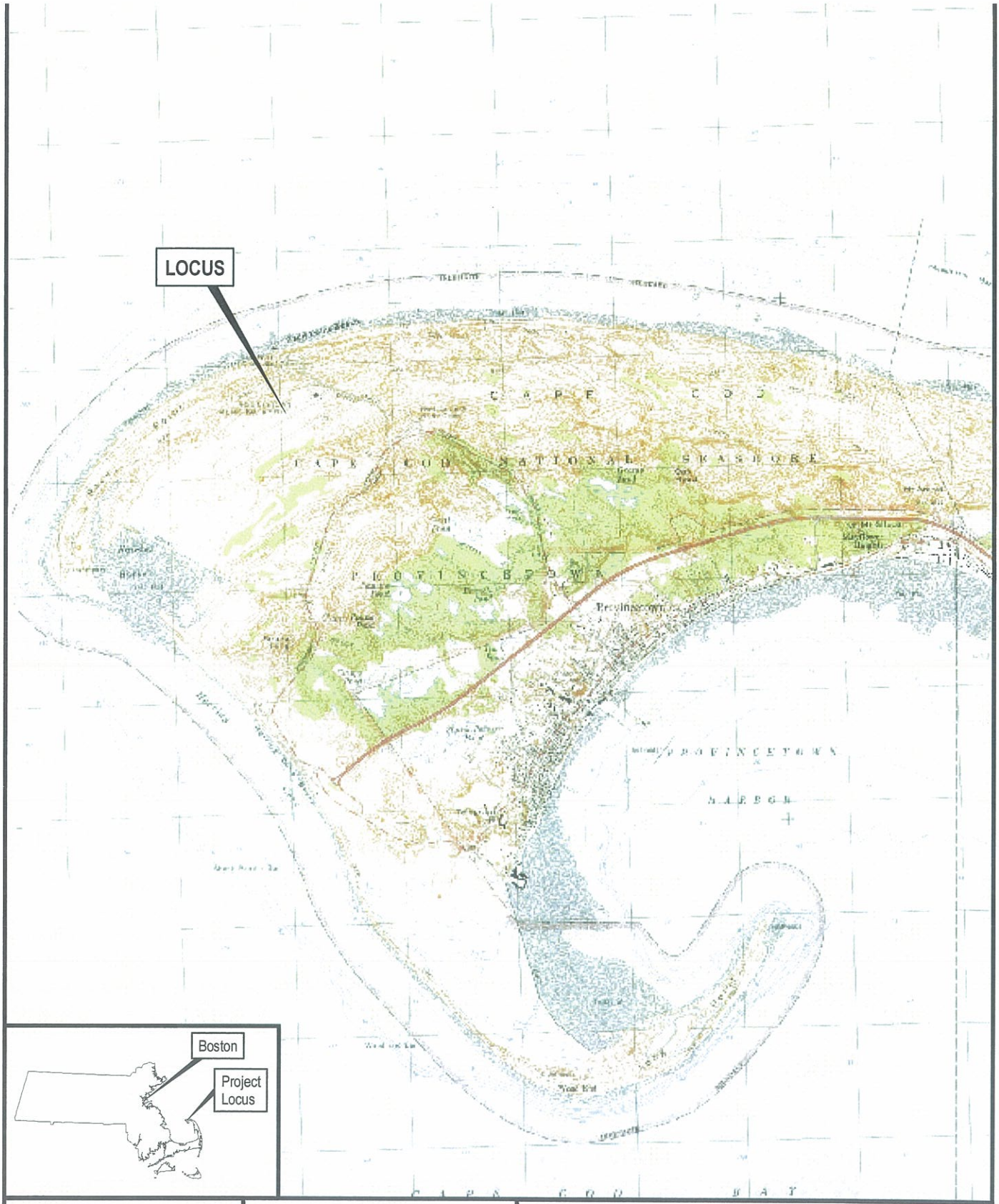
2. Description of 4(f) Property

The Cape Cod National Seashore (CCNS) consists of approximately 44,000 acres, which includes lands under the ownership of NPS as well as land under state, town and private ownership. The CCNS includes natural and cultural resources with a history of economic and recreational activities. The Airport is sited on approximately 322 acres of federally owned land administered by the NPS within the CCNS on the northern tip of Cape Cod (**See Figure 1 USGS Locus**). Recreational activities in the vicinity of the Airport include hunting, biking, hiking, beach activities, trails for Off Road Vehicle (ORV) use, bird watching, and nature walks.

The Airport was constructed in the 1940s on land that was filled in behind a dike constructed across Hatches Harbor and pre-dates the CCNS. Since the establishment of the CCNS in 1961, the land on which the Airport is located has been under the ownership of the NPS. As part of the land acquisition for the CCNS, the Commonwealth of Massachusetts authorized the Deed of Conveyance for the Province Lands in 1962. The deed restriction in the conveyance title recognizes the pre-existing lease agreement between the Commonwealth of Massachusetts and the Town of Provincetown for the Airport facilities and access roads. A Special Use Permit exists between the NPS and the Provincetown Airport Commission to establish policies, procedures and other terms under which Airport operations and improvements are carried out. The property leased to Provincetown for airport operations is identified by the NPS in the 1998 General Management Plan for the CCNS, *Forging a Collaborative Future* as an Administration/Operations Special Use Management Subzone. The Management Plan identifies the qualitative characteristics for the management zones. The Tolerance for Resource Degradation in the Administration/Operations Special Use Zone is rated as "High."

The CCNS, in the vicinity of the Airport, consists of natural and cultural elements. Natural elements include coastal dunes, grasslands, wetlands, and the Hatches Harbor salt marsh. The vegetation cover includes grasses, shrubs, and thickets of pitch pine and scrub oak.

Nearby man-made elements include NPS buildings such as the Old Harbor Life Saving Station, the Province Lands Visitor Center and its 170-car parking lot, as well as the tiered, approximately 340-car parking lot for Race Point Beach. Paved roadways, including Race Point Road and Province Lands Road, and the NPS bike path are also man made elements within the visual environment.



Prepared By:

JACOBS

Approx. Scale in Feet

0 4,000

Data compiled from the following source:
MassGIS, Commonwealth of Mass. EOEA

Provincetown Municipal Airport
Capital Improvements Plan

LOCUS MAP

Figure 1.1

The vertical man-made elements within the Airport lease area include several buildings of various sizes such as the terminal building, the hangar, the maintenance equipment building, the Sightseeing Shack, and sections of existing security fence. Additional vertical elements at the Airport include the FAA instrumentation tower and light poles. The Airport area also has flat horizontal elements including the runway, the system of taxiways, managed grassland safety areas, the weather/navigation equipment within the infields and aircraft parking areas (referred to as aprons or ramps), as well as a 62 space visitor parking lot and a 20 space employee parking area.

CCNS in vicinity of Airport

Coordination has been carried out with the Massachusetts Historical Commission (MHC) regarding the historical significance of the Sightseeing Shack and other significant historic or archaeological resources within the Airport lease area. MHC determined that the CIP project is unlikely to affect significant historic or archaeological resources. CCNS has concurred with MHC that no historic structures are present in the immediate area of potential effect and the CCNS park archaeologist has determined that no archaeological testing is necessary for the fence or taxiway lights projects. This coordination is documented in the Final EIR/EA document.

3. Purpose and Need

The purpose of the CIP project elements is to:

- Enhance Airport safety and security.
- Enhance the efficiency of the Airport to more fully meet the current and anticipated demand.

Several of the CIP projects will provide operational safety and security improvements at the Airport that comply with current FAA, Massachusetts Department of Transportation (MassDOT) Aeronautics Division, and transportation security administration (TSA) safety and security design standards for a non-hub primary service airport. The use of these standards is mandatory for airport projects receiving Federal grant-in-aid assistance. It is the policy of the Airports Division of the FAA New England regional office that airport improvement projects must comply with the national airport design standards.

Three of the CIP projects will address existing and anticipated capacity needs. The proposed addition to the Terminal would replace the lost passenger space taken by TSA for secure waiting areas, and passenger and baggage screening, and support future passenger needs. The proposed improvements to the parking lot and the turf apron are design to address the current and projected needs at the Airport.

Need

The CIP projects are needed because:

- Certain airfield facilities do not meet current safety and security standards.
- The Airport's existing parking and terminal facilities cannot efficiently meet current and projected demand.

Implementation of the CIP will fulfill the mission of the Airport to operate a safe, secure, and reliable primary service airport receiving scheduled airline passenger service.

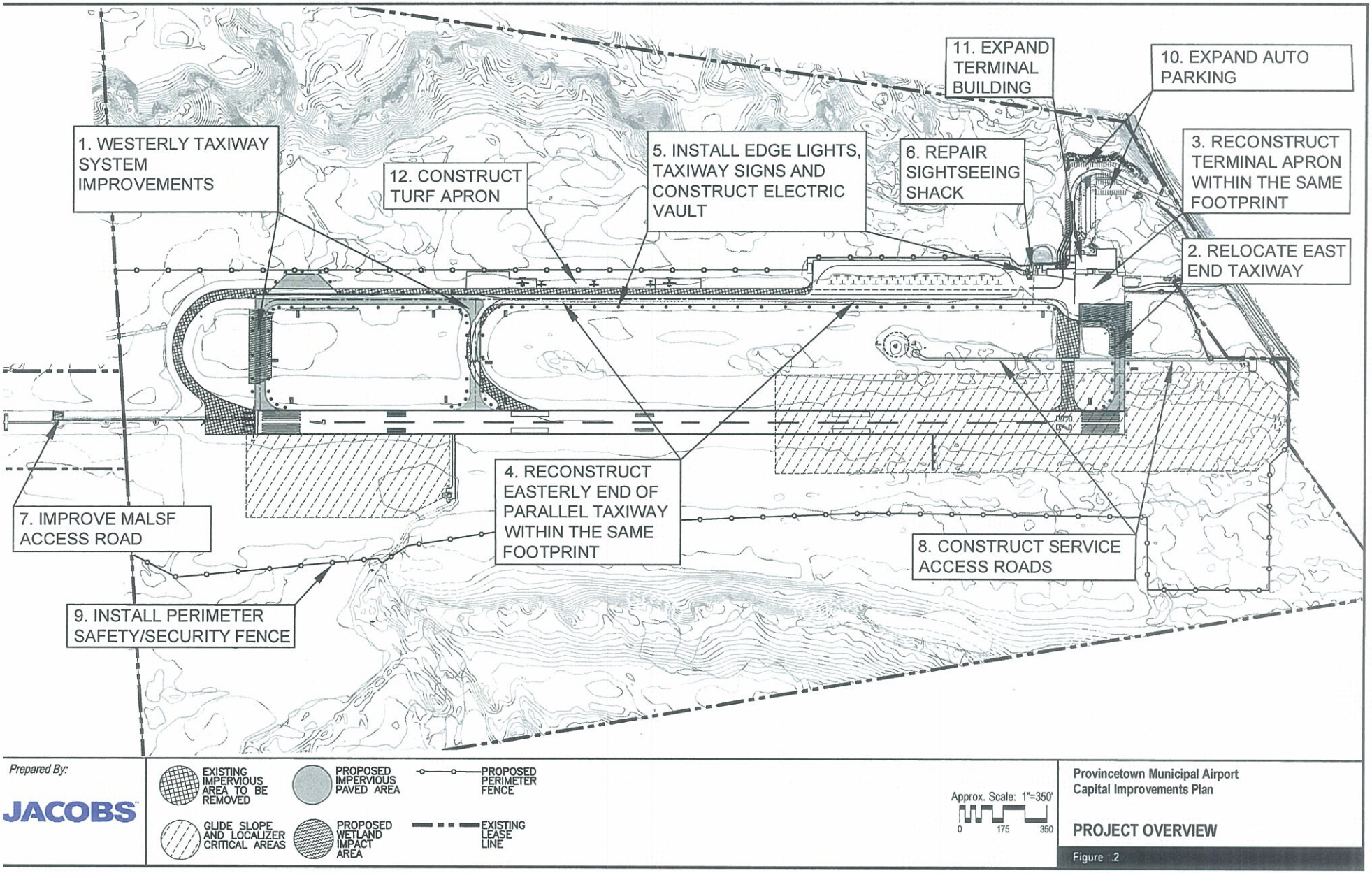
4. Proposed Project

The twelve elements in the Airport CIP projects are described below and located on **Figure 2, Project Overview**.

4.1 Westerly Taxiway System Improvements

The project to improve the westerly taxiway system would: 1) relocate the West End taxiway out of the FAR Part 77 approach surface to the airport and construct an L-shaped intersection with a right angle to the runway for operational safety; 2) realign and reconstruct the westerly end of the parallel taxiway with a run-up pad; and, 3) realign the Mid Connector taxiway.

The Parallel taxiway centerline shifts twenty feet to the north between the mid connector taxiway and the west runway entrance taxiway. This shift in the centerline requires the pilot to change speed and direction, which presents a hazardous situation to pilots during nighttime and low visibility conditions. The realignment also provides the opportunity to remove some pavement along the length of the parallel taxiway, which will be reconstructed with a reduced width in the west end.



Prepared By:

JACOBS

EXISTING IMPERVIOUS AREA TO BE REMOVED

PROPOSED IMPERVIOUS PAVED AREA

PROPOSED PERIMETER FENCE

GLIDE SLOPE AND LOCALIZER CRITICAL AREAS

PROPOSED WETLAND IMPACT AREA

EXISTING LEASE LINE

Approx. Scale: 1"=350'

0 175 350

Provincetown Municipal Airport
Capital Improvements Plan

PROJECT OVERVIEW

Figure 2

4.2 Relocate East End Taxiway

The relocation of the East End connector taxiway would shift the taxiway approximately 200 feet to the east so that it connects at the end of Runway 25. The East End taxiway has the standard design of a ninety-degree intersection but does not comply with the design standard to connect with the end of Runway 25. FAA design standards require entrance taxiways intersect the runway at the runway ends with a right angle to the runway for operational safety.

4.3 Reconstruct Terminal Apron

The project would reconstruct the Terminal Apron within the existing footprint. The terminal apron pavement has deteriorated to fair condition. This footprint pavement project was given clearance to go forward with construction and has been completed.

4.4 Reconstruct Easterly End of Partial Parallel Taxiway

The pavement is in poor condition. The width of the easterly end of the parallel taxiway is currently 60 feet. As part of the reconstruction and the westerly taxiway improvements, the width would be reduced to 40 feet.

4.5 Install Taxiway Lighting, Signage, and Construct Electric Vault

The project would install taxiway edge lights and signs along the edge of the taxiways. Construction of a new electric vault is also part of this CIP element. The electric vault would consist of a 10 by 20 foot structure, approximately 10 feet high and similar in appearance, size and exterior to the existing utility buildings for the localizer and the glide slope equipment. The taxiways currently have reflectors but the lack of lighting and directional signs can be a safety hazard during inclement weather or sudden fog conditions. Improvements to the lighting system for the taxiways would require additional space for the airfield electric vault, which is currently located inside the sightseeing shack. A separate electrical vault is required to support the new lighting system, to allow adequate space that meets electrical code, and bring the system up to standards.

4.6 Repair Sightseeing Shack

The Sightseeing Shack would be repaired as needed after the electrical equipment is removed as part of the taxiway edge lights project. The project would occur within the existing footprint for the building and surrounding access area.

4.7 Improve Access Road to Approach Lights

To provide for a vehicle turn-around area, the embankment for the existing 10-foot wide gravel service road would be widened at the western end. The area would be 30 feet wide and 30 feet long to allow the required maintenance vehicles to turn around. In compliance with FAA requirements, the first 300 feet of the single-lane service road off the runway will be paved.

Several years of FAA service vehicle operations on the access road have confirmed the need for an improvement to the road. Because of the narrow width and lack of a turn-around area, FAA service vehicles must back up for a distance of 400 feet before being

able to turn around. Without shoulders, this maneuver has always been difficult because the drivers of the FAA utility vehicles have difficulty seeing the edge of the road, especially in poor weather. Providing a turn-around will reduce the risk of a vehicle slipping off the raised road and avoiding any potential contamination into the marsh.

4.8 Construct Service Access Roads to AWOS and LES

The service access roads would provide vehicle access from the East End taxiway outside the active runway operating area. The access roads would be 10 feet wide with one-foot grass shoulders on each side and would include a turn-around area. The roads would be paved for the first 300 feet.

The purpose of constructing access roads is to comply with FAA operational standards by providing service vehicle access to the airfield equipment. The service access roads would improve maintenance access, especially in inclement weather or emergencies.

4.9 Install Perimeter Fence

A nine-foot high perimeter safety security fence would be constructed. The proposed alignment for the safety/security fence includes a four-foot wide maintained area on both sides of the fence.

The purpose of the perimeter fencing is to enhance both safety and security. First, the fencing would improve safety by deterring deer and coyote, as well as hunters and hikers, from encroaching on the airfield's operational area. Additionally, for the safety and security of all users of the CCNS, the perimeter fence is proposed to separate areas designated for airport operations from airport lease areas that are currently used by the public for recreational activities. Secondly, fencing secures the Airport Operating Area (AOA), the Security Identification Display Area (SIDA), and other security areas from unauthorized access, in compliance with TSA Guidelines.

4.10 Expand Auto Parking

This two-phase project would construct 28 additional spaces for Phase 1. After additional parking studies and subsequent review and approval by NPS and Cape Cod Commission (CCC), Phase 2 would construct up to 29 additional spaces, if needed.

The Airport currently provides 62 parking spaces. There is a need for additional auto parking spaces at the Airport. Current parking needs range from 62 to 126 spaces over weekday or weekends.

4.11 Expand Terminal Building

The proposed expansion of the Terminal building would add a second floor above the existing building. Public use area in the terminal lobby is needed to replace the area occupied by the TSA screening areas and space for security personnel. The public space has been decreased by 61 percent due to TSA operations that were not incorporated into the design for the current building.

4.12 Expand Turf Apron

The construction of additional turf apron would be located between the two existing areas for turf apron parking adjacent to the parallel taxiway.

There is inadequate paved aircraft parking space during the summer and this seasonal overflow demand is accommodated on designated turf areas alongside the taxiway. At times, the Mid Connector taxiway is shut down in order to provide overflow parking. This creates an operational safety issue, due to the hazard of using an aircraft movement area for parking airplanes. The need for parking ranges from an additional five spaces in the short-term to eight spaces to address the long-term aircraft parking needs.

5. Alternatives Considered

This section describes the Preferred Alternative (Proposed Action), the No Action, and reasonable alternatives (if any) for each of the proposed projects. As defined in FAA Order 5050.4B, the Proposed Action is "the solution the airport sponsor wishes to implement to solve the problem(s) it is facing." Alternatives to the Proposed Action that would avoid the Section 4(f) property have been considered and evaluated. An explanation is provided to justify why some alternatives have been deemed "not reasonable" and were subsequently eliminated from further analyses.

5.1. Westerly Taxiway System Improvements

The potential impacts of improving the westerly end of the TW system at the Airport have been evaluated. The sub-elements of the Westerly Taxiway System consist of the West End Connector Taxiway, the Westerly End of Parallel Taxiway, and the Mid Connector Taxiway. Two alternatives have been analyzed for environmental impacts, and two alternatives have been considered but rejected. The two alternatives analyzed are the No Action alternative and an alternative that would construct westerly TW system improvements.

5.1.1 No Action

The No Action alternative would maintain the West End TW in its current location and would not address the operational safety issues at the Airport. The taxiway would continue to be located within the clear zone in the approach for Runway 7, which creates the potential for collision between a landing aircraft and a plane waiting to takeoff. Aircraft would continue to taxi onto the runway parallel to the runway end and out of visual contact with approaching aircraft. Aircraft would continue to hold short of the runway which limits their view of the runway and other aircraft.

The No Action alternative would maintain the jog in the parallel taxiway, would not replace the pavement which is over 20 years old and in poor condition, and would not address the operational safety issues at the Airport. Paved surfaces at airports must be maintained in good condition. Airfield pavement standards estimate a useful lifespan of 20 years, after which pavement is eligible for reconstruction.

While no impacts to 4(f) resources would occur with the No Action alternative, the No Action alternative would maintain the existing Mid Connector TW with the non-standard jug-handle intersection with the runway and the parallel taxiway. It would also not align properly with the proposed relocated West End TW and the proposed realigned westerly end of the parallel TW. No impacts to resources would occur with the No Action alternative because there would be no construction or change in current conditions.

5.1.2. Westerly TW System Improvements (Proposed Action and Preferred Alternative)
The sub elements of the Westerly Taxiway System consist of:

A. West End Connector Taxiway
B. Westerly End of Parallel Taxiway
C. Mid Connector Taxiway

The sub elements are discussed individually but will be combined as one project in terms of permitting and construction because the elements would be constructed at the same time.

(A.) Relocate West End Taxiway with Standard Right Angle Out of the Runway 7 Approach

The alternative to relocate the West End TW would address the operational safety issues and would be in compliance with FAA design standards. The taxiway would connect with the end of the runway at a right angle and would be located out of the approach for the runway.

(B.) Realign Westerly End of Parallel Taxiway

This alternative would shift the westerly end of the parallel TW to meet the existing edge of pavement of the easterly portion of the parallel TW. A run-up pad, as required by FAA design standards for new construction, would also be constructed at the end for aircraft to perform required engine and systems checks before takeoff, without blocking the taxiway. The parallel TW would be reconstructed with a consistent width of 40 feet. Since the pavement width is currently 60 feet, pavement would be removed. Cultural Grassland habitat would be restored in areas of pavement removal.

(C.) Realign Mid Connector TW

The alternative to realign the Mid Connector TW would provide a standard 90 degree intersection design. The aging pavement would also be reconstructed to address the hazard of loose pavement causing harm to aircraft and passengers. The project would be constructed within the existing area of pavement and managed Cultural Grassland habitat.

Collectively, the three elements of the Preferred Alternative for the Westerly TW System Improvements would result in alterations to approximately 28,655 SF of wetlands, 6,400 SF of coastal dune, rare species habitat for one or more state-listed species, as well as temporary impacts to grassland habitats. Proposed mitigation measures would restore or create these resource areas and habitats from existing paved surfaces that would be removed.

5.1.3 Alternatives Considered But Rejected

"Existing Footprint Alternative." The alternative that would reconstruct the West End TW within the existing footprint was suggested by others as a way to minimize impacts to wetland and grassland habitats. This alternative would provide a standard right angle connection to the runway, but the taxiway would continue to be located within the approach to Runway 7. Likewise, the risk of collisions would not be reduced because aircraft would continue to enter parallel to the runway end, rather than perpendicular to the end of the runway.

This alternative would have unavoidable impacts to approximately 13,665 SF in Wetlands I and C/J/FK, as well as additional impacts to grassland habitat.

The alternative that would reconstruct the existing TW footprint with a standard right angle within the existing footprint has been deemed unsafe and unfeasible because it would not comply with the FAA safety and design standards and it would not address existing operational safety issues. This alternative has been dismissed from further review.

"Lights on Existing Parallel TW Alternative" It was suggested by others that installation of taxiway lights alone on the existing taxiway could address the safety issues relative to the jog in the partial parallel taxiway. Environmental impacts with this alternative would be limited to minor impacts to grassland habitat. However, pilots do not expect to encounter a jog mid-way along a parallel taxiway. Installation of edge lights would not fully eliminate the non-standard hazardous condition of maneuvering the aircraft through an unexpected turn at night or in bad weather conditions, and would not correct the operational safety issues created by the misaligned pavement. This alternative has been dismissed from further review.

5.2 East End TW Relocation

Two alternatives for the East End Taxiway Relocation have been analyzed, including the No Action alternative and an alternative that would relocate the East End TW to connect with the end of Runway 25.

5.2.1 No Action

The No Action alternative would maintain the 200-foot offset between the end of Runway 25 and East End TW. Aircraft would continue to back-taxi on the active runway, maintaining the current unsafe conditions by possibly interfering with landing aircraft. No impacts to resources would occur with the No Action alternative, as there would be no construction or change in existing conditions.

5.2.2 East End TW Relocation (Proposed Action and Preferred Alternative)
The alternative to relocate the East End TW to connect with the end of the runway would be in full compliance with FAA mandated design standards without impacting the terminal apron. There would be a slight curve in the East End TW centerline to avoid aircraft on the terminal apron. This configuration would not present a safety hazard because the terminal apron is well lit with overhead lighting, and planes are moving slowly as they enter the East End TW. Implementation of this alternative would result in alterations to approximately 28,300 SF of Wetland B. Proposed mitigation measures would restore or create these resource areas and habitats from existing paved surfaces that would be removed.

5.2.3 Alternatives Considered But Rejected
No other alternatives were identified.

5.3 Terminal Apron Reconstruction

Two alternatives for reconstruction of the Terminal Apron pavement were evaluated, including the No Action alternative and an alternative that would reconstruct the Terminal Apron pavement.

5.3.1 No Action
The No Action alternative would retain the existing pavement, and would not address the Airport safety issues associated with deteriorated pavement. As previously noted, paved surfaces at airports must be maintained in good condition and are eligible for reconstruction after 20 years. No impacts to environmental resources would occur as a result of the No Action alternative because the pavement would not be reconstructed adjacent to wetland or coastal dune resources.

5.3.2 Reconstruct Terminal Apron within the Existing Footprint (Proposed Action and Preferred Alternative)
The Preferred Alternative would reconstruct the terminal apron pavement within the same footprint to address Airport safety issues. As there would be no environmental impacts, and the implementation of this project element would neither preclude or constrain considerations for all other CIP elements, the Secretary of Energy and Environmental Affairs allowed the Airport to proceed with the reconstruction of the Terminal Apron within the same footprint prior to the completion of the FEIR as iterated in the MEPA Certificate issued on the NPC/DEIR.

The Airport applied for an Order of Conditions (OOC) from the Provincetown Conservation Commission. Coordination was also carried out with staff at the Massachusetts Natural Heritage & Endangered Species Program (NHESP) regarding requirements under MESA, and this project qualifies as an exempt project pursuant to 321 CMR 10.14 (8): "the maintenance, repair or replacement, but not widening of existing paved roads, …and paved parking areas,..." NHESP reviewed and commented as part of the Notice of Intent (NOI) process under the Wetland Protection Act. The project will, however, be included in the Massachusetts Endangered Species Act

(MESA) application for the Airport's CIP projects to avoid segmentation. The project was issued an OOC (DEP File No. 058-0440), and construction was completed in fall 2008.

5.3.4 Alternatives Considered But Rejected
No other alternatives were identified.

5.4 Easterly End of Parallel TW Reconstruction

Two alternatives were evaluated in this FEIR/EA for reconstructing the easterly end of the Parallel TW pavement, the No Action alternative and an alternative that would reconstruct the pavement.

5.4.1 No Action
The No Action alternative would retain the existing pavement which is over 20 years old and in poor condition. Pavement at airports is required to be maintained in good condition. The No Action alternative would result in increasing safety concerns for pilots and their passengers. There would be no impacts to environmental resources with the No Action alternative because there would be no pavement reconstruction near wetland or other natural resources.

5.4.2 Reconstruct Parallel TW within Existing Footprint (Proposed Action and Preferred Alternative)
The Preferred Alternative would reconstruct the pavement within the same footprint, but with a reduced pavement width of 40 feet. Grassland habitat would be restored in the pavement removal areas.

5.4.3 Alternatives Considered But Rejected
No other alternatives were identified.

5.5 Taxiway Lighting and Electric Vault

Two alternatives have been analyzed for resource impacts, and two alternatives have been considered but rejected. The two alternatives analyzed are the No Action alternative and an alternative that would install edge lights and construct an electric vault adjacent to the existing Sightseeing Shack.

5.5.1 No Action
Implementation of the No Action alternative would maintain the taxiway edge reflectors and not upgrade the electric equipment that would remain inside the Sightseeing Shack. There would be no environmental impacts as a result of the No Action alternative because there would be no construction or disturbance within the managed grasslands.

5.5.2 Install TW Lighting and Lighted TW Signs, and Construct Electric Vault (Proposed Action and Preferred Alternative)
Install TW Lighting and Lighted TW Signs

The alternative to install TW edge lights would locate the lights 10 feet off the edge of pavement along the entire length of the taxiway as required by FAA design standards, and lighted TW signs would be installed to identify the locations of each TW. The electric cable for the lights and TW signage would be installed within the existing mowed grassland habitat using the cable plowing method which does not require trenching. The area would be restored as grassland. Construction timing and other construction mitigation measures would minimize rare species habitat impacts. Lighting is controlled by pilots remotely and would only be operational during landings and takeoffs under inclement weather conditions or at night. Disruptions to Vesper Sparrows or other species are anticipated to be minimal and would be no different than the existing lighting system for the runway.

Construct Electric Vault

With the Preferred Alternative, the constructed Electric Vault would be located immediately adjacent to the Sightseeing Shack (Alternative 1) in an area of managed grassland, which is isolated from larger expanses of grassland habitat at the Airport. Electric equipment currently housed within the Sightseeing Shack would be upgraded to current electric codes and housed within a new vault adjacent to the Sightseeing Shack. The location of the Electric Vault under the Preferred Alternative would be close to the existing electrical service and equipment, which would minimize the distance for the new main cable connection. Environmental impacts would be minimal.

5.5.3 Alternatives Considered But Rejected

Alternative Construction Method for Light Installation

The trenching construction method for the cable adjacent to the TW would excavate a trench approximately eight inches wide by two feet deep to install the electric cable, and would result in more grassland disturbance compared to the cable method. This construction component alternative has been dismissed from further review.

Alternative Vault Locations

Two alternatives were considered for the location of the proposed Electric Vault. Alternative 2 would locate the vault behind the paved GA apron. Alternative 3 would locate the vault at the far west end of the paved GA apron. Each of these alternatives would result in environmental impacts within an area of managed cultural grassland that is contiguous with expanses of this habitat at the Airport and/or impacts to freshwater wetlands (Wetland C) in order to accommodate the conduit for the cable, which would need to avoid other underground utilities in the area. The Preferred Alternative meets the project need with fewer impacts. These alternatives have been dismissed from further review.

5.6 Sightseeing Shack Improvements

The two alternatives that have been evaluated are the No Action alternative and an alternative that would repair or replace the building within the existing footprint. It should

be noted that improvements to the Sightseeing Shack would be considered a Connected Action to the Installation of TW Lighting and Lighted TW Signs, and Construct Electric Vault as the improvements to the Sightseeing Shack would be tied to the relocation of the electrical equipment that is currently housed within the Sightseeing Shack.

5.6.1 No Action

The No Action alternative would allow the existing structure to remain in its present condition, housing the existing electrical equipment that is not up to current electric codes. No impacts would occur to natural resources under the No Action alternative because there would no construction adjacent to natural resources and no change to the building.

5.6.2 Repair or Replace Building (Proposed Action and Preferred Alternative)

Under this alternative, following the relocation of the existing electrical equipment, the Sightseeing Shack would either be repaired (Preferred Alternative), or the walls would be replaced, as necessary. No long-term environmental impacts would occur as a result of this action. The Massachusetts Historical Commission (MHC) has determined that the building is not historically significant.

5.6.3 Alternatives Considered But Rejected

No other alternatives were identified.

5.7 Access Road to MALSF Approach Lights

Two alternatives have been analyzed for environmental impacts, including the No Action alternative and an alternative that would construct a turn-around. Three alternatives have been considered but rejected.

5.7.1 No Action

The No Action alternative would maintain the existing gravel/earthen access road with narrow embankments. As a result, vehicles accessing the MALSF for maintenance or repairs would continue to need to back up for a distance of approximately 400 feet along the narrow access road, and the associated safety issues would continue to exist. There would be no impacts to resources associated with the No Action alternative, because construction would not occur.

5.7.2 Construct Turn-Around (Proposed Action and Preferred Alternative)

The Preferred Alternative would involve the construction of a turn-around area, so that vehicles would no longer have to back up the length of the narrow access road. The proposed turn-around area would be 30 feet wide and 30 feet long to provide adequate space for a vehicle to safely reverse direction. The turn-around area would alter approximately 960 SF of Wetland C/J/FK, and would be constructed along the north side of the embankment so that it would not interfere with the approach lights. The material used to construct the turn-around would be delivered to the site and would not be excavated from the adjacent wetland area. Proposed compensatory mitigation for lost wetland area would be provided nearby at a greater than 1:1 ratio from an area of

existing managed grasslands to preserve an environment that supports the natural diversity found within the CCNS. Additional mitigation measures, including construction measures, would be implemented to minimize and avoid further resource area alteration and help to protect the natural landscape of the CCNS.

While this alternative would directly alter an area of wetland, measures to mitigate possible adverse impacts of the project would include avoidance of impacts to the extent possible, resource restoration, and other construction mitigation measures. In addition, an invasive species management plan would be implemented to preserve an environment that supports the natural diversity found within the CCNS.

5.7.3 Alternatives Considered But Rejected

Reduced Turn-Around Footprint with Curbing: A smaller turn-around area with curbing installed along the length of the access roadway to alert drivers to the limits of the roadway width was considered. This alternative would reduce but not eliminate direct wetland impacts. A structure as low as a concrete curb could not be installed, as it would constitute a vertical penetration into the Runway 7 approach surface and would not be allowed under FAA regulations. This alternative has been dismissed from further review.

Guardrail: Installation of a guardrail along the length of the existing access roadway was also considered as an alternative, but was deemed unfeasible because of the vertical penetration into the Runway 7 approach surface. Any objects that need to be located within this object free approach area must be frangible (able to be snapped off on impact), which would defeat the function of a guardrail. In addition, the roadway embankments would need to be widened to accommodate the construction of the guardrail without losing width along the roadway, necessitating additional wetland alteration. This alternative has been dismissed from further review.

Acquire a Utility Vehicle: The Airport has also considered acquiring a utility vehicle for the purposes of accessing the MALSF equipment for maintenance or repair. This alternative would not result in environmental impacts. FAA personnel would need to transfer their equipment to a smaller utility vehicle. However, FAA personnel need access to all equipment in their vehicles during all weather conditions, and could not feasibly transfer all equipment to a small utility vehicle at one time. The runway is required to be shut down for certain inspection or maintenance procedures, and transferring necessary equipment that would not fit within a smaller vehicle at one time, would result in potential unnecessary delays at the Airport. This alternative has been dismissed from further review.

Construct Shoulders (Option 1): This alternative would widen the entire length of the MALSF access road embankments to construct two-foot shoulders on each side of the existing access road. This alternative would impact approximately 1,800 SF of Wetland C/J/FK, and would not eliminate the safety hazard of vehicles needing to back up for 400 feet. This alternative has been dismissed from further review.

5.8 Service Access Road to the Weather Station (AWOS)

Two alternatives were analyzed for the Service Access Roads to the AWOS, including the No Action alternative and an alternative that would construct an access road to the AWOS behind the hold line and off the East End TW (Alternative 2). Several other alternatives have also been considered and rejected for this project element.

5.8.1 No Action

The No Action alternative would retain the lack of defined access routes to the AWOS, which would prevent vehicle access to the site other than via the runway operating area. Even though there are a few circumstances when service on the AWOS requires the runway to be shutdown, most inspection and maintenance operations are carried out so that the runway can remain active. Although there would be no direct long-term adverse impacts to natural resources, vehicle access to the equipment stations results in temporary impacts to natural resources and habitat each time vehicles traverse these naturally vegetated areas.

5.8.2 Service Access Road to AWOS (Alternative 2)

The Preferred Alternative would construct a 10-foot wide defined access roadway, which would be paved for the first 300 feet off the East End TW, in full compliance with FAA standards. The access road to the AWOS would alter 290 SF of Wetland H. Proposed mitigation measures, including construction timing measures and compensatory mitigation for the loss of natural resources would be proposed as part of this alternative.

5.8.3 Alternatives Considered But Rejected

Pavement Alternatives: The alternative of constructing the roads from a porous pavement was evaluated. Porous pavement is a special type of pavement that allows rain and snowmelt to infiltrate, reducing runoff. However, these pavements require an intensive maintenance schedule and can easily become clogged with sands. Due to the sandy soils at the site and windy conditions that would blow sand onto pavement, this porous pavement has been dismissed from further review. Alternative types of pavement that would reduce any visual impacts (e.g., Natural Pave®, a sand-colored pavement, etc.) were also researched for these project elements, but use of these alternative pavement surfaces would result in unnecessary expenses since the service roads are not readily visible from public viewpoints. Use of alternative pavements has been dismissed from further review.

Acquire Utility Vehicle: The Airport has considered the use of an off-road utility vehicle for access to the AWOS. As with the use of a utility vehicle for the MALSF, this alternative has been deemed unfeasible because FAA personnel need access to all equipment in their vehicles and cannot feasibly transfer all the equipment to a smaller utility vehicle. Additionally, the use of a utility vehicle, while perhaps reducing the loading impacts within the coastal dunes and wetlands, would not eliminate the random access routes currently being taken by vehicles when accessing these equipment areas. This alternative has been dismissed from further review.

AWOS Alternative 1: Alternative 1 for the AWOS access road connects with the East End TW. The road would be approximately 800 feet long and would be paved in compliance with FAA standards. Alternative 1 would impact approximately 440 SF of Wetland H and would yield comparable impacts to coastal dunes and associated habitat as would occur under the Preferred Alternative. This alternative would align with the LES Alternative 1, but has been dismissed from further review, as a shift in the proposed alignments of both access roadways would reduce wetland impacts.

AWOS Alternative 3: Alternative 3 would connect with the parallel taxiway and, as with all of the alternatives for the access roadways, would be paved for 300 feet. Approximately 3,000 SF of Wetland H would be altered for this alternative. As other alignments would avoid wetland impacts to this degree, this alternative was dismissed from further review.

AWOS Alternative 4: This alignment has a direct connection with the active runway operating area, which would not meet FAA design standards and would not be allowed. This alternative would result in direct, permanent alterations to Wetland H (720 SF) and coastal dune and grassland habitat (3,480 SF). This alternative has been dismissed from further review.

AWOS Alternative 5: As with AWOS Alternative 4, this alignment has a direct connection with the active runway operating area (between the runway and the hold line of the taxiway), which would not meet FAA design standards and would not be allowed. The L-shaped configuration of this alternative alignment would result in direct, permanent alterations to720 SF of Wetland H and 9,840 SF of cultural grassland habitat. This alternative has been dismissed from further review.

5.9 Perimeter Safety/Security Fence

Seven alternatives have been designed for the construction of a Perimeter Safety/Security Fence, four of which have been carried forward and analyzed for permitting purposes. The four alternatives analyzed are the No Action alternative, and three fence alignments: Concept 6 (Final Preferred Alternative), Concept 4, and Concept 1 (Preferred Alternative in Draft EIR/EA). Three alternatives have been considered but rejected.

5.9.1 No Action

While the No Action alternative would have no direct impacts to the natural resources or habitats at the Airport, the No Action alternative would not address operational safety and security, visitor safety, and wildlife safety issues. The potential for deer and other (non-avian) wildlife to continue to come into conflict with operating aircraft, jeopardizing the safety of passengers and pilots using the Airport, would remain. Unauthorized persons would continue to have undeterred access to the currently unsecured airport operating area, and recreational users (including hunters) would remain a potential threat to the health and safety of aircraft operations and those using the Airport facilities. It should also be noted that TSA and MassDOT ban the possession of firearms in aircraft operational areas.

5.9.2 Perimeter Safety / Security Fence Concept 6 (Proposed Action and Preferred Alternative)

Concept 6 would involve the construction of an 11,700 linear foot (LF), nine foot high, black vinyl chain link security fence with two inch openings topped with three strands of barbed wire that would traverse areas of wetlands (1,898 SF). Direct impacts to natural resources would involve alterations associated with the installation of fence posts and conversion of forested and dense shrub areas to low growing communities as a result of vegetation management within the four-foot wide clear areas on either side of the fence. Indirect (secondary) impacts are based upon areas where vegetation is already open and/or low growing and will not require vegetation management, but may experience temporary alterations due to construction. Vegetation management within areas consisting primarily of *Phragmites* is also considered an indirect impact. Vegetation on either side of the fence must be maintained so that trees and tall shrubs will not visually obstruct the fence during monitoring and maintenance of the structure or jeopardize the structural integrity of the fence., while indirect alterations would be associated with the proposed four-foot wide swaths of mowed or maintained vegetation on both sides of the fence, which are required to be clear of trees and tall shrubs that may otherwise jeopardize the integrity of the fence. These areas would be either brush hogged or trimmed, but would not be graded. The cleared areas would allow for inspection of the fence. The close proximity of the fence alignment to the taxiway would allow a majority of the fence to occur within vegetated areas that are currently maintained and would eliminate the need for the construction of patrol roads for fence maintenance. The fence would connect with the existing sections of fence adjacent to the bike path and the SRE building. Additionally, Concept 6 would eliminate fencing at the west end around the ILS.

Approximately 113 acres would be partially enclosed with the Concept 6 fence alignment. However, the western-most end around the ILS would not be enclosed, thus eliminating direct impacts within tidally-influenced portions of Wetland C/J/FK. In consultation with the Massachusetts Natural Heritage and Endangered Species Program (NHESP), the fence design would incorporate gaps along the bottom to allow for the movement of Eastern Box Turtles, minimizing impacts to the movements of this state-listed rare species as well as other small animals.

The fence would be topped with barbed wire, which would serve as a deterrent to deer jumping the fence. Although deer can jump higher than nine feet, the angled wire along the top makes it difficult for them to judge the height of the fence. Additionally, cleared areas along the fence would allow deer to run along the outside of the fence (rather than jump the fence onto the active airfield if alarmed).

5.9.3 Perimeter Safety / Security Fence Concept 4

Concept 4 would involve the construction of an approximately 15,400 LF fence of similar design to that of the Preferred Alternative, although this fence alignment would continue to enclose the approach light system, completely enclosing the Airport facilities. Direct and indirect alterations to wetlands would occur with Concept 4. This concept would

meet the project purpose and would not impact Airport operations or protected operational and navigational surfaces and object free areas.

5.9.4 Perimeter Safety / Security Fence Concept 1

The Concept 1 alignment follows the perimeter of the Airport lease area. The length of the fence would be approximately 24,000 LF, and would result in direct (34,067 SF) and indirect (33,800 SF) alterations to wetlands, while completely enclosing approximately 317 acres of the 322 acres of the Airport lease area. This alignment would require a 10-foot wide paved or gravel access road to allow for fence maintenance. The alignment would meet the project purpose and would protect Airport operations within airport operational areas and navigational surfaces. This alternative has been carried forward because it was identified as the preferred alternative in the draft EA/EIR.

5.9.5 Alternatives Considered But Rejected

The following alternatives that have been identified and dismissed.

- Concept 2: Apron Offset North; 500 Foot Primary Surface South
- Concept 3: Apron Offset North; 1,000 Foot Primary Surface South
- Concept 5: Apron Offset North; Wetland Offset South

Concept 2: Apron Offset North; 500 Foot Primary Surface South: This fence alignment would be offset approximately 320 feet from the runway centerline on the south side in compliance with the current FAA Waiver, and approximately 10 feet off the back of the aircraft aprons on the north side of the taxiway. It would enclose the ILS with a 10-foot wide area on the outside of the fence maintained to be clear of trees and shrubs, and a 10-foot wide vehicle travel path on the Airport side of the fence for security inspection patrols. The total length of the fence would be approximately 17,000 LF, enclosing approximately 104 acres. The alignment would directly and indirectly impact approximately four acres of wetlands (both bordering and isolated) and prime breeding habitat for the Eastern Spadefoot Toad with additional impacts to coastal dunes and associated habitats. In addition, Concept 2 has the potential to impact tidal flow and flood storage capacity since the portion of fence in the vicinity of the ILS may impede normal tidal flow and flooding during storm events.

Concept 2 would meet the project's purpose and need, and would be in compliance with the current FAA Waiver. Under the current Waiver, any fence alignment must be at least 63 feet beyond the edge of the FAR Part 77 Primary Surface to accommodate the 7 to 1 Transitional Surfaces that extend upward and out as an obstruction clear area. However, if this Waiver were ever to be revoked in the future, Concept 2 would have to be removed and relocated. Therefore this alternative has been deemed unfeasible for cost and environmental permitting reasons, and has been dismissed from further review.

Concept 3: Apron Offset North; 1,000 Foot Offset Primary Surface South:

This alignment would have an approximately 500-foot offset from the runway centerline on the south and approximately 10 feet off the back of the aircraft aprons on the north

side. It would enclose the ILS with a 10-foot wide area on the outside of the fence maintained to be clear of trees and shrubs, and a 10-foot wide vehicle travel path on the Airport side of the fence for security inspection patrols. This alignment would be cost effective because it would be in compliance if, in the future, the Waiver is revoked. The length of the fence would be approximately 17,900 LF, enclosing approximately 128 acres. The alignment would impact approximately 4.5 acres of wetlands and prime breeding habitat for the Eastern Spadefoot Toad and coastal dunes and Eastern Box Turtle habitat, which would likely have adverse impacts to these rare species. As with Concept 2, Concept 3 has the potential to impact tidal flow and flood storage capacity since the fence is in the vicinity of the ILS. Maintaining the fence alignment in close proximity to the taxiway would reduce direct, long-term wetland and dune impacts by eliminating the need for a portion of the perimeter roadway. Concept 3 would meet the project purpose and need, however, this alternative has been deemed unfeasible for environmental permitting reasons, and has been dismissed from further review.

Concept 5: Apron Offset North; Wetland Offset South: Concept 5 would enclose the ILS with a four-foot wide area on the outside of the fence maintained to be clear of trees and shrubs, and a 10-foot wide vehicle travel path, which would be maintained on the Airport side of the fence for security inspection patrols, except where the fence can be inspected from the GA aprons on the north. The Concept 5 alternative generally follows the same alignment on the southern side as Concept 4. On the northern side, however, the fence would be located on a minimum 10-foot offset behind the aircraft parking aprons. The length of the fence would be approximately 14,000 LF, enclosing approximately 148 acres. Concept 5 would impact approximately 1.5 acres (direct and indirect) of wetlands and, as with Concepts 2 and 3, would have the potential to impact tidal flow and flood storage capacity since the fence would be in the vicinity of the ILS. While located within wetland areas, the close proximity of the fence to the taxiway would eliminate the need for a perimeter roadway along this stretch of the fence (e.g., as with the northern segments considered in Concepts 2 and 3). It is anticipated that this alignment would only require vegetation management along the fence, minimizing wetland alterations. In addition, portions of these wetlands are currently subject to vegetation management practices to maintain airfield safety. Similar to Concept 4, Concept 5 is also located at the base of the dune ridge to the south of the runway. Certain segments of the fence would require a vehicle path would approximately 10 feet wide. In other areas where the fence traverses through currently managed airfield areas, the width of vegetation clearing would be reduced to four feet on only one side of the fence where patrol roads are not necessary, so as to minimize impacts.

This alignment provides suitable clearance along the north side of the GA aprons to accommodate spatial considerations for aircraft that are pushed by hand onto the turf aprons, access to the electric controls on the back of the GA apron light poles, and meets the purpose and need and fully complies with FAA design standards.

This proposed alignment, while reducing overall wetland impacts, would still result in habitat fragmentation on the south side of the Airport, separating the large aggregate of wetland areas from the adjacent upland areas of coastal dune. Taking the results of

Eastern Spadefoot Toad habitat surveys into consideration, the placement of the fence along the toe of the dune ridge would potentially interfere with breeding activity for this species. Thus, it was determined that Concept 5 was not the preferred alternative with respect to the natural resources at the Airport, for it requires the construction of patrol roads along certain lengths of the fence (except for north of the taxiway) for monitoring, and encloses a portion of the tidally-influenced wetlands within Hatches Harbor. As such, this alternative has been dismissed from further review.

5.10 Auto Parking Expansion

Three alternatives have been analyzed for the Auto Parking Expansion: The No Action alternative, an alternative that would construct additional parking in two phases Concept 4 (Preferred Alternative), and an alternative that would construct additional parking in one phase (Concept 1 Preferred Alternative in Draft EIR/EA). Three additional alternatives have been considered but dismissed from further review. The alternatives that have been considered for the project are illustrated on Figures 3.10 through 3.13 provided at the end of this section.

5.10.1 No Action

The No Action alternative would retain the existing parking area. Existing and future needs would not be met because parking would continue to be congested at peak periods, and visitors would continue to park along Airport Drive occasionally during peak periods, creating a potential safety hazard. The No Action would not impact natural resources because there would be no additional parking area constructed within coastal dune resources.

5.10.2 Auto Parking Concept 4, Phases 1 and 2 (Proposed Action and Preferred Alternative)

The parking lot currently has 62 spaces. Concept 4 would construct 28 additional spaces for Phase 1 (Phase 1 total 90 spaces). Phase 2 would construct additional parking spaces (estimated at an additional 29 spaces for a total of 119) after additional parking studies have been carried out and the studies have been reviewed and approved by NPS and CCC. Expanding the parking lot in phases would address the existing and mid term planning period need for additional parking.

The Preferred Alternative would result in an initial impact of 7,315 SF of coastal dune with the potential for approximately 5,707 SF of additional dune alteration for Phase 2. Dune alterations would be mitigated as discussed in Section 7. The parking aisles would be paved and parking spaces would consist of packed gravel. Infiltration swales would be constructed for Phase 1. A bioretention system would be constructed for Phase 2 which would provide treatment of runoff in accordance with current WPA regulations. Landscaping designed to screen views of the parking would use native plants similar to those listed in the NPS Site and Building Design and Rehabilitation Handbook, September 2005 developed for the Highlands Center at CCNS.

As an adjunct element to Phase 1, efforts to reduce demand by improving awareness of the shuttle system, encouraging the use of taxis, and working with NPS to explore the

use of remote lots for long-term parking may possibly reduce or delay the need to implement Phase 2. The phases would be permitted separately with the Provincetown Conservation Commission so that each phase can be evaluated independently but with an understanding of the entire project.

5.10.3 Auto Parking Concept 1
Concept 1 would construct the proposed parking lot expansion in one phase by constructing 57 additional spaces and a third aisle with parking on both sides directly adjacent and parallel to the existing two aisles, providing a total of 119 spaces. This number of spaces would meet most of the existing and projected demand. The aisle would be paved and the parking spaces would be packed gravel. Alterations to coastal dune (10,000 SF) and isolated wetlands (4,650 SF of Wetland A) would occur under Concept 1.

5.10.4 Alternatives Considered But Rejected
Auto Parking Concept 2
Concept 2 would provide a total of 161 spaces by constructing two additional aisles parallel to the existing two aisles. This configuration would impact approximately 10,950 SF of isolated wetland within Wetland A, as well as more than 10,000 SF of coastal dune and associated habitat. The aisles would be paved and the parking spaces would be packed gravel. This alternative has been dismissed from further review because this number of spaces would exceed the existing and projected demand.

Auto Parking Concept 3
Concept 3 would provide a total of 116 spaces parallel to the entrance drive, and would meet most of the existing and projected demand. This configuration would impact approximately 1,125 SF of isolated wetland within Wetland A and coastal dune habitat. The aisles would be paved and the parking spaces would be packed gravel. This option puts some of the parking spaces at a long distance from the entrance to the Terminal and would be more visible from Race Point Road. The vehicle circulation is also awkward. This alternative has been dismissed from further review.

5.11 Terminal Building

Three alternatives for the Terminal Building expansion project element were explored, including the No Action alternative, an alternative that would construct a second floor within the existing footprint (Vertical Concept), and an alternative that would expand the 1st floor footprint (Horizontal Concept). All three alternatives are carried forward in the assessment of environmental impacts in Section 5.0. The alternatives that have been considered for the project are illustrated on Figures 3.14, 3.15, and 3.16 provided at the end of this section.

5.11.1 No Action
The No Action would maintain the current conditions in the passenger terminal building. Figure 1.4 in Section 1 depicts the floor plan of the existing terminal building along with photos. The space requirements for TSA operations were not in existence when the current terminal building was designed and built. The 1,660 SF taken over by TSA

would not be replaced and the inefficient and cramped conditions for passengers and Airport staff would continue. Currently, passengers do not have enough space in the public, non-secure waiting area, and general aviation pilots do not have space for flight planning, while the conference room and various office spaces are congested and used for storage that was lost due to TSA occupation, which would continue. No impacts to the environment would occur because there would be no construction or change in the appearance or size of the building.

5.11.2 Vertical Concept (within existing footprint) - (Proposed Action and Preferred Alternative)
The Vertical Concept alternative would place a second floor above the existing building and reconfigure space in the existing first floor terminal. The Vertical Concept would satisfy the need to obtain the lost space to TSA, as well as the projected 0.7% annual increase in passengers over the planning period. This concept would provide the additional terminal space needed to operate the Airport in a safe and efficient manner. This concept would provide the additional 1,660 SF of lost TSA space plus approximately 1,000 to 2,200 SF of projected demand over the 20-year period.

The Vertical Concept would have no direct impacts to natural resources and potential impacts to the visual environment would be mitigated with landscape screening as well as with design elements. Minimizing the mass and height of the building is a priority of the CCNS. In order to accommodate a second floor, the increased height of the proposed building would be as minimal as possible, while maintaining an aesthetically pleasing architecture for NPS guests. It would likely be necessary to raise the height of the building to accommodate the second floor. The Vertical Concept terminal building would be approximately 6 to 12 feet higher than the existing 20'93/4" building, resulting in a 26'93/4" to 32'93/4" building height. A maximum height would be identified during meetings between the Airport, the architect, and CCNS staff. The Airport architects will work closely with CCNS staff to ensure a collaborative effort goes into designing the terminal building expansion. CCNS staff will be a member of the terminal design client group from the scoping of the project to final design.

The Vertical Concept alternative would provide the spatial needs to satisfy the purpose and need, while satisfying CCNS request for input from pre-design to ensure minimal visual impacts to Park resources. Therefore, the Vertical Concept is the Preferred Alternative.

5.11.3 Horizontal Concept (expand footprint)
The Horizontal Concept alternative would expand the building to the southwest adjacent to the existing passenger waiting area. The building height of the addition would match the height of the existing terminal building. The alternative would also include modifications to the interior of the existing terminal building.

The Horizontal Concept alternative expansion would provide an additional 900 to 1,200 SF of non-secured area, less than the needed 1,600 SF lost to TSA secure operations, and would not satisfy the purpose and need. Horizontal expansion would result in

alterations to Wetland C (560 SF). Any further expansion to the west would affect the location of the underground fuel tank. Expansion to the north would impact the existing passenger drop-off area and/or the existing parking lot. This would impact the proposed expansion of the parking area.

Additionally, the Horizontal Concept would require that the TSA trailer be relocated. After further evaluation since the NPC/DEIR/EA, it has been determined that the TSA trailer could not be located adjacent to the fuel farm due to Occupational Health and Safety Administration (OSHA) requirements. The location for the TSA trailer would likely need to be in the passenger parking lot or adjacent to the GA apron, again having an adverse impact on parking by occupying a minimum of six parking spaces. The auto parking area circulation road would need to be realigned, resulting in the loss of several additional auto parking spaces.

The Horizontal Concept would also have additional potential impacts on the visual environment, as the relocated TSA trailer would be visible from the existing CCNS bike path. In addition, TSA operations would also be located outside the secure area, which is unacceptable to TSA.

5.11.4 Alternatives Considered But Rejected
No other alternatives were identified.

5.12 Turf Apron Expansion

The potential impacts of constructing additional turf apron to accommodate GA aircraft were analyzed with three alternatives: the No Action alternative, an alternative that would construct additional apron space for a full range of GA aircraft (Full Dimension alternative), and an alternative that would accommodate smaller GA aircraft (Reduced Dimension). The alternatives that have been considered for the project are illustrated on Figures 3.17 and 3.18 provided at the end of this section.

5.12.1 No Action
The No Action would maintain the current area for turf parking of GA aircraft. There would be no impacts to natural resources because the turf area would not be reconstructed and reinforced. The need for additional parking area would not be met and it would continue to be necessary to close the Mid Connector taxiway to provide overflow aircraft parking areas during peak demand, and would not meet the purpose and need.

5.12.2 Expand Apron, Full Dimension
The Full Dimension alternative would construct the turf apron outside of the Taxiway Free Area (TOFA) in compliance with FAA safety design standards, and would accommodate the full range of GA aircraft that use the turf apron at the Airport. The width of the apron would accommodate the larger GA planes. Implementation of this alternative would result in impacts to Wetland C (1,250 SF). There would be temporary impacts to cultural grassland habitat (approximately 16,800 SF) during construction, which would be restored to grasslands.

5.12.3 Expand Apron, Reduced Dimension (Proposed Action and Preferred Alternative)
Under the Reduced Dimension alternative, additional turf apron would be constructed between the two existing areas for turf apron parking by increasing the carrying capacity of the existing grass area to support the weight of the planes. Approximately 16,780 SF of existing managed cultural grassland habitat would be temporarily impacted during construction, and would be restored to managed grassland habitat.

5.12.5 Alternatives Considered But Rejected
No other alternatives were identified.

6. Impacts On 4(f) Resource from Preferred Alternative

6.1 Physical Use
A physical use occurs when a project would require the physical taking of lands being used for park or other Section 4(f) purposes.

When the airport was originally established, the land was owned by the Commonwealth of Massachusetts and leased by the Town for a municipal airport. Since the establishment of the Cape Cod National Seashore in 1961, the land on which the Airport is located has been under the ownership of the National Park Service. As part of the land acquisition for the National Seashore, the Commonwealth of Massachusetts authorized the Deed of Conveyance for the Province Lands in 1962. The deed restriction in the conveyance title recognizes the pre-existing lease agreement between the Commonwealth of Massachusetts and the Town of Provincetown for the Airport facilities and access roads.

All CIP project elements are located within the Airport's lease area. The Special Use Permit issued by NPS authorizes Provincetown to use federal lands for airport operations and guidance equipment. The project improvements do not require any land outside the lease area.

Therefore, there would be no physical use of the 4(f) property.

6.2 Constructive Use
A constructive use does not physically use the Section 4(f) resource, but rather affects the resources indirectly. A constructive use occurs when transportation projects do not incorporate land from a Section 4(f) property but due to proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to the resource's significance or enjoyment are substantially diminished. Potential causes of constructive use include intrusions such as noise, air pollution, effects on cultural resources, or other effects such as visual impacts that would substantially impair the use of the resource.

There are no noise or air quality impacts associated with the project. No changes in flight paths, altitudes, or number of flights would result from the proposed project. In addition, coordination has been carried out with the Massachusetts Historical Commission (MHC) regarding the historical significance of the Sightseeing Shack and other significant historic or archaeological resources within the Airport lease area. MHC has determined that the CIP project is unlikely to affect significant historic or archaeological resources. The CCNS park archaeologist has also determined that no archaeological testing is necessary for the projects.

Each project element is discussed in terms of its potential for constructive use with respect to visual aspects of CCNS. Visual effects associated with the proposed terminal expansion, safety/security fence, and auto parking projects have been identified as a potential constructive use. Although these proposed projects would be within the lease area for the Airport, these project elements could be seen from outside the permit area designated for airport use. Measures to minimize and mitigate for impacts are discussed.

6.2.1 Westerly Taxiway System Improvements

The project would relocate the existing West End Connector taxiway approximately 300 feet to the east, straighten the existing curved Mid Connector Taxiway and realign the west end of the existing parallel Taxiway. The project would not be a new element or an expansion of an existing element at the Airport. There would be no discernable change in the visual environment for the visitors to the CCNS from any viewpoint. There would be no change in the character or visual qualities of the CCNS since the project is a minor modification of the existing airfield. There would be no change in recreational activity for visitors since the project is within an existing restricted area.

Therefore there would be no constructive use of a Section 4(f) resource. Additionally, impacts to natural resources have been minimized and on-site and off-site mitigation is proposed for the unavoidable impacts to wetlands, grasslands, and coastal dunes.

6.2.2 Relocate East End Taxiway

The project would relocate the existing East End taxiway approximately 200 feet to the east to meet the end of the existing runway. The project would not be a new element or an expansion of an existing element at the Airport. There would be no discernable change in the visual environment for the visitors to the CCNS from any viewpoint. There would be no change in the character or visual qualities of this area of the CCNS since the project is a modification within the existing airfield. There would be no change in recreational activity for visitors since the project is within an existing restricted area.

Therefore there would be no constructive use of a Section 4(f) resource. Additionally, impacts to natural resources have been minimized and mitigation is proposed for the unavoidable impacts to wetlands, grasslands, and coastal dunes.

6.2.3 Reconstruct Terminal Apron

The project would reconstruct pavement within the same footprint of the existing terminal apron. This is footprint re-pavement project.

6.2.4 Reconstruct Easterly End of Partial Parallel Taxiway

The project would reconstruct pavement within the same footprint of the easterly end of the parallel taxiway. This is footprint re-pavement project.

6.2.5 Install Taxiway Lighting, Signage, and Construct Electric Vault

The project would construct an electric vault and add taxiway lights. The lights would function in a similar manner to the runway lights, which are activated by pilots during runway use. The lights are not on at all times. There would be no discernable change in the visual environment for the visitors to the CCNS from any viewpoint since the existing runway is lighted and the existing taxiway has reflectors.

There would be no change in the character or visual qualities of the CCNS in the vicinity of the airport environs and therefore there would be no constructive use of a Section 4(f) resource.

6.2.6 Repair Sightseeing Shack

The project would repair the existing building. The project would maintain the existing footprint and scale of the building. It would not be a new element in the visual environment. The building is not considered historic as discussed in previously.

There would not be a constructive use because the visual appearance of the building will remain essentially the same as existing.

6.2.7 Improve Access Road to Approach Lights

The project is a modification to an existing access road and would not be a new element in the visual environment. There is an existing road to the existing navigational system and there would be no discernable change in the visual environment for the visitors to the CCNS from any public viewpoint since the modification is within an area of aviation navigational equipment. Impacts to natural resources have been minimized and mitigation is proposed for the unavoidable impacts to wetlands.

Therefore there would be no constructive use of a Section 4(f) resource.

6.2.8 Construct Service Access Roads to AWOS and LES

The project would provide service roads to existing facilities and would not be a significant new element in the visual environment. The roads would be within the active airfield. The existing facilities are currently maintained and this activity would not be unexpected to the visitors of CCNS or users of the nearby section of the bike path. Impacts to natural resources have been minimized and mitigation is proposed for the unavoidable impacts to wetlands, and coastal dunes. There would be no discernible

change in the visual environment and no change in recreational activity for the visitors to the CCNS.

Therefore there would be no constructive use of a Section 4(f) resource.

6.2.9 Install Perimeter Fence

There are existing segments of safety/security fencing at the Airport and one section is adjacent to the bike path. The new sections of fencing will be within the vicinity of the managed airfield, which minimizes the effect on the various viewer groups and will be within the existing area designated for aviation use. The fence will be black-coated vinyl, which will match existing sections of fence. Safety/Security fencing is consistent with airport facilities and would not be an unusual sight in the airport environs, especially since fencing is currently adjacent to the bike path and visible from the path. The fence will secure the operational area of the Airport and minimize unauthorized entry onto the active airfield. Impacts to natural resources have been minimized and mitigation is proposed for the unavoidable impacts to wetlands, and coastal dunes. Design of the fence has incorporated wildlife openings for turtles and other small animals. There would be no change in recreational activity for the visitors to the CCNS.

Therefore, it is expected that the fence will not impair the use of the CCNS for visitors and would not be a constructive use.

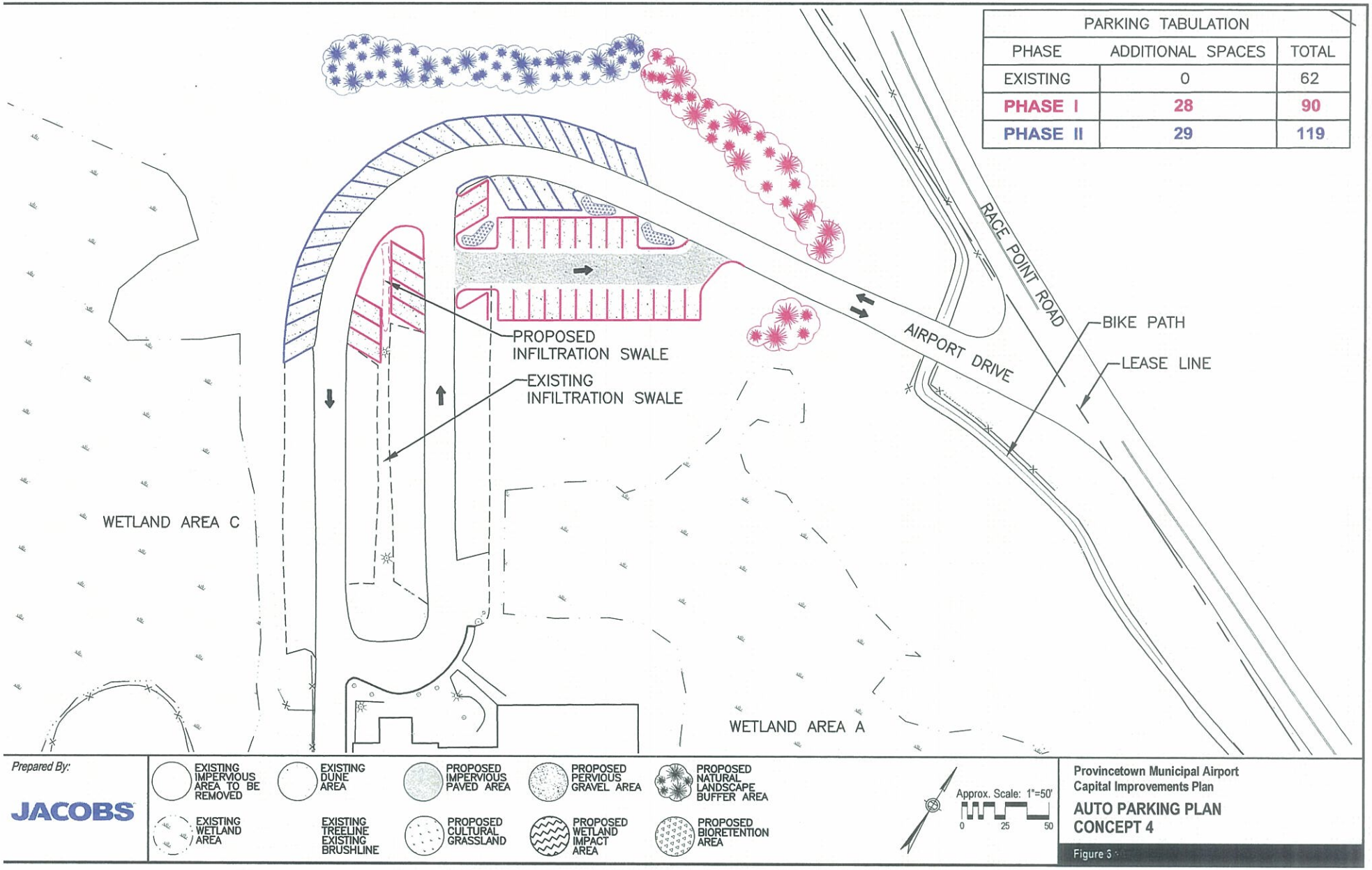
6.2.10 Expand Auto Parking

The project would expand an existing parking area at the Airport adjacent to Race Point Road in two phases. There are two NPS parking areas also within the general area: the Visitors Center parking lot and the Race Point Beach parking lot. A portion of the CCNS bike path parallels Race Point Road and crosses Airport Drive. The new area of parking will be adjacent to the existing parking area and Airport Drive. Landscaping is proposed to screen the additional parking from Race Point Road. A concept plan is shown on **Figure 3, Auto Parking Plan.**

Therefore, it is expected that the parking area, with the proposed landscaping mitigation, will result in a minor change in the visual environment but would not impair the use of the CCNS for visitors. The aspects that contribute to the significance of CCNS would not be diminished because there would be no significant change in the visual environment and no change in recreational activity for the visitors to the CCNS. Use of the ORV trail and the bike path will not be impaired.

6.2.11 Expand Terminal Building

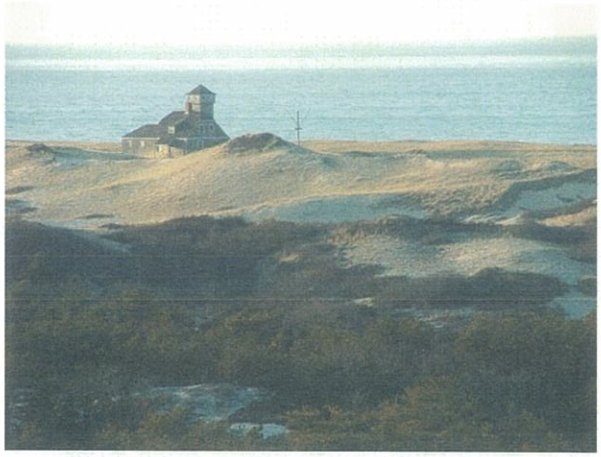
The preferred Alternative to expand the existing terminal building would add a second floor, raising the building height approximately 6 to 12 feet. The existing building is visible from the Visitor Center's observation deck, the Race Point Beach parking lot, and portions of the bike path. The proposed increase in height would be discernible from these perspectives, but would not be a significant change in the visual environment.


PARKING TABULATION
PHASE | ADDITIONAL SPACES | TOTAL
EXISTING | 0 | 62
PHASE I | 28 | 90
PHASE II | 29 | 119
RACE POINT ROAD
AIRPORT DRIVE
BIKE PATH
LEASE LINE
PROPOSED INFILTRATION SWALE
EXISTING INFILTRATION SWALE
WETLAND AREA C
WETLAND AREA A
Prepared By:
JACOBS
EXISTING IMPERVIOUS AREA TO BE REMOVED
EXISTING DUNE AREA
PROPOSED IMPERVIOUS PAVED AREA
PROPOSED PERVIOUS GRAVEL AREA
PROPOSED NATURAL LANDSCAPE BUFFER AREA
EXISTING WETLAND / AREA
EXISTING TREELINE EXISTING BRUSHLINE
PROPOSED CULTURAL GRASSLAND
PROPOSED WETLAND IMPACT AREA
PROPOSED BIORETENTION AREA
Approx. Scale: 1"=50'
0
25
50
Provincetown Municipal Airport
Capital Improvements Plan
AUTO PARKING PLAN
CONCEPT 4
Figure 3

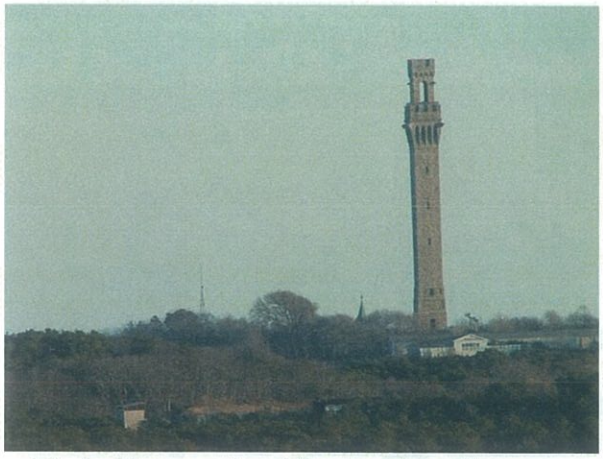
The existing viewscape from the NPS Visitors Center Observation Deck consists of many multiple story buildings such as the Race Point Ranger Station, the old Harbor Life-Saving Station Museum, the Pilgrim Monument, and the Race Point Lighthouse. The existing viewscape from the bike path in the vicinity of the Airport includes the Airport Drive and Race Point Road, as well as the NPS beach parking lot and portions of the Airport. The existing viewscape from the Race Pont Beach parking lot includes the existing airport terminal and hangar buildings, as well as the existing parking lot at the Airport.

The Race Point Ranger Station, the old Harbor Life-Saving Station Museum, the Pilgrim Monument and Provincetown Museum, and the Airport Terminal, Hangar, and Transportation Security Administration (TSA) trailer are shown from the NPS Visitors Center (telescopic views) in the following viewshed photo compilation.

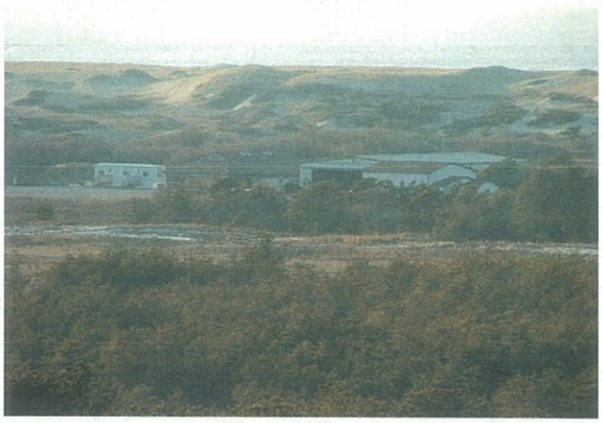
Race Point Ranger Station



Old Harbor Life-Saving Station Museum



Pilgrim Monument and Provincetown Museum



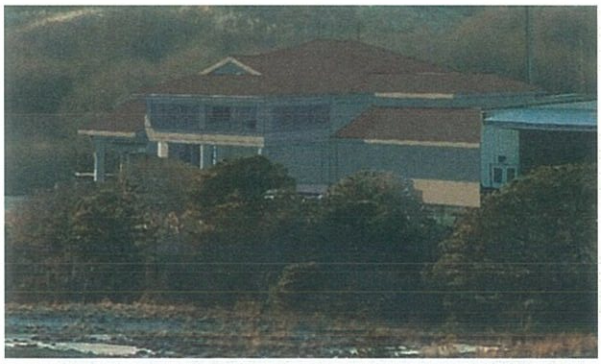
Airport Terminal, Hangar, and TSA Trailer

Telescopic views of area buildings from NPS Visitors Center.

The potential for visual impact from the project relates to the mass, height, volume, and scale of the building. There are several measures that have been evaluated at a conceptual level to minimize this impact. The appearance of building height and mass

could be minimized by use of building insets or projections, stepping back the upper floor, varying the height of the roofline, and adding trees and other vegetation. A combination of roof lines with varying roof heights and pitches could be used to add interest to the building and break up the mass of the building. Windows and other architectural features can be used to break up large wall masses. Roof color can also minimize the visual impact.

Preliminary conceptual building design concepts and photo simulations have been developed at this time for environmental review. Sample buildings with varying roof heights and building insets and projections are shown. Conceptual building design concepts have been developed to illustrate general issues. Existing and simulated views are provided in the following photos.



Example of building with varying roof line looking from the southeast (a telescopic view from the NPS Visitor Center)

Example of terminal with building insets and projections looking from the Northwest

Examples of varying roof designs and building insets and projections

Two examples of the same style building with different roof colors have been illustrated to note the impact that color could make on the perception of visibility. During the design process, background colors will be refined to aid in visual comparisons.

Example of a building with a green roof

Example of a building with a brown roof

Existing view from beach parking lot.

An example of how photo simulation can be used to show the visual impact of a design.

Existing view from bike path.

Example of use of photo simulation to assess visual impact. Roof color and roof lines could be changed.

Existing view from Visitors' Center Observation Deck.

Example of use of photo simulation.

The formal design process has not been initiated since the terminal project is programmed for FY 2016 and a preferred specific vertical design has not been selected. The design process will be carried out in collaboration with Airport staff, the Airport Commission, and NPS staff. Specific design detail will be incorporated into the design process, including details to reduce the perception of scale, mass, and volume of the building. The design process will also evaluate the most appropriate colors for the building and roof to blend in with the existing landscape. All of the design phases will be reviewed and approved by NPS.

Landscaping specific to the terminal will be incorporated into the landscaping plan for the parking lot. Landscaping for the parking lot has been proposed that will buffer the visual plane to the terminal building and parking lot from both the bike path and the Race Point Beach parking lot. Native trees and shrubs will be used.

By using the design principles to reduce the scale, volume, and mass perception, and by proposing vegetated buffers between the building and visual points of interest, the vertical terminal option would have a minor long-term impact on the visual environment. The aspects that contribute to the significance of CCNS would not be diminished by adding a second floor to the terminal building because this would not be a significantly different element within the existing visual environment that includes buildings. There would be no change in recreational activity for the visitors to the CCNS.

Therefore there would be no constructive use of a Section 4(f) resource and the resource will not be impaired.

6.2.12 Expand Turf Apron

The project would modify the structure of the underlying soils within the area of managed grassland and would not be a new element in the visual environment. The visual appearance of the turf apron will be the same as the existing managed grassland. There would be no change in the visual environment and no change in recreational activity for the visitors to the CCNS.

Therefore there would be no constructive use of the resource.

7. Measures to Minimize Harm

7.1 Visual Mitigation Measures

The Airport Commission is committed to work with the CCNS staff to finalize design parameters for the design of the Terminal project. CCNS staff will be included in all design meetings and will review the building design plans from concept to final design.

Landscaping specific to the terminal will be incorporated into the landscaping plan for the parking lot. Landscaping for the parking lot has been proposed that will buffer the visual plane to the terminal building and parking lot from both the bike path and the

Race Point Beach parking lot. Native trees and shrubs will be used. Coordination will be carried out during the permitting and final design process so that CCNS staff will have an opportunity to comment on the specific plants in the landscape plan.

7.2 Natural Resources Mitigation

On-site wetland, coastal dune and cultural grassland restoration, as well as additional wetland enhancement mitigation measures are proposed. Additional measures to reduce harm are an invasive species management plan and a construction management plan. The invasive species plan will target common reed, spotted knapweed, and purple loosestrife. The construction management plan will include such things as construction timing, construction phase protections for rare species, and an environmental monitor for environmental compliance oversight

In summary, the proposed CIP projects will not have a constructive use because, with the proposed mitigation for visual impacts, the projects would not substantially impair the resource as discussed above.

Finding

> Based on the Section 4(f) evaluation, I have determined there is no prudent and feasible alternative that would avoid a physical use of the lands permitted for aviation use within the Cape Cod National Seashore (CCNS), a Section 4(f) protected resource. The project includes all possible planning to minimize harm to this resource. FAA will condition its approval of this project to fulfill its Section 4(f) responsibilities."

_____ _____

Approved Date

9.5 Statement of Findings, E.O. 11990 Protection of Wetlands

STATEMENT OF FINDINGS FOR EXECUTIVE ORDER 11990
(Wetland Protection)

National Park Service – Cape Cod National Seashore

Pursuant To

Provincetown Municipal Airport
Capital Improvement Program Projects
Provincetown, Massachusetts

Recommended:

_____
George E. Price, Jr., Superintendent

Certification of Technical Adequacy and Servicewide Consistency:

_____
_____, Chief, Water Resources Division

Approved:

_____
_____, Regional Director

National Park Service - Cape Cod National Seashore
STATEMENT OF FINDINGS
Pursuant To
Wetland Protection – E.O. 11990, D.O. 77-1
Provincetown Municipal Airport

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NATIONAL PARK SERVICE - CAPE COD NATIONAL SEASHORE
STATEMENT OF FINDINGS

Pursuant to
Wetlands Protection – E.O. 11990, D.O. 77-1
Provincetown Municipal Airport
Provincetown, Massachusetts

1.0 INTRODUCTION

The Provincetown Municipal Airport Commission and Federal Aviation Administration (FAA) have prepared an Environmental Assessment (EA) for the proposed Capital Improvement Program (CIP) of safety and facility improvements at the Provincetown Municipal Airport (PVC). This EA will also be used by the National Park Service (NPS) to satisfy their National Environmental Policy Act (NEPA) requirements. Executive Order 11990 (E.O. #11990): Protection of Wetlands requires the NPS and other federal agencies to evaluate the likely impacts of action in wetlands. The objectives of E.O. #11990 are to avoid, to the extent possible, the long-term and short-term adverse impacts associated with the occupancy, modification, or destruction of wetlands. NPS Director's Order #77-1: Wetland Protection and Procedural Manual #77-1 provide NPS policies and procedures for complying with E.O. #11990. This Statement of Findings (SOF) documents compliance status with these NPS wetland protection procedures, presents the rationale for undertaking projects with potential adverse impacts to wetlands, and documents the anticipated effects.

1.1 Background

The Airport is a primary service airport with scheduled passenger service to Logan International in Boston, Massachusetts. Located in Provincetown, Massachusetts, on the northern tip of Cape Cod, the Airport is within the Cape Cod National Seashore (CCNS) sited on approximately 322 acres of federally owned land administered by NPS (Figures 1 and 2). Constructed in the 1940s, the Airport consists of developed airside and landside areas maintained for airport facilities and operations, surrounded by undeveloped areas that consist of grasslands, coastal dunes, and freshwater wetlands.

Airside facilities include a single runway, a taxiway system, aircraft parking aprons, an approach lighting system, navigational aids, and weather instrumentation. The runway was first paved in 1948, and was most recently reconstructed in 2003, which included the construction of runway safety areas. The taxiway system provides aircraft with direct routes between the terminal areas and the runway. The taxiways at the Airport include a partial parallel taxiway and three entrance taxiways. The West End and Mid Connector taxiways are jug-handle shaped to accommodate the larger DC-3 aircraft in operation at the time of the runway construction. The aircraft parking aprons at the Airport include both paved and turf aprons. There are two paved parking aprons, one of which is adjacent to the terminal area and is used to support commercial service at the Airport. The other paved apron is used by general aviation aircraft. The two turf aprons are located to the west of the paved General Aviation apron.

Landside facilities at the Airport include a terminal building, an aircraft hangar, an aircraft rescue and firefighting/snow removal equipment garage (ARFF/SRE), ground support facilities, the sightseeing shack (former administrative building), and an auto parking area. The terminal building was reconstructed in 1998 and is a single story wooden structure that is approximately 4,800 square feet. Passenger facilities, Transportation Security Administration (TSA) screening areas, and a conference room are all located within the terminal building. Passenger facilities include vending machines, restrooms, ticketing counters, passenger queuing space and circulation and waiting areas. The single hangar at the Airport is owned by the Town of Provincetown and operated by Cape Air. The fuel farm is also owned by the Town and is leased by Cape Air. It is located to the west of the terminal building and northeast of the sightseeing shack. The ARFF/SRE garage is located on the east end of the terminal ramp next to the employee parking lot and is owned by the Town.

The Airport has an auto parking lot that provides free parking for passengers and visitors as well as a separate lot for employee vehicles. There are a total of 62 parking spaces available in the passenger/visitor lot and 20 spaces available in the employee parking area.

A segment of security fencing is located at the east end of the runway, around the terminal apron, and around the fueling station. Figures 3 and 4 illustrate the locations of all landside and airside facilities at the Airport.

2.0 PROPOSED ACTION

The Airport proposes the implementation of twelve projects as a part of the CIP. The purpose of these projects is to enhance Airport safety and security and to enhance the efficiency of the Airport to more fully meet current and anticipated needs. Ten of the twelve proposed projects will provide operational safety and security improvements which will bring the Airport into compliance with current FAA, Massachusetts Department of Transportation Aeronautics Division (MassDOT), and TSA safety and security design standards for an airport of this type. Figure 5 provides an overview of all proposed CIP projects and their location relative to existing facilities and resource areas at the Airport.

The proposed CIP projects are:

1. Westerly Taxiway System Improvements (Realign West End, Mid Connector and a portion of the parallel Taxiways);
2. Relocate East End Taxiway;
3. Reconstruct Terminal Apron;
4. Reconstruct Easterly End of Partial Parallel Taxiway;
5. Install Taxiway Lighting and Construct Electric Vault;
6. Repair Sightseeing Shack;
7. Improve Access Road to Approach Light System;
8. Construct Service Access Roads to Localizer Equipment Shelter (LES) and to the Automated Weather Observation Station (AWOS);
9. Install a Perimeter Safety/Security Fence;

10. Expand Auto Parking;
11. Expand Terminal Building; and
12. Expand Turf Apron.

2.1 Airport Safety and Security Projects

The purpose of nine of the twelve proposed CIP projects (i.e., CIP projects 1 through 9 as listed above) is to provide necessary operational safety and security upgrades at the Airport to comply with current FAA, TSA, and MassDOT regulations and standards. A brief description of these CIP projects, the preferred alternative for each project, and how they relate to airport safety and security standards is provided below.

Westerly Taxiway System Improvements

The current configuration of the Westerly Taxiway System does not meet current FAA flight operation safety standards. The existing jug-handle shaped taxiway was constructed to accommodate DC-3 aircraft, which are no longer in operation. Current FAA design standards call for an L-shaped intersection with a right angle to the runway for operational safety. The west end taxiway currently intersects parallel to the runway, rather than at the preferred right angle, limiting aviators' view of the runway, which makes taxiing hazardous. This design is non-compliant with national design standards and is a safety issue that increases risks of runway incursions and/or collisions on the runway. The Mid Connector Taxiway is also currently a jug-handle shape that does not meet the current standard right angle intersection with the runway.

The Westerly Taxiway System Improvements involve the following elements: 1) relocate the West End taxiway, 2) realign and reconstruct the westerly end of the parallel taxiway with a run-up pad, 3) and realign the Mid Connector taxiway. These elements would result in the alteration of approximately 28,655 SF of Wetland I, with opportunities to provide on-site wetland restoration. A discussion of the proposed mitigation measures is provided in the mitigation section of this document. In addition, the Westerly Taxiway System Improvements will result in a net decrease in impervious area at the Airport.

Relocate East End Taxiway

The East End Taxiway has the standard design of a ninety-degree intersection but fails to comply with the standard that requires it to connect with the end of Runway 25. Pilots are required to "back-taxi" in order to reach the end of Runway 25 prior to takeoff. This creates potential for collisions between back-taxiing aircraft and landing aircraft. This is a clear safety hazard and must be redesigned according to current standards.

The relocation of the East End Connector Taxiway would shift the Taxiway approximately 200 feet to the east so that it connects at the end of Runway 25, resulting in the alteration of approximately 28,300 SF of Wetland Area B. As with the Westerly Taxiway System Improvements, removal of the existing pavement provides an opportunity to restore wetland habitat.

Reconstruct Terminal Apron

Reconstruction of the Terminal Apron within the same footprint is necessary to maintain airfield safety, as it is deteriorating and well over 20 years old. It is also eligible for the FAA's pavement rehabilitation program. In the Certificate on the DEIR/NPC, the Secretary of EOEEA allowed this project to go forward prior to completion of the FEIR/EA/Section 4(f) Evaluation. The project does not result in an increase in pavement or change in the footprint. A Notice of Intent was filed with the Provincetown Conservation Commission and the project was constructed in 2008 (DEP File No. 058-0440).

Reconstruct Easterly End of Partial Parallel Taxiway

As with the reconstruction of the terminal apron, the pavement reconstruction of the easterly portion of the partial parallel taxiway is intended to replace pavement that is in poor condition within the existing footprint. In the Certificate on the DEIR/NPC, the Secretary of EOEEA allowed this project to go forward as well prior to completion of the FEIR/EA/Section 4(f) Evaluation, as funding is available, although this project will likely be completed as part of the Westerly Taxiway System Improvements.

Install Taxiway Lighting and Construct Electric Vault

The installation of Taxiway Lighting and the construction of the Electric Vault are necessary to improve operational safety on the taxiways during nighttime operations, and to upgrade the reliability of the power supply to the taxiway and runway lighting systems. The current lack of taxiway edge lights and taxiway signs presents a significant operational safety hazard and the existing electric vault is not compliant with electrical code standards and is currently housed within the existing Sightseeing Shack.

The taxiway edge lights and lighted signs would be constructed 10 feet off the edge of the pavement within cultural grasslands that are currently mowed as part of Airport operations. The new electric vault would be a 10 by 10 foot structure, approximately 10 feet high, and similar in appearance to the existing utility buildings for the localizer and the glide slope equipment. An approximately four-foot wide gravel area would be constructed around the vault with a paved walkway to the service door and parking for two vehicles. The vault will be located adjacent to the Sightseeing Shack.

Repair Sightseeing Shack

The Sightseeing Shack Improvements will repair the building once the electrical equipment is removed as part of the taxiway lighting improvements. This would involve the repair of the Sightseeing Shack walls to maintain the safety and integrity of the existing Sightseeing Shack. The structure would remain within the existing footprint for the building and surrounding access area. Although it is not a historic structure, is the intent of the Airport Commission to maintain a building in the same location of similar size and with similar architecture, including a front porch.

Improve Access Road to Approach Light System

The current design of the Access Road to the MALSF Approach Lights is non-compliant with FAA standards and presents hazards to FAA service vehicles. At present, vehicles are required to back up 400 feet on a narrow gravel embankment prior to turning around and exiting the unpaved access path. This is a difficult maneuver, especially due to the lack of shoulders on the path. The edge is difficult to discern, particularly during inclement conditions, and at least one vehicle has gone off the road onto the side slope in the recent past and required a crane to extricate it. FAA design standards for access roads to FAA owned and operated facilities have specific pavement requirements for the roads, including that the first 300 feet be paved when they join a runway or taxiway, as is the case at the Airport. A paved access road minimizes the hazard of small debris and other foreign material from being tracked onto the runway or taxiway, which may damage aircraft or impede operations.

Access Road improvements for the MALSF will involve the construction of a 30 foot by 30 foot vehicle turn-around area at the western end of the existing 10-foot wide gravel service road and paving of the first 300 feet of this access roadway. This project would alter approximately 960 SF of Wetland C/J/FK. Mitigation for this wetland alteration is proposed as described in the mitigation section of this document.

Construct Service Access Roads to Localizer Equipment Shelter and to the Automated Weather Observation Station

The Airport is also required to construct Service Access Roads to the Localizer Equipment Shelter (LES) and to the Weather Station (AWOS). There are currently no access roadways to either structure. FAA operation standards mandate that vehicles have access to airfield equipment. The proposed Access Roads to the LES and to the AWOS would greatly improve maintenance access, especially during inclement conditions or in the case of an emergency. Construction of these access roads has previously been put aside in order to complete other improvements that were more critical at the time. Construction of the roads would enable the Airport to comply with FAA Orders.

The two 10-foot wide service access roads will be constructed opposite each other and perpendicular to the East End TW. The roadways will be banked by one-foot grass shoulders on each side and will also involve small turn-around areas. As with the access road for the MALSF, the first 300 feet of these access roadways must be paved, as they join the runway and taxiway areas. These access roadways will be constructed within coastal dune (cumulatively 7,900 SF of alteration) and a portion of the AWOS access road will traverse Wetland H (290 SF).

Install a Perimeter Safety/Security Fence

The final safety and security related project that is proposed to meet current airport design and operational safety standards is the installation of the Perimeter Fence. Since the Airport operates flights that connect directly to Logan International Airport in Boston, Massachusetts, airfield security must meet the rigid standards found under TSR Part 1542 as well as TSA guidelines. The construction of the fence would also serve to deter wildlife incursions on the airfield, which

would protect aircraft operations as well as decrease wildlife mortality. The fence would almost completely enclose currently unsecured areas and minimize unauthorized access for security. In addition, hikers and other persons utilizing the CCNS for recreational purposes tend to find their way onto the airfield operational area; a perimeter fence would identify and limit access to the Airport operational area and increase the safety of all users.

Currently, the preferred alternative for the placement of the fence is "Concept 6," which follows the treeline and managed areas of vegetation immediately abutting the airfield. For planning purposes, the projected impacts to resource areas involve the direct alteration of 1,152 SF of BVW, 25,648 SF of isolated freshwater wetlands, and 530 SF of coastal dune. Long-term maintenance of a low-growing shrub or herbaceous plant community within a four-foot wide strip on either side of the fence (i.e., an eight-foot wide strip) will indirectly impact BVW, isolated freshwater wetlands, and coastal dunes. Prior to construction, the Airport intends to conduct a pre-construction site walk with regulatory authorities and other appropriate individuals to refine the exact location of the fence. This will further ensure the protection of natural resources and rare species habitat.

2.2 Airport Capacity Projects

The remaining three projects are not associated with safety and security standards, but are intended to address capacity improvements to meet current and projected demand at the Airport. These include expansion of the auto parking, expansion of the terminal building, and expansion of the turf apron. The purpose of these projects is to provide capacity improvements to meet existing and projected demand at the Airport, as indicated by information and studies compiled by the Airport and FAA. A brief discussion of each is provided below.

Expand Auto Parking

The expansion of the auto parking area is proposed to meet existing and projected parking needs. The existing parking area (62 spaces) is frequently full, and drivers are unable to locate a parking place. When parking is unavailable, drivers often resort to parking along the shoulders of Airport Drive (which are comprised of coastal dunes) and, in some instances, on Race Point Road. These roads are not designed for vehicles to park along their periphery, for it creates unsafe conditions along the roadways. While the parking lot may become full anytime during the year, this condition is exacerbated during the peak summer months. Increasing the available parking would eliminate the need to park on the roadways, decrease impacts to the shoulder areas of the roadway, and would increase the overall safety of the roadways and traffic flow.

The preferred alternative for the parking lot expansion ("Concept 4") would construct the parking lot in two phases. Phase I would involve the construction of 28 additional spaces adjacent to the existing parking lot with paved drive aisles and gravel parking spaces. Phase II specifies for the construction of an additional 29 spaces, for a total of 119 spaces at full build out. Infiltration swales would be incorporated between sections of parking spaces for Phase I, with the anticipated need for additional stormwater management measures (bioretention areas) for Phase II. In addition, the Airport will provide landscape buffers to screen the new parking areas from park visitors along Race Point Road.

Phase I is designed to address the current parking demand. Only after additional parking studies are conducted and subsequently reviewed and approved by NPS and the Cape Cod Commission (CCC), would the second phase be constructed. As an adjunct element to Phase I, efforts to reduce demand by improving awareness of the shuttle system, encouraging the use of taxis, and working with NPS to explore the use of remote lots for long term parking may possibly reduce or delay the need to build Phase II.

Expand Terminal Building

A substantial amount of the Terminal Building previously designated for passenger use was displaced by TSA for mandatory passenger screening and security personnel space. The Terminal Expansion seeks to acquire additional space for passenger use and for other airport personnel while maintaining the current space that has been allotted for TSA use. The increase in public space within the Terminal will also accommodate for future increases in passenger demand.

The preferred alternative for the proposed expansion of the Terminal Building proposes a second floor above the existing building (vertical expansion) with modifications made to the first floor interior to satifisy the need to obtain the space lost to TSA use as well as the projected 0.7% annual increase in passengers over the planning period. This concept would provide the additional terminal space needed to operate the Airport in a safe and efficient manner, specifically the 1,600 SF of lost TSA space plus the 1,000 SF of projected demand over the 20-year period. This concept incorporates the necessary 2,600 SF of passenger space plus the required spatial needs to bring the building up to state and local regulatory codes. Of note, this project would not impact natural resources. Exterior building materials for the selected design would match the existing Terminal Building and will be in keeping with Technical Bulletin 96-001.

Expand Turf Apron

The existing turf apron is not able to accommodate all parking aircraft outside of the taxiway object free area (TOFA) during the peak season, nor is it able to accommodate projected future aircraft parking needs. The construction of an additional turf apron would occur between the two existing turf apron parking areas adjacent to the parallel TW. Construction of this CIP project would result in the temporary alteration of approximately 16,780 SF of currently managed grassland, which will be reconstructed to support the weight of small, single-engine planes. Following construction, this area will continue to be maintained as managed grassland.

The expanded turf apron will accommodate light single-engine GA aircraft, so that these aircraft will no longer have to park on unpaved turf areas currently utilized for parking overflow or on the mid-connector taxiway, both of which present numerous safety hazards. Additional aircraft parking space will aim to eliminate overcrowding on the turf apron as well the associated risks of operational accidents.

3.0 WETLANDS

Vegetation community descriptions at the Airport are based upon the classification system described in the *Classification of the Natural Communities of Massachusetts* (Swain and Kearsley, 2001; hereinafter referred to as "the Classification"). The dominant types of vegetation communities encountered at the Airport include Cultural Grassland, Maritime Dune Community, Coastal Interdunal Marsh/Swale with developing areas of Sandplain Grassland and/or Sandplain Heathland, and Estuarine Intertidal Salt Marsh. Wetland areas delineated at the Airport are identified on Figure 5. Descriptions of these habitat communities and general observations within each community type are provided below.

The site's geologic characteristics, combined with a fluctuating seasonal high groundwater table, result in seasonal saturation of the upper portion of the soil profile for significantly long periods of time during early portions of the growing season. Rainfall received during storm events also contributes to saturated soil and inundated land conditions. Inundated and/or saturated soil conditions favor the establishment of hydrophyte-dominant plant communities and the deposition of organic material, which are typical of wetland habitats.

Wetland habitats at the Airport include isolated freshwater wetlands dominated by grass and herbaceous species (Palustrine Emergent Wetlands or PEM); shrub-dominated isolated wetlands (Palustrine Scrub-Shrub Wetland or PSS); and isolated freshwater forested wetlands (Palustrine Forested Wetland or PFO) dominated by pitch pine (*Pinus rigida*). These isolated wetlands, ranging in size from a few hundred square feet to several acres in size, are associated with coastal interdunal swales and are often separated from each other by low to moderate dune ridges closer to the airfield, and extensive higher dune ridges, oriented parallel to the Airport runway, further out from the airfield. Isolated PSS wetlands also occur within the existing airfield, between the existing taxiways and the runway, and separated from paved surfaces by managed grassland communities of varying width.

The shrub-dominant interdunal wetlands (PSS), which are the predominant type of wetland habitat at the Airport, have a non-tidal, seasonally or temporarily flooded water regime. The relatively dense shrub communities include plant species such as winterberry (*Ilex verticillata*), red maple (*Acer rubrum*), meadowsweet (*Spiraea latifolia*), highbush blueberry (*Vaccinium corymbosum*), northern bayberry (*Myrica pensylvanica*), red chokeberry (*Aronia* spp.), and American cranberry (*Vaccinium macrocarpon*), which often occurs in dense mats. Herbaceous plants observed frequently among the Airport wetlands include sphagnum moss (*Sphagnum* spp.), various sedges (*Carex* spp.), rushes (*Juncus* spp.), cinnamon fern (*Osmunda cinnamomea*), royal fern (*O. regalis*), sensitive fern (*Onoclea sensibilis*), common reed (*Phragmites australis*), wide-leaf cattail (*Typha* sp.), woolgrass (*Scirpus cyperinus*), and various goldenrods (*Solidago* spp.).

Within the pitch pine-forested area between the runway and the steep coastal dune habitat to the southeast of the Airport managed areas, there is an extensive mosaic of additional interdunal forested wetland swales. Within these freshwater wetlands, pitch pine has adapted to the seasonally saturated conditions and is considered a local wetland indicator species.

In the far western reaches of the Airport, there is a larger bordering vegetated wetland system (Wetland C/J/FK) that transitions along a salinity gradient from a freshwater system (PEM-PSS-PFO) to a brackish system (primarily PEM, trending toward Estuarine Emergent Marsh or EEM) as groundwater seeps meet the tidal influence of the Hatches Harbor estuarine system. Brackish portions of this wetland system are dominated by a non-indigenous species, common reed. Efforts to control and manage this invasive plant community were implemented in the early 2000s through the Hatches Harbor Restoration Project, and areas of *Phragmites* die-back are evident from the emerging salt marsh community observed along the landward-reaches of the areas receiving restored salt water influence. One small area of this emerging salt marsh plant community was identified and delineated in the field ("SM").

3.1 Wetland Delineation Information

The wetland resources at the Airport were field delineated and survey-located by wetland scientists at the Horsley Witten Group, Inc. (HW), subcontractors of the Airport. It should be noted that only those wetland areas in close proximity to the proposed project elements and/or their alternative locations have been delineated within the 322-acre Airport site, each identified with an alphabetical designation. The location of wetlands outside of the assessment areas were obtained through Massachusetts Geographic Information Services (MassGIS). An Abbreviated Notice of Resource Area Delineation (ANRAD) was submitted to the Provincetown Conservation Commission and the Massachusetts Department of Environmental Protection (DEP) by HW. A site walk was conducted with representatives from the local Conservation Commission and the Army Corps of Engineers (Corps) to review the wetland boundaries. The delineated wetland boundaries indicated on Figure 6 have been approved by the Conservation Commission to the extent of their jurisdiction (DEP File No. SE-058-0425). Additional wetland information may also be found in the "*Natural Resources Inventory and Rare Species Habitat Assessment Report,*" prepared by HW in March 2007.

3.2 Affected Wetlands

Portions of Wetland B, Wetland I, Wetland H, Wetland DM, Wetland BC/F, Wetland E/DD, Wetland DB/FG, Wetland L, Wetland C and Wetland C/J/FK would be affected directly and/or indirectly by the proposed CIP projects. These wetlands are characteristic of the dominant wetland habitat encountered throughout CCNS.

The West End Taxiway is situated adjacent to two scrub-shrub wetlands, specifically Wetland C/J/FK and Wetland I, and is separated from these wetlands by Cultural Grasslands. Vegetation within each of these wetland areas, as well as the grassed shoulders, is maintained for Airport safety. Wetland C/J/FK is a tidally-influenced Bordering Vegetated Wetland (BVW), and evidence of dieback due to an increase in salinity near this Taxiway End[1] has been observed. Wetland I is non-tidal and has a seasonally or temporarily-flooded water regime. Vegetation within Wetland I includes chokeberry, winterberry, meadowsweet, steeplebush (*Spiraea tomentosa*), highbush blueberry, American cranberry, bayberry, and poison ivy (*Toxicodendron radicans*). Relocation of the West End Taxiway will occur within a portion of Wetland I.

[1] The increase in tidal flushing is associated with the Hatches Harbor Restoration project.

Vegetation within Wetland C/J/FK includes winterberry, arrowwood (*Viburnum dentatum*), meadowsweet, blue-joint (*Calamagrostis canadensis*), American cranberry, and Virginia rose (*Rosa virginiana*). Lesser amounts of purple loosestrife (*Lythrum salicaria*), wide-leaf cattail, and woolgrass are also present, along with significantly large communities of common reed to the north of the parallel Taxiway.

The East End Taxiway is adjacent to Wetland B. Plant species documented within Wetland B include American cranberry, highbush blueberry, dangleberry (*Gaylussacia frondosa*), meadowsweet, winterberry, pitch pine, willow (*Salix* spp.), various sedges and rushes, and small patches of common reed.

Concept 6 for the Perimeter Fence traverses Wetland DM, Wetland BC/F, Wetland E/DD, Wetland DB/FG, Wetland L, Wetland C/J/FK, and Wetland C.

3.3 Functions and Values of Affected Wetlands

The affected freshwater wetlands discussed above contribute to the protection of groundwater supply, public and private water supplies, storm damage prevention, flood storage control, water quality, and preservation of wildlife and rare species habitat. The majority of the wetlands delineated at the Airport provide many of the same functions and values, depending on location and the type of vegetation cover. Most, if not all, of the wetland areas contribute to flood storage and flood storage control by retaining stormwater runoff and allowing for slow groundwater recharge. These wetlands also contribute to water quality by removing sediments and attenuating pollutants.

The topography, soil structure, plant community composition and structure, and hydrologic regime of the wetlands contribute to the protection of wildlife habitat by providing food, shelter, migratory, overwintering, and breeding areas for birds, mammals, reptiles, and amphibians. Some of the wetland areas, particularly those within the coastal interdunal marsh/swales, may also provide habitat for Massachusetts' state-listed rare species.

3.4 Impacts on Wetlands Functions and Values

A total of 1.95 acres of wetland will be directly impacted as a result of all proposed projects.

Overall, 0.05 acres (2,112 SF) of Wetland C/J/FK will be altered as a result of the proposed improvement projects, specifically for the installation of the perimeter fence and improvements to the MALSF access road. The MALSF access road improvements will alter approximately 0.02 acres (960 SF) of Wetland C/J/FK. The perimeter fence will directly alter 0.03 acres (1,152 SF) for the installation of fence posts and long-term vegetation maintenance along the fence within Wetland C/J/FK.

A total of 1.9 acres (82,893 SF) of isolated freshwater wetlands will be altered as a result of the CIP projects. The Westerly Taxiway System Improvements will result in about 0.65 acres (28,655 SF) of alteration to Wetland I. The relocation of the East Entrance Taxiway will result

in the alteration of approximately 0.65 acres (28,300 SF) of Wetland B. The construction of the service access road to the AWOS will alter 0.01 acres (290 SF) of Wetland H. The perimeter fence will directly alter 0.58 acres (25,648 SF) of isolated wetland areas, including Wetland DM, Wetland BC/F, Wetland E/DD, Wetland DB/FG, Wetland L, and Wetland C.

All direct and indirect or temporary impacts associated with construction activities will be mitigated accordingly, so as to achieve no net loss of the functions and values of the affected wetlands as a result of the CIP projects.

Table 1 provides a comprehensive breakdown of wetland impacts incurred by the proposed improvements, on a project by project basis specific to each affected wetland. This table also provides an equally detailed breakdown of proposed mitigation for each project.

4.0 ALTERNATIVES CONSIDERED IN ADDITION TO PREFERRED ALTERNATIVES

This section describes the Preferred Alternative (Proposed Action), the No Action, and reasonable alternatives (if any) for each of the proposed projects that would occur within wetlands. As defined in FAA Order 5050.4B, the Proposed Action is "the solution the airport sponsor wishes to implement to solve the problem(s) it is facing." Alternatives to the Proposed Action have been considered and evaluated. An explanation is provided to justify why some alternatives have been deemed "not reasonable" and were subsequently eliminated from further analyses.

Certain CIP project elements that will not occur within wetlands are not included in this discussion. Those projects elements include the reconstruction of the terminal apron, the reconstruction of the easterly end of the partial parallel taxiway, the installation of taxiway edge lighting and the construction of an electric vault, the repair of the sightseeing shack, construction of the LES access road, the auto parking expansion, the terminal building expansion (vertical concept), and turf apron expansion.

4.1 Westerly Taxiway System Improvements

The potential impacts of improving the westerly end of the TW system at the Airport have been evaluated. The sub-elements of the Westerly Taxiway System consist of the West End Connector Taxiway, the Westerly End of Parallel Taxiway, and the Mid Connector Taxiway. Two alternatives have been analyzed for environmental impacts, and two alternatives have been considered but rejected. The two alternatives analyzed are the No Action alternative and an alternative that would construct westerly TW system improvements.

4.1.1 No Action

The No Action alternative would maintain the West End TW in its current location and would not address the operational safety issues at the Airport. The taxiway would continue to be located within the clear zone in the approach for Runway 7, which creates the potential for collision between a landing aircraft and a plane waiting to takeoff. Aircraft would continue to

taxi onto the runway parallel to the runway end and out of visual contact with approaching aircraft. Aircraft would continue to hold short of the runway which limits their view of the runway and other aircraft.

The No Action alternative would maintain the jog in the parallel taxiway, would not replace the pavement which is over 20 years old and in poor condition, and would not address the operational safety issues at the Airport. Paved surfaces at airports must be maintained in good condition. Airfield pavement standards estimate a useful lifespan of 20 years, after which pavement is eligible for reconstruction.

While no impacts to environmental resources would occur with the No Action alternative, the No Action alternative would maintain the existing Mid Connector TW with the non-standard jug-handle intersection with the runway and the parallel taxiway. It would also not align properly with the proposed relocated West End TW and the proposed realigned westerly end of the parallel TW. No impacts to natural resources would occur with the No Action alternative because there would be no construction or change in current conditions.

4.1.2 Westerly TW System Improvements (Proposed Action and Preferred Alternative)

The sub elements of the Westerly Taxiway System consist of:

A. West End Connector Taxiway
B. Westerly End of Parallel Taxiway
C. Mid Connector Taxiway

The sub elements are discussed individually but will be combined as one project in terms of permitting and construction because the elements would be constructed at the same time.

(A.) Relocate West End Taxiway with Standard Right Angle Out of the Runway 7 Approach

The alternative to relocate the West End TW would address the operational safety issues and would be in compliance with FAA design standards. The taxiway would connect with the end of the runway at a right angle and would be located out of the approach for the runway.

(B.) Realign Westerly End of Parallel Taxiway

This alternative would shift the westerly end of the parallel TW to meet the existing edge of pavement of the easterly portion of the parallel TW. A run-up pad, as required by FAA design standards for new construction, would also be constructed at the end for aircraft to perform required engine and systems checks before takeoff, without blocking the taxiway. The parallel TW would be reconstructed with a consistent width of 40 feet. Since the pavement width is currently 60 feet, pavement would be removed. Cultural Grassland habitat would be restored in areas of pavement removal.

(C.) Realign Mid Connector TW

The alternative to realign the Mid Connector TW would provide a standard 90 degree intersection design. The aging pavement would also be reconstructed to address the hazard of loose pavement causing harm to aircraft and passengers. The project would be constructed within the existing area of pavement and managed Cultural Grassland habitat.

Collectively, the three elements of the Preferred Alternative for the Westerly TW System Improvements would result in alterations to approximately 28,655 SF of wetlands, 6,400 SF of coastal dune, rare species habitat for one or more state-listed species, as well as temporary impacts to grassland habitats. Proposed mitigation measures would restore or create these resource areas and habitats from existing paved surfaces that would be removed.

4.1.3 Environmentally Preferred Alternative

After review, the Westerly Taxiway System Improvements (Preferred Alternative) is the Environmentally Preferred Alternative. The Preferred Alternative would result in a net loss of pavement and includes mitigation to restore areas of wetland (and coastal dune) impacted by the project. The current state of the taxiway is a hazard to aviators and passengers, and is a risk to the safety of those traveling to and from the Airport, as Airport operation in this area involves runway activity and airplanes in flight (as opposed to ground operations such as taxiing). Constructed improvements are necessary to address the Part 77 navigable airspace safety and operational issues of the West End TW that is currently within the approach to RW 7. These improvements will restore and maintain operational safety within the Part 77 airspace. Additionally, measures to minimize adverse impacts to wetlands such as steepened slopes have been incorporated into the design, and construction period mitigation measures such as erosion control and construction timing will be implemented to reduce overall impacts. An invasive species management plan would also be implemented to preserve an environment that supports the natural diversity found within the CCNS.

Among the alternatives considered, the West End Improvements would ultimately attain the greatest balance between the human population, the operational safety needs for the Airport, and the surrounding natural environment.

4.1.4 Alternatives Considered But Rejected

"*Existing Footprint Alternative*." The alternative that would reconstruct the West End TW within the existing footprint was suggested by others during the ENF comment period as a way to minimize impacts to wetland and grassland habitats. This alternative would provide a standard right angle connection to the runway, but the taxiway would continue to be located within the approach to Runway 7. Likewise, the risk of collisions would not be reduced because aircraft would continue to enter parallel to the runway end, rather than perpendicular to the end of the runway.

This alternative would have unavoidable impacts to approximately 13,665 SF in Wetlands I and C/J/FK, as well as additional impacts to grassland habitat. Proposed mitigation measures would

restore or create these habitats to the extent practicable from existing paved surfaces that would be removed.

The alternative that would reconstruct the existing TW footprint with a standard right angle within the existing footprint has been deemed unsafe and unfeasible because it would not comply with the FAA safety and design standards and it would not address existing operational safety issues. This alternative has been dismissed from further review.

"*Lights on Existing Parallel TW Alternative*" It was suggested in the comments on the ENF that installation of taxiway lights alone on the existing taxiway could address the safety issues relative to the jog in the partial parallel taxiway. Environmental impacts with this alternative would be limited to minor impacts to grassland habitat. However, pilots do not expect to encounter a jog mid-way along a parallel taxiway. Installation of edge lights would not fully eliminate the non-standard hazardous condition of maneuvering the aircraft through an unexpected turn at night or in bad weather conditions, and would not correct the operational safety issues created by the misaligned pavement. This alternative has been dismissed from further review.

4.2 East End TW Relocation

Two alternatives for the East End Taxiway Relocation have been analyzed, including the No Action alternative and an alternative that would relocate the East End TW to connect with the end of Runway 25.

4.2.1 No Action

The No Action alternative would maintain the 200-foot offset between the end of Runway 25 and East End TW. Aircraft would continue to back-taxi on the active runway, maintaining the current unsafe conditions by possibly interfering with landing aircraft. No impacts to natural resources would occur with the No Action alternative, as there would be no construction or change in existing conditions.

4.2.2 East End TW Relocation (Proposed Action and Preferred Alternative)

The alternative to relocate the East End TW to connect with the end of the runway would be in full compliance with FAA mandated design standards without impacting the terminal apron. There would be a slight curve in the East End TW centerline to avoid aircraft on the terminal apron. This configuration would not present a safety hazard because the terminal apron is well lit with overhead lighting, and planes are moving slowly as they enter the East End TW. Implementation of this alternative would result in alterations to approximately 28,300 SF of Wetland B.

4.2.3 Environmentally Preferred Alternative

Of the alternatives considered for the East End Taxiway, the East End TW Relocation alternative (Preferred Alternative) is the Environmentally Preferred Alternative. While this alternative

involves construction, relocating the current configuration of the taxiway will greatly reduce the significant safety hazard that the current configuration presents to aviators and passengers traveling to and from the Airport. The Preferred Alternative will address the Part 77 navigable airspace safety and operational issues of the East End TW that currently requires planes to back taxi on the active runway. As operations within the East End TW involve runway activity and airplanes in flight, the relocation of the taxiway is required to restore the necessary level of safety in this area to avoid potential undesirable and unintended consequences, while maintaining the diversity of natural resources at the Airport, to the fullest extent possible.

The preferred alternative includes mitigations to restore areas of wetland and coastal dune impacted by the relocation of the taxiway. Measures to minimize adverse impacts to wetlands and coastal dunes such as steepened slopes have been incorporated into the design, and construction period mitigation measures will be implemented such as erosion control and time of construction to reduce overall impacts. An invasive species management plan will also be implemented to preserve an environment that supports the natural diversity found within the CCNS. The East End TW Relocation would ultimately attain the greatest balance between the human population, the need to restore operational safety for the Airport, and the natural environment.

4.2.4 Alternatives Considered But Rejected

No other alternatives were identified.

4.3 Access Road to MALSF Approach Lights

The potential impact of improving the access road to the MALSF approach lights was also evaluated. Two alternatives will be analyzed for environmental impacts, including the No Action alternative and an alternative that would construct a turn-around. Three alternatives have been considered but rejected.

4.3.1 No Action

The No Action alternative would maintain the existing gravel/earthen access road with narrow embankments. As a result, vehicles accessing the MALSF for maintenance or repairs would continue to need to back up for a distance of approximately 400 feet along the narrow access road, and the associated safety issues would continue to exist. There would be no direct environmental impacts associated with the No Action alternative, for construction would not occur.

4.3.2 Construct Turn-Around (Proposed Action and Preferred Alternative)

The Preferred Alternative would involve the construction of a turn-around area, so that vehicles would no longer have to back up the length of the narrow access road. The proposed turn-around area would be 30 feet wide and 30 feet long to provide adequate space for a vehicle to safely reverse direction. The turn-around area would occur within approximately 960 SF of Wetland C/J/FK, and would be constructed along the north side of the embankment so that it would not

interfere with the approach lights. The material used to construct the turn-around would be delivered to the site and would not be excavated from the adjacent wetland area. Proposed compensatory mitigation for lost wetland area would be provided nearby at a greater than 1:1 ratio from an area of existing managed grasslands to preserve an environment that supports the natural diversity found within the CCNS. Additional mitigation measures, including construction measures, would be implemented to minimize and avoid further resource area alteration and help to protect the natural landscape of the CCNS.

While this alternative would directly alter an area of wetland, measures to mitigate possible adverse impacts of the project would include avoidance of impacts to the extent possible, resource restoration, and other construction mitigation measures. In addition, an invasive species management plan would be implemented to preserve an environment that supports the natural diversity found within the CCNS.

4.3.3 Environmentally Preferred Alternative

After review, the No Action alternative has been selected as the Environmentally Preferred Alternative solely because the project does not involve operational safety improvements for aircraft operations within Part 77 navigable surfaces nor will it occur within an existing footprint. Additionally, under the No Action alternative there would be no construction and wetlands would not be altered. The safety and operational issue is ground operation-related and affects vehicles accessing the navigational lighting system.

4.3.4 Alternatives Considered But Rejected

Reduced Turn-Around Footprint with Curbing: A smaller turn-around area with curbing installed along the length of the access roadway to alert drivers to the limits of the roadway width was considered. This alternative would reduce but not eliminate direct wetland impacts, which would need to be mitigated. A structure as low as a concrete curb could not be installed, as it would constitute a vertical penetration into the Runway 7 approach surface and would not be allowed under FAA regulations. This alternative has been dismissed from further review.

Guardrail: Installation of a guardrail along the length of the existing access roadway was also considered as an alternative, but was deemed unfeasible because of the vertical penetration into the Runway 7 approach surface. Any objects that need to be located within this object free approach area must be frangible (able to be snapped off on impact), which would defeat the function of a guardrail. In addition, the roadway embankments would need to be widened to accommodate the construction of the guardrail without losing width along the roadway, necessitating additional wetland alteration, which would require mitigation. This alternative has been dismissed from further review.

Acquire a Utility Vehicle: The Airport has also considered acquiring a utility vehicle for the purposes of accessing the MALSF equipment for maintenance or repair. This alternative would not result in environmental impacts. FAA personnel would need to transfer their equipment to a smaller utility vehicle. However, FAA personnel need access to all equipment in their vehicles during all weather conditions, and could not feasibly transfer all equipment to a small utility

vehicle at one time. The runway is required to be shut down for certain inspection or maintenance procedures, and transferring necessary equipment that would not fit within a smaller vehicle at one time, would result in potential unnecessary delays at the Airport. This alternative has been dismissed from further review.

Construct Shoulders (Option 1): This alternative would widen the entire length of the MALSF access road embankments to construct two-foot shoulders on each side of the existing access road. This alternative would impact approximately 1,800 SF of Wetland C/J/FK, and would not eliminate the safety hazard of vehicles needing to back up for 400 feet. This alternative has been dismissed from further review.

4.4 Service Access Road to the Weather Station (AWOS)

Two alternatives were analyzed for the Service Access Roads to the AWOS, including the No Action alternative and an alternative that would construct an access road to the AWOS behind the hold line and off the East End TW (Alternative 2). Several alternatives have also been considered and rejected for this project element.

4.4.1 No Action

The No Action alternative would retain the lack of defined access routes to the AWOS, which would prevent vehicle access to the site other than via the runway operating area. Even though there are a few circumstances when service on the AWOS requires the runway to be shutdown, most inspection and maintenance operations are carried out while the runway is active. Although there would be no direct long-term adverse impacts to natural resources, vehicle access to the equipment stations results in temporary impacts to natural resources and habitat each time vehicles traverse these naturally vegetated areas.

4.4.2 Service Access Road to AWOS (Alternative 2)

The Preferred Alternative for this CIP project element would require the construction of a 10-foot wide defined access roadway, which would be paved for the first 300 feet off the East End TW, in full compliance with FAA standards. The access road to the AWOS would alter 290 SF of Wetland H. Proposed mitigation measures, including construction timing measures and compensatory mitigation for the loss of natural resources would be proposed as part of this alternative.

4.4.3 Environmentally Preferred Alternative

The Environmentally Preferred Alternative for this CIP project is the No Action alternative because the project does not involve operational safety improvements for aircraft operations within Part 77 navigable surfaces and will not occur within an existing footprint. The No Action alternative would not result in construction, and wetland and coastal dune resources would not be altered. The safety and operational issue pertains to vehicles accessing the weather station equipment.

Although the No Action Alternative would not involve construction within wetlands and coastal dunes, this alternative would not address the operational safety issues resulting from the lack of designated access roads to the airfield equipment. The No Action alternative would not eliminate the tracking of foreign materials onto the runway and taxiways, which presents a safety hazard to users at the Airport. The No Action alternative is not the Preferred Alternative. The Preferred Alternative for the project includes measures to minimize adverse impacts to wetlands, such as steepened slopes and a narrower road width. Construction period mitigation measures will be implemented such as erosion control and time of construction to reduce overall impacts.

4.4.4 Alternatives Considered But Rejected

Pavement Alternatives: The alternative of constructing the roads from a porous pavement was evaluated. Porous pavement is a special type of pavement that allows rain and snowmelt to infiltrate, reducing runoff. However, these pavements require an intensive maintenance schedule and can easily become clogged with sands. Due to the sandy soils at the site and windy conditions that would blow sand onto pavement, this porous pavement has been dismissed from further review. Alternative types of pavement that would reduce any visual impacts (e.g., Natural Pave®, a sand-colored pavement, etc.) were also researched for these project elements, but use of these alternative pavement surfaces would result in unnecessary expenses. Use of alternative pavements has been dismissed from further review.

Acquire Utility Vehicle: The Airport has considered the use of an off-road utility vehicle for access to the AWOS. As with the use of a utility vehicle for the MALSF, this alternative has been deemed unfeasible because FAA personnel need access to all equipment in their vehicles and cannot feasibly transfer all the equipment to a smaller utility vehicle. Additionally, the use of a utility vehicle, while perhaps reducing the loading impacts within the coastal dunes and wetlands, would not eliminate the random access routes currently being taken by vehicles when accessing these equipment areas. This alternative has been dismissed from further review.

AWOS Alternative 1: Alternative 1 for the AWOS access road connects with the East End TW. The road would be approximately 800 feet long and would be paved in compliance with FAA standards. Alternative 1 would impact approximately 440 SF of Wetland H and would yield comparable impacts to coastal dunes and associated habitat as would occur under the Preferred Alternative. This alternative would align with the LES Alternative 1, but has been dismissed from further review, as a shift in the proposed alignments of both access roadways would reduce wetland impacts.

AWOS Alternative 3: Alternative 3 would connect with the parallel taxiway and, as with all of the alternatives for the access roadways, would be paved for 300 feet. Approximately 3,000 SF of Wetland H would be altered for this alternative. As other alignments would avoid wetland impacts to this degree, this alternative was dismissed from further review.

AWOS Alternative 4: This alignment has a direct connection with the active runway operating area, which would not meet FAA design standards and would not be allowed. This alternative would result in direct, permanent alterations to Wetland H (720 SF) and coastal dune and grassland habitat (3,480 SF). This alternative has been dismissed from further review.

AWOS Alternative 5: As with AWOS Alternative 4, this alignment has a direct connection with the active runway operating area (between the runway and the hold line of the taxiway), which would not meet FAA design standards and would not be allowed. The L-shaped configuration of this alternative alignment would result in direct, permanent alterations to720 SF of Wetland H and 9,840 SF of cultural grassland habitat. This alternative has been dismissed from further review.

4.5 Perimeter Safety/Security Fence

Seven alternatives have been designed for the construction of a Perimeter Safety/Security Fence, four of which have been carried forward and analyzed for permitting purposes. The four alternatives analyzed are the No Action alternative, and three fence alignments: Concept 6 (Final Preferred Alternative), Concept 4, and Concept 1 (Preferred Alternative in Draft EIR/EA). Three alternatives have been considered but rejected.

4.5.1 No Action

While the No Action alternative would have no direct impacts to the natural resources or habitats at the Airport, the No Action alternative would not address operational safety and security, visitor safety, and wildlife safety issues. The potential for deer and other (non-avian) wildlife to continue to come into conflict with operating aircraft, jeopardizing the safety of passengers and pilots using the Airport, would remain. Unauthorized persons would continue to have undeterred access to the currently unsecured airport operating area, and recreational users (including hunters) would remain a potential threat to the health and safety of aircraft operations and those using the Airport facilities. It may also be noted that TSA and MassDOT ban the possession of firearms in aircraft operational areas.

4.5.2 Perimeter Safety / Security Fence Concept 6 (Proposed Action and Preferred Alternative)

Concept 6 would involve the construction of an 11,700 linear foot (LF), nine foot high, black vinyl chain link security fence with two inch openings topped with three strands of barbed wire that would traverse areas of wetlands (1,898 SF). Direct impacts to natural resources would involve alterations associated with the installation of fence posts and conversion of forested and dense shrub areas to low growing communities as a result of vegetation management within the four-foot wide swaths on either side of the fence. Indirect (secondary) impacts are based upon areas where vegetation is already open and/or low growing and will not require vegetation management, but may experience temporary alterations due to construction. Vegetation management within areas consisting primarily of *Phragmites* is also considered an indirect impact. Vegetation on either side of the fence must be maintained so that trees and tall shrubs will not visually obstruct the fence during monitoring and maintenance of the structure or jeopardize the structural integrity of the fence. These areas would be either brush hogged or trimmed, but would not be graded. The cleared areas would allow for inspection of the fence. The close proximity of the fence alignment to the taxiway would allow a majority of the fence to occur within vegetated areas that are currently maintained and would eliminate the need for the

construction of patrol roads for fence maintenance. The fence would connect with the existing sections of fence adjacent to the bike path and the SRE building. Additionally, Concept 6 would eliminate fencing at the west end around the ILS.

Approximately 113 acres would be partially enclosed with the Concept 6 fence alignment. However, as noted above, the western-most end around the ILS would not be enclosed, thus eliminating direct impacts within tidally-influenced portions of Wetland C/J/FK. In consultation with the Massachusetts Natural Heritage and Endangered Species Program (NHESP), the fence design would incorporate gaps along the bottom to allow for the movement of Eastern Box Turtles, minimizing impacts to the movements of this state-listed rare species as well as other small animals.

The fence would be topped with barbed wire, which would serve as a deterrent to deer jumping the fence. Although deer can jump higher than nine feet, the angled wire along the top makes it difficult for them to judge the height of the fence. Additionally, cleared areas along the fence would allow deer to run along the outside of the fence (rather than jump the fence onto the active airfield if alarmed).

4.5.3 Perimeter Safety / Security Fence Concept 4

Concept 4 would involve the construction of an approximately 15,400 LF fence of similar design to that of the Preferred Alternative, although this fence alignment would continue to enclose the approach light system, completely enclosing the Airport facilities. Direct and indirect alterations to wetlands would occur with Concept 4. This concept would meet the project purpose and would not impact Airport operations or protected operational and navigational surfaces and object free areas.

4.5.4 Perimeter Safety / Security Fence Concept 1

The Concept 1 alignment follows the perimeter of the Airport lease area. The length of the fence would be approximately 24,000 LF, and would result in direct (34,067 SF) and indirect (33,800 SF) alterations to wetlands, while completely enclosing approximately 317 acres of the 322 acres of the Airport lease area. This alignment would require a 10-foot wide paved or gravel access road to allow for fence maintenance. The alignment would meet the project purpose and would protect Airport operations within airport operational areas and navigational surfaces.

4.5.5 Environmentally Preferred Alternative

Of the alternatives considered for the Perimeter Safety/Security Fence, the No Action alternative has been selected as the Environmentally Preferred Alternative, as the project does not involve operational safety improvements for aircraft operations within Part 77 navigable surfaces and will not occur within an existing footprint. The No Action alternative would not involve construction and would not alter wetland resources.

Although the No Action alternative would not involve construction within wetlands, this alternative would not address the safety and security issues resulting from the lack of a perimeter

fence. This alternative would continue to risk the health and safety of those at the Airport, possibly resulting in potentially undesirable or unintended consequences, both of which are defining elements of an environmentally preferred alternative per DO-12.

The No Action alternative is not the Preferred Alternative. An extensive analysis was carried out for the safety security fence in order to identify an alternative that would address the security and safety issues while minimizing impacts to wetlands, wildlife, and other natural resources. While the Preferred Alternative would result in impacts to resource areas, significant mitigation measures have been incorporated into the design and alignment of the fence concept to minimize these impacts. Additionally, a construction management plan has been drafted to minimize impacts during construction.

4.5.6 Alternatives Considered But Rejected

This section describes the following alternatives that have been identified and dismissed.

- Concept 2: Apron Offset North; 500 Foot Primary Surface South
- Concept 3: Apron Offset North; 1,000 Foot Primary Surface South
- Concept 5: Apron Offset North; Wetland Offset South

Concept 2: Apron Offset North; 500 Foot Primary Surface South: This fence alignment would be offset approximately 320 feet from the runway centerline on the south side in compliance with the current FAA Waiver, and approximately 10 feet off the back of the aircraft aprons on the north side of the taxiway. It would enclose the ILS with a 10-foot wide area on the outside of the fence maintained to be clear of trees and shrubs, and a 10-foot wide vehicle travel path on the Airport side of the fence for security inspection patrols. The total length of the fence would be approximately 17,000 LF, enclosing approximately 104 acres and fragmenting wildlife habitat from the CCNS lands. The alignment would directly and indirectly impact approximately four acres of wetlands (both bordering and isolated) and prime breeding habitat for the Eastern Spadefoot Toad with additional impacts to coastal dunes and associated habitats. In addition, Concept 2 has the potential to impact tidal flow and flood storage capacity since the portion of fence in the vicinity of the ILS may impede normal tidal flow and flooding during storm events.

Concept 2 would meet the project's purpose and need, and would be in compliance with the current FAA Waiver. Under the current Waiver, any fence alignment must be at least 63 feet beyond the edge of the FAR Part 77 Primary Surface to accommodate the 7 to 1 Transitional Surfaces that extend upward and out as an obstruction clear area. However, if this Waiver were ever to be revoked in the future, Concept 2 would have to be removed and relocated. Therefore this alternative has been deemed unfeasible for cost and environmental permitting reasons, and has been dismissed from further review.

Concept 3: Apron Offset North; 1,000 Foot Offset Primary Surface South:
This alignment would have an approximately 500-foot offset from the runway centerline on the south and approximately 10 feet off the back of the aircraft aprons on the north side. It would enclose the ILS with a 10-foot wide area on the outside of the fence maintained to be clear of trees and shrubs, and a 10-foot wide vehicle travel path on the Airport side of the fence for security inspection patrols. This alignment would be cost effective because it would be in compliance if, in the future, the Waiver is revoked. The length of the fence would be approximately 17,900 LF, enclosing approximately 128 acres. The alignment would impact approximately 4.5 acres of wetlands and prime breeding habitat for the Eastern Spadefoot Toad and coastal dunes and Eastern Box Turtle habitat, which would likely have adverse impacts to these rare species. As with Concept 2, Concept 3 has the potential to impact tidal flow and flood storage capacity since the fence is in the vicinity of the ILS. Maintaining the fence alignment in close proximity to the taxiway would reduce direct, long-term wetland and dune impacts by eliminating the need for a portion of the perimeter roadway. Concept 3 would meet the project purpose and need, however, this alternative has been deemed unfeasible for environmental permitting reasons, and has been dismissed from further review.

Concept 5: Apron Offset North; Wetland Offset South: Concept 5 would enclose the ILS with a four-foot wide area on the outside of the fence maintained to be clear of trees and shrubs, and a 10-foot wide vehicle travel path, which would be maintained on the Airport side of the fence for security inspection patrols, except where the fence can be inspected from the GA aprons on the north. The Concept 5 alternative generally follows the same alignment on the southern side as Concept 4. On the northern side, however, the fence would be located on a minimum 10-foot offset behind the aircraft parking aprons. The length of the fence would be approximately 14,000 LF, encompassing 148 acres. Concept 5 would impact approximately 1.5 acres (direct and indirect) of wetlands and, as with Concepts 2 and 3, would have the potential to impact tidal flow and flood storage capacity since the fence would be in the vicinity of the ILS. While located within wetland areas, the close proximity of the fence to the taxiway would eliminate the need for a perimeter roadway along this stretch of the fence (e.g., as with the northern segments considered in Concepts 2 and 3). It is anticipated that this alignment would only require vegetation management along the fence, minimizing wetland alterations. In addition, portions of these wetlands are currently subject to vegetation management practices to maintain airfield safety. Similar to Concept 4, Concept 5 is also located at the base of the dune ridge to the south of the runway. Certain segments of the fence would require a vehicle path would approximately 10 feet wide. In other areas where the fence traverses through currently managed airfield areas, the width of vegetation clearing would be reduced to four feet on only one side of the fence where patrol roads are not necessary, so as to minimize impacts.

This alignment provides suitable clearance along the north side of the GA aprons to accommodate spatial considerations for aircraft that are pushed by hand onto the turf aprons, access to the electric controls on the back of the GA apron light poles, and meets the purpose and need and fully complies with FAA design standards.

This proposed alignment, while reducing overall wetland impacts, would still result in habitat fragmentation on the south side of the Airport, separating the large aggregate of wetland areas from the adjacent upland areas of coastal dune. Taking the results of Eastern Spadefoot Toad

habitat surveys into consideration, the placement of the fence along the toe of the dune ridge would potentially interfere with breeding activity for this species. Thus, it was determined that Concept 5 was not the preferred alternative with respect to the natural resources at the Airport, for it requires the construction of patrol roads along certain lengths of the fence (except for north of the taxiway) for monitoring, and encloses a portion of the tidally-influenced wetlands within Hatches Harbor. As such, this alternative has been dismissed from further review.

5.0 SELECTED DESIGN AND LOCATION OF PREFERRED ALTERNATIVES

The unique environmental setting of the Airport, specifically the abundance and proximity of resource and habitat areas to one another and their overlapping nature, have made project design and the avoidance of natural resource areas challenging. However, the Airport has designed all project elements to avoid and minimize impacts to wetland areas to the fullest extent practicable in order to preserve and protect the functions and values of the wetlands without incurring a substantial hardship, while still addressing the FAA, TSA, and MassDOT safety and security mandates. The wetland impacts noted above are unavoidable, primarily due to the fact that the improvements to the Airport must occur within discrete locations (i.e., the taxiway realignment must occur within a certain portion of the taxiway, not in an alternative location outside the vicinity of the airfield), and are held to FAA-regulated standards.

The CIP projects contribute to the general public good and safety. The Airport will develop a comprehensive and integrated mitigation package through coordination with the NPS, the Corps, DEP, the NHESP, the regional Cape Cod Commission (CCC), and the Provincetown Conservation Commission, along with other pertinent regulatory entities in order to compensate for all direct and indirect impacts to wetlands and other protected resource areas.

6.0 WETLAND COMPENSATION

Several of the CIP projects will result in unavoidable alterations to freshwater wetlands (isolated and/or bordering). These impacts have been avoided and minimized to the extent practicable as is evident in the presentation of alternatives.

Draft wetland restoration plans have been developed in compliance with several regulations, performance standards, and guidance documents that relate to wetlands, including the Massachusetts Wetlands Protection Act, the Provincetown Wetland Bylaw, Sections 401 and 404 of the Clean Water Act, and the CCC Regional Policy Plan (RPP). Given the environmental constraints at the Airport, on-site wetland mitigation for direct impacts will occur primarily as wetland restoration in areas where existing impervious surfaces and fill will be removed. Indirect impacts as well as secondary impacts associated with the cutting of vegetation and long-term maintenance of vegetation communities along the fence will be mitigated through the integrated management of discrete populations of *Phragmites australis*, an invasive species in Massachusetts.

Mitigation also includes past mitigation efforts provided through the Hatches Harbor Saltmarsh Restoration Project ("Hatches Harbor Project") in accordance with the April 28, 1997 Memorandum of Understanding between the NPS and the Town of Provincetown and as

reiterated in the November 5, 2010, letter from NPS to FAA. The Hatches Harbor Project, implemented in the early 2000s, included a substantial restoration effort of salt marsh and freshwater wetland habitat. As such, the Airport will apply mitigation credits granted through the participation in the Hatches Harbor Salt Marsh Restoration Project. Previously, it was thought that additional off-site mitigation would be necessary in order to satisfy the NPS requirements for resource impacts. However, in accordance with the April 28, 1997 MOU between the Town and NPS, and reiterated in the recent letter from NPS (dated November 5, 2010), implementation of the Hatches Harbor Salt Marsh Restoration Project was to result in 60 to 90 acres of wetland habitat restoration, and the 1997 MOU established that the mitigation provided by the implementation of the Hatches Harbor Salt Marsh Restoration Project "*will be classified as mitigation for the wetland impacts of required present AND FUTURE airport safety improvements*." In their November 5, 2010 letter, NPS/CCNS "*agrees that FAA's contribution to salt marsh restoration at Hatches Harbor can be applied as off-site mitigation for activities covered in the Current Capital Improvements Plan.*"

The following mitigation plans are intended to address the various regulatory requirements as well as address impacts to Park resources. The Airport proposes on-site wetland restoration to compensate for direct wetland impacts, which reflect on-site freshwater wetland restoration ratios of approximately 1:1. Bordering vegetated wetland will be mitigated at a 2.4:1 ratio. Table 1 summarizes the direct wetland impacts and the on-site mitigation ratios.

The NPS finds that this proposed action is consistent with the policies and procedures of Director's Order #77-1: Wetland Protection, including the "no net loss of wetlands" policy.

6.1 Compensation Details

Overall, 0.05 acres of Wetland C/J/FK (BVW) will be altered as a result of the proposed improvement projects, specifically by the installation of the perimeter fence and improvements to the MALSF access road. The MALSF access road improvements will alter approximately 0.02 acres of Wetland C/J/FK. The Perimeter Fence will directly alter 0.03 acres of Wetland C/J/FK.

A total of 1.9 acres of isolated freshwater wetlands will be altered as a result of the CIP projects. The Westerly Taxiway System Improvements will result in about 0.65 acres of alteration to Wetland I. The Relocation of the East Entrance Taxiway will result in the alteration of approximately 0.65 acres of Wetland B. The construction of the Service Access Road to the AWOS will alter 0.01 acres of Wetland H. The Perimeter Fence will directly alter 0.58 acres of isolated freshwater wetlands and indirectly alter 0.09 acres of isolated freshwater wetland areas. All direct and indirect impacts will be mitigated accordingly, so as to achieve "no net loss" of the functions and values of the affected wetlands as a result of the CIP projects. Mitigation details are provided below.

Wetland Restoration Details

Relocation of the West End TW and East End TW and subsequent reduction of the existing paved areas for the parallel TW and Runway 7 allows for wetland restoration within the footprint

of existing developed and paved areas. As proposed, wetland mitigation will result in a total of approximately 1.8 acres (78,000 SF) of restored isolated wetlands (shrub swamp) at the Airport in two locations (Mitigation Areas A and C), resulting in a mitigation ratio of approximately 1:1. Mitigation Area A would be located within the curved footprint of the existing West End TW adjacent to portions of Wetland C/J/FK and contiguous with Wetland I, while Mitigation Area C would be located within the footprint of the existing East End TW, south of the terminal apron and contiguous with Wetland H, as shown on Figures 7 and 8. A third location, Mitigation Area B, would be located adjacent to the access road to the approach lights, to the southwest of the (abandoned) West End TW. Mitigation Area B would be contiguous with Wetland C/J/FK and would restore approximately 0.11 acres (5,000 SF) of BVW, resulting in a net gain of 0.06 acres (2,888 SF). Each of these areas is highly suitable for wetland restoration due to their proximity to existing wetlands and the existing shallow groundwater table.

6.2 Restoration Process

The wetland mitigation methodology is modeled from the Massachusetts Inland Wetland Replication Guidelines (March 2002) prepared by the Massachusetts DEP, as well as the performance standards for wetland replacement in accordance with 310 CMR 10.55(4)(b)(1 though 7), the Town of Provincetown Wetlands Bylaw (Chapter 12 of the General By-Laws of Provincetown), and the Corps' New England District Compensatory Mitigation Guidance and Mitigation Plan Checklist.

Wetland restoration activities will generally involve removal of existing pavement and gravel sub-base, excavation to appropriate sub-grade to intercept available hydrology, incorporation of native wetland vegetation and a seed mixture to stabilize disturbed soils, and implementation of monitoring plans to ensure the successful establishment of a wetland plant community. A qualified wetland scientist will oversee all aspects of the wetland restoration efforts. Details of these activities are provided below.

Prior to the commencement of any restoration activities, a sedimentation and erosion control barrier, consisting of staked siltation fencing, will be installed along the wetland boundary to protect the adjacent area during earth moving activities. Following installation of this sedimentation barrier, impervious surfaces (asphalt and gravel sub-base) will be removed and transported off-site to a suitable disposal facility.

As much as practicable, vegetation within wetland areas to be altered will be removed in large patches with a front end loader or other suitable machine and stockpiled nearby for later re-introduction within the restoration area(s). This will allow for greater success in the establishment of the plant communities within wetland restoration areas. Salvaged plant materials will be covered and maintained (watered) in good condition until the restoration areas have been prepared.

It is anticipated that the original soil profile may be intact beneath the impervious surfaces and that only minor grading would be necessary in most areas to obtain suitable hydrology to support a wetland plant community. As such, care will be taken to avoid removal of any original soil materials encountered beneath the impervious surfaces. Thus, re-grading is not anticipated.

Successful wetland restoration will require sufficient hydrologic conditions. Specifically, groundwater should be close enough to the surface such that saturated soils exist within one foot of the final elevation during the growing season. These elevations should provide 4 to12 inches of standing water during the winter and spring, as observed within other seasonally flooded wetland areas at the Airport. Six (6) monitoring wells have been installed to observe groundwater elevations within the existing wetland areas and as close as possible to the proposed restoration areas. At present, depth to water measurements have been recorded on two separate dates. No appreciable difference in depth to water was observed across all six wells, suggesting that removal of existing impervious materials alone will result in sufficient hydrological conditions. Additional measurements may be taken as necessary prior to commencement of restoration activities.

Planting Sequence

Following removal of fill materials, shrubs and herbaceous groundcover will be planted within the restoration area. Salvaged vegetation will be relocated to the restoration areas. Additional native plant materials possessing native genotypes (local genetic stock) will be obtained from local nurseries to augment the salvaged vegetation. This will ensure that plant genotypes from other regions are not imported to the area. Shrub species will be representative of the existing vegetation communities within the isolated wetlands. Tree species will not be incorporated in the restoration areas because these obstacle-free areas need to be maintained by the Airport as shrub swamp communities.

Proposed shrub species may include winterberry, red chokeberry, meadowsweet, steeplebush, American cranberry, and Virginia rose, or acceptable equivalent species. Shrubs will be planted in clusters of two to three, placed five to six feet on center. The planting distribution of American cranberry will depend upon the hydroperiod of each area. In shallow ephemeral wetlands, the cranberry will be planted at the lowest elevations of the wetland. In deeper, more permanent wetlands, the cranberry will be planted along the periphery. The elevation of the restoration plantings will be similar to the existing plant distribution observed within the wetlands at the Airport. Efforts will be made to plant near the beginning or the end of the designated growing season (Barnstable County growing season extends from April 26 to October 23) to ensure greater plant survival. Upon completion of the restoration area plantings, siltation fencing will be placed along the upgradient side of the restoration areas.

Draft Plant List for Wetland Restoration	
Species	**Specifications**
Arrowwood (*Viburnum dentatum*)	Planted in clusters of 2-3, 5-6 feet on center
Highbush Blueberry (*Vaccinium corymbosum*)	Planted in clusters of 2-3, 5-6 feet on center
Meadowsweet (*Spiraea latifolia*)	Planted in clusters of 2-3, 5-6 feet on center
Bayberry (*Myrica pensylvanica*)	Planted in clusters of 2-3, 5-6 feet on center
Inkberry (*Ilex glabra*)	Planted in clusters of 2-3, 5-6 feet on center
Winterberry (*Ilex verticillata*)	Planted in clusters of 2-3, 5-6 feet on center

Cinnamon Fern (*Osmunda cinnamomea*)	Planted 18-24" on center in masses
Sensitive Fern (*Onoclea sensibilis*)	Planted 18-24" on center in masses
American Cranberry (*Vaccinium macrocarpon*)	Planted in large masses, 6-12" on center
Native Seed Mix	Apply as directed
Source: Summary of Wetland Resource Areas, HWG, April 2007.	

A wetland seed mix will be used to stabilize soils within the restoration area. It is anticipated that removal of existing paved areas will expose the underlying seed bank and rootstock which would contain additional species tolerant of the local ecological conditions. The presence of the underlying seed bank is anticipated to further lend to the successful generation of a wetland plant community within the restored wetland areas. However, certain invasive species, specifically purple loosestrife and *Phragmites*, are known to have exceptionally long seed dormancy capabilities, more so than most native species. Thus, exposing this seed bank may allow germination and establishment of non-native species over native, slower-growing vegetation. As part of the long-term monitoring of the restoration areas, particular attention will be paid to manage emerging non-native species to bolster the success of desired native species.

A commercially available native seed mix that contains native grasses and wildflower species similar to those observed within the existing wetland areas will be used. Species contained within the seed mix may include: switchgrass (*Panicum virgatum*), Virginia wild rye (*Elymus virginicus*), creeping red fescue (*Festuca rubra*), fox sedge (*Carex vulpinoidea*), creeping bentgrass (*Agrostis stolonifera*), soft rush (*Juncus effusus*), New England aster (*Aster novae-angliae*), grass-leaved goldenrod (*Euthamia graminifolia*), nodding bur marigold (*Bidens cernua*), green bulrush (*Scirpus atrovirens*), Joe-Pye weed (*Eupatorium maculatum*), boneset (*Eupatorium perfoliatum*), and blue vervain (*Verbena hastata*).

6.3 Anticipated Schedule

The CIP projects would be constructed over the period of the next ten years. Permitting for the projects would be structured to allow individual projects, or groups of projects to go forward as funding is available. Mitigation, in the form of restoration activities, will occur in conjunction with the implementation of projects, as they occur.

The Westerly Taxiway System Improvements, the reconstruction of the Easterly End of Partial Parallel Taxiway and the relocation of the East End Taxiway are anticipated to occur in 2010 to 2011. The improvements to the Access Road to Approach Lights (MALSF) and the construction of the Service Access Roads to AWOS and LES will be implemented in 2016. The installation of the Perimeter Fence is anticipated to occur in the year 2013. As previously mentioned, mitigation will be phased concurrently with the construction of each project.

6.4 Anticipated Time-Frame for Full-Functioning Restoration Areas

Wetland restoration areas are anticipated to fully function as low-growing herbaceous shrub-swamp wetlands two to five years following restoration activities (i.e., during the required monitoring

period). Proper hydrologic conditions are pre-existing, and well-established mature patches of vegetation will be salvaged from impacted wetland areas as described, to facilitate the establishment of a well-developed wetland plant community within a shorter time frame than would be anticipated if the restoration area were reliant solely upon grow-in of nursery stock and seeding.

6.5 Monitoring and Maintenance

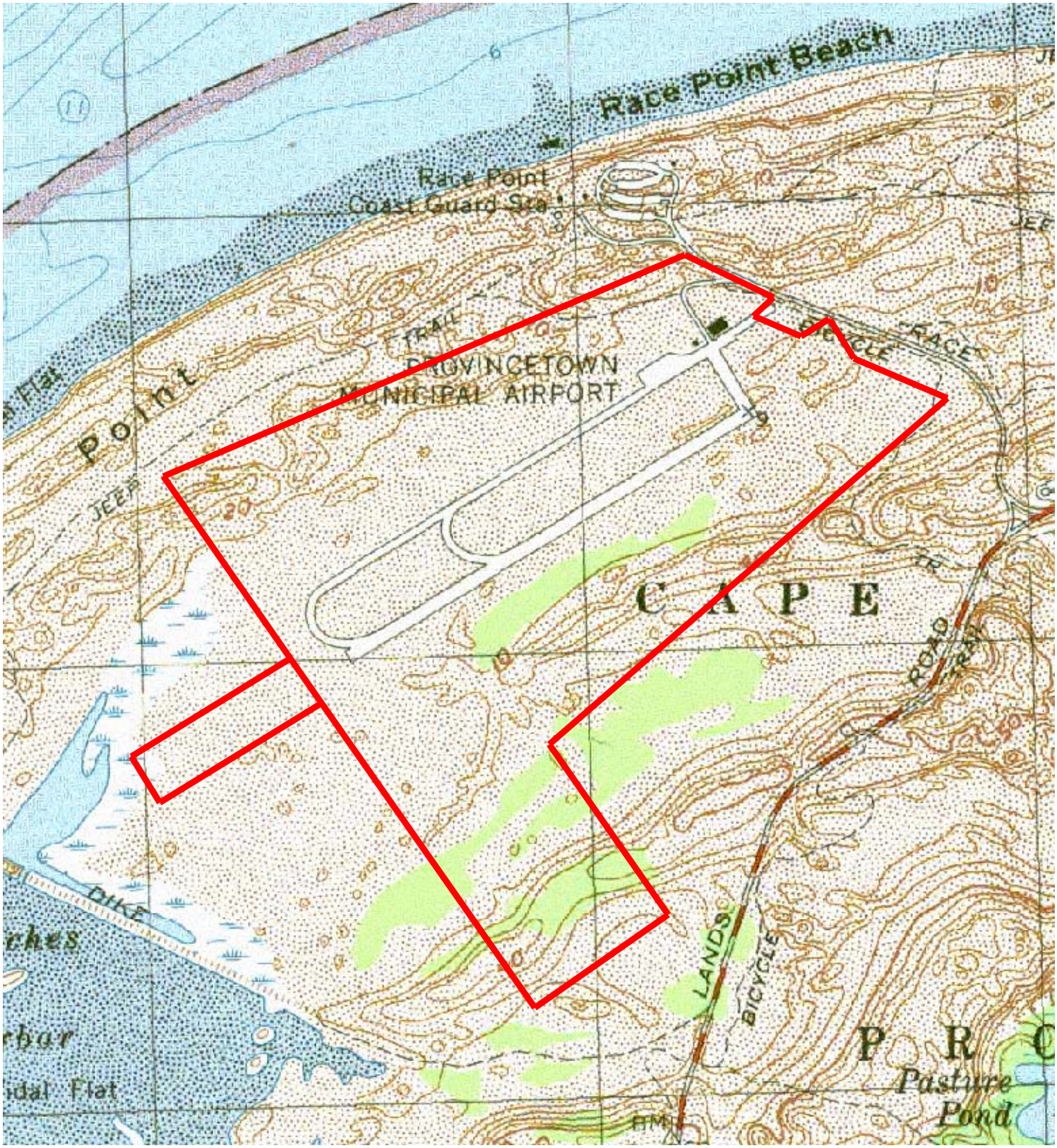
A qualified wetland scientist will oversee all aspects of the wetland restoration activities including installation of sedimentation control barriers, excavation of salvaged plant materials, removal of impervious surfaces and excavation of sub-base materials, installation of monitoring wells, soil augmentation, revegetation, and implementation of a monitoring plan. Wetland restoration areas will be monitored twice annually for five growing seasons to determine the relative success of the restored wetlands. Semi-annual site inspections conducted during late spring and late summer will include an assessment of the relative health and integrity of the salvaged vegetation and newly planted individuals, percent cover of vegetation, percent cover of wetland species, and general compliance with the performance standards under 310 CMR 10.55(4)(b)(1 through 7) and in accordance with Army Corps of Engineers (ACOE) Compensatory Mitigation Guidance. Randomly distributed vegetation study plots will be established within the wetland restoration areas to provide a consistent means of data collection used to determine the relative success of the wetland plant communities. Additional measures will be taken during construction and monitoring of wetland restoration areas to discourage establishment of invasive species within the newly disturbed soils.

Written reports detailing the findings of each monitoring event will be submitted on an annual basis for two years, to the Provincetown Conservation Commission, DEP, and the CCC, as well as other regulatory agencies overseeing the wetland restoration activities. Photographic documentation will be incorporated within the monitoring reports. Recommendations will be made for the replacement of dead or dying plants, and any additional remediation, as necessary. The monitoring program will include provisions that will ensure the implementation of any recommended actions to ensure the success of the restoration areas.

6.6 Funding

The compensatory mitigation activities will be funded through FAA and MassDOT grants that will also be providing the CIP project funding.

FIGURES



Legend

Airport Lease Line

**Data Source: MassGIS, Commonwealth of Massachusetts EOEA*

N

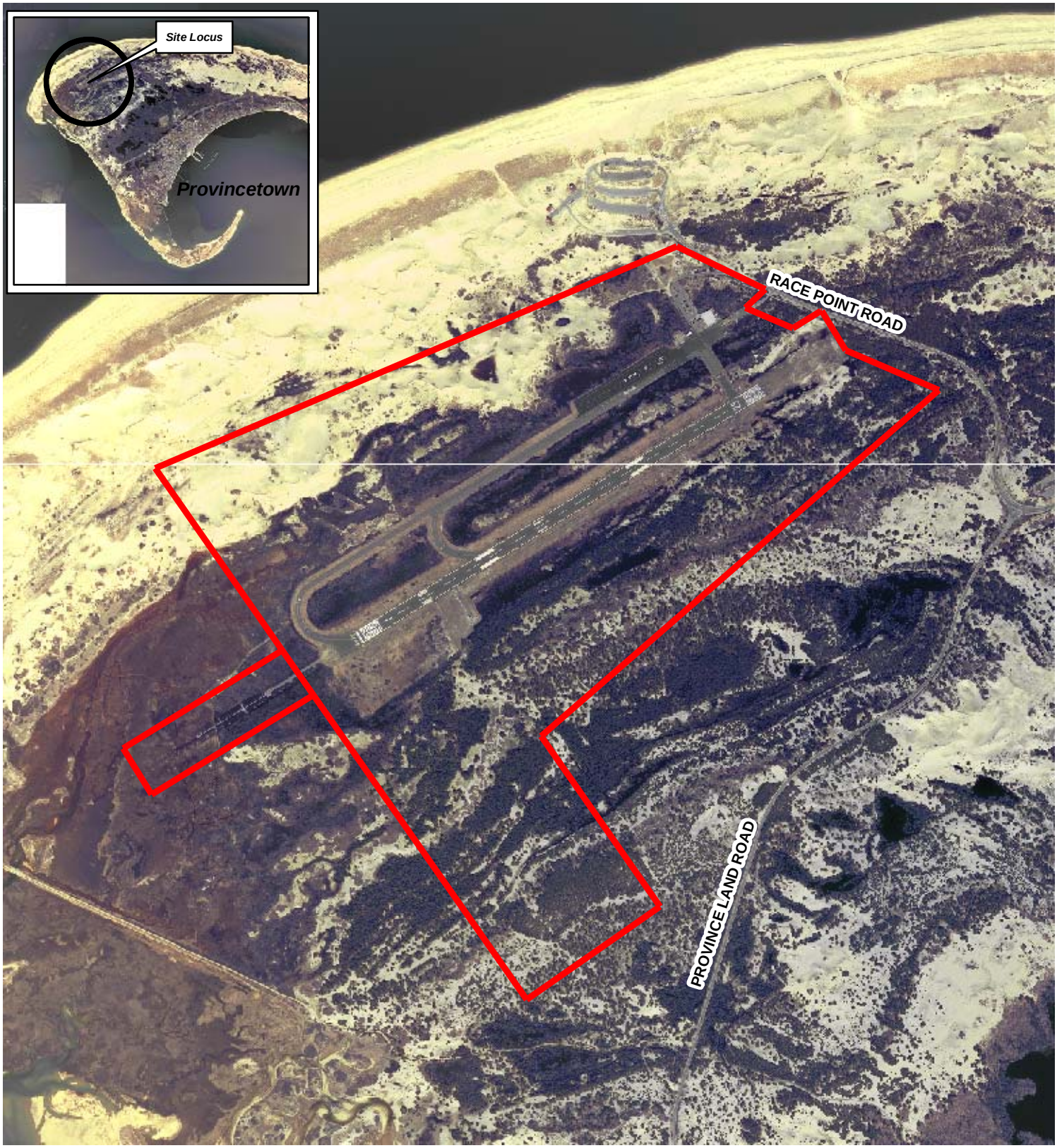
Feet

1,000

Horsley Witten Group
phone: 508-833-6600
www.horsleywitten.com

USGS Locus
Provincetown Municipal Airport
Provincetown, MA

Figure 1



Legend

*Data Source: MassGIS, Commonwealth of Massachusetts EOEA

Airport Lease Line

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Feet

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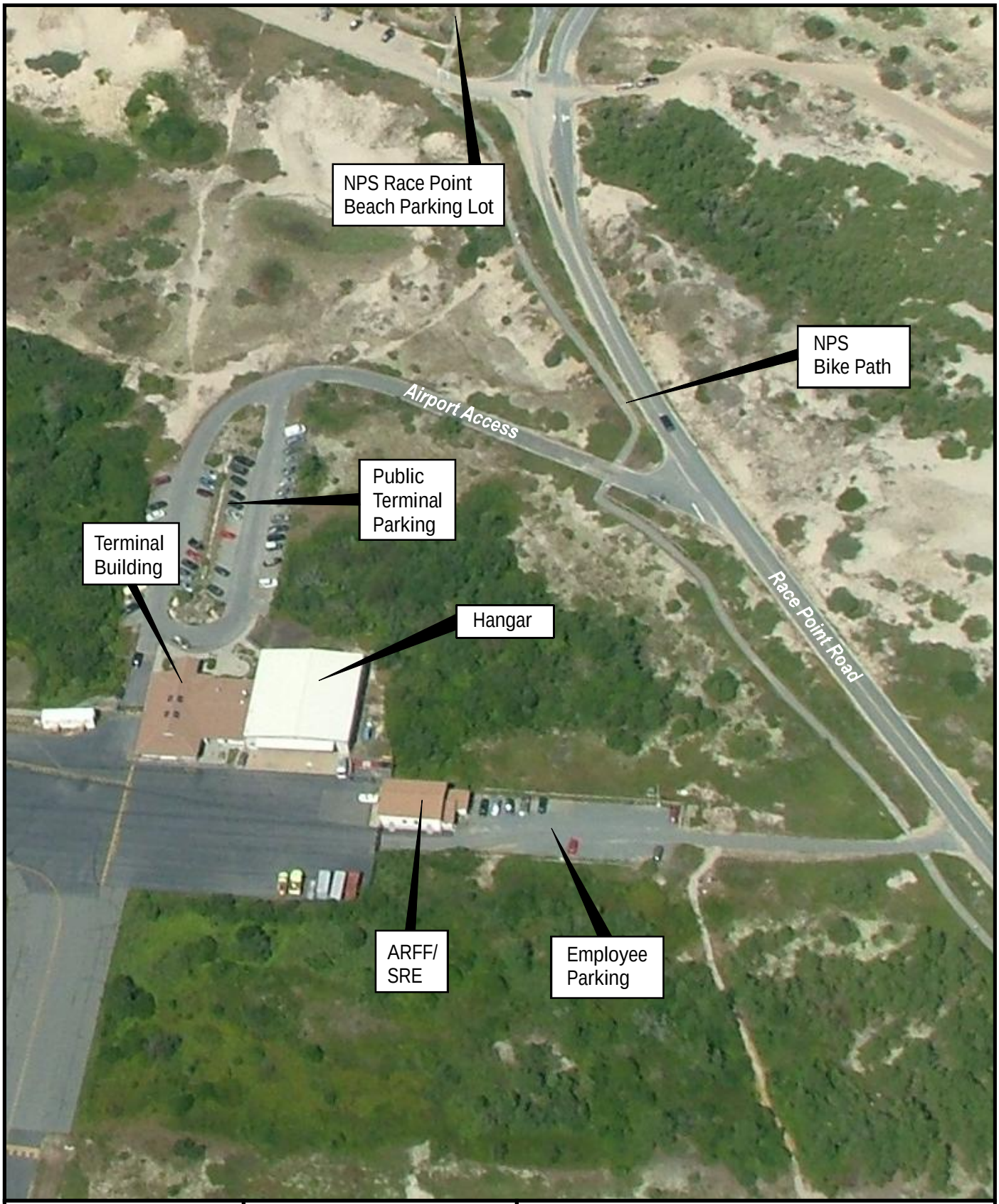
Horsley Witten Group
phone: 508-833-6600
www.horsleywitten.com

Aerial Photo
Provincetown Municipal Airport
Provincetown, MA

Figure 2



Prepared By:

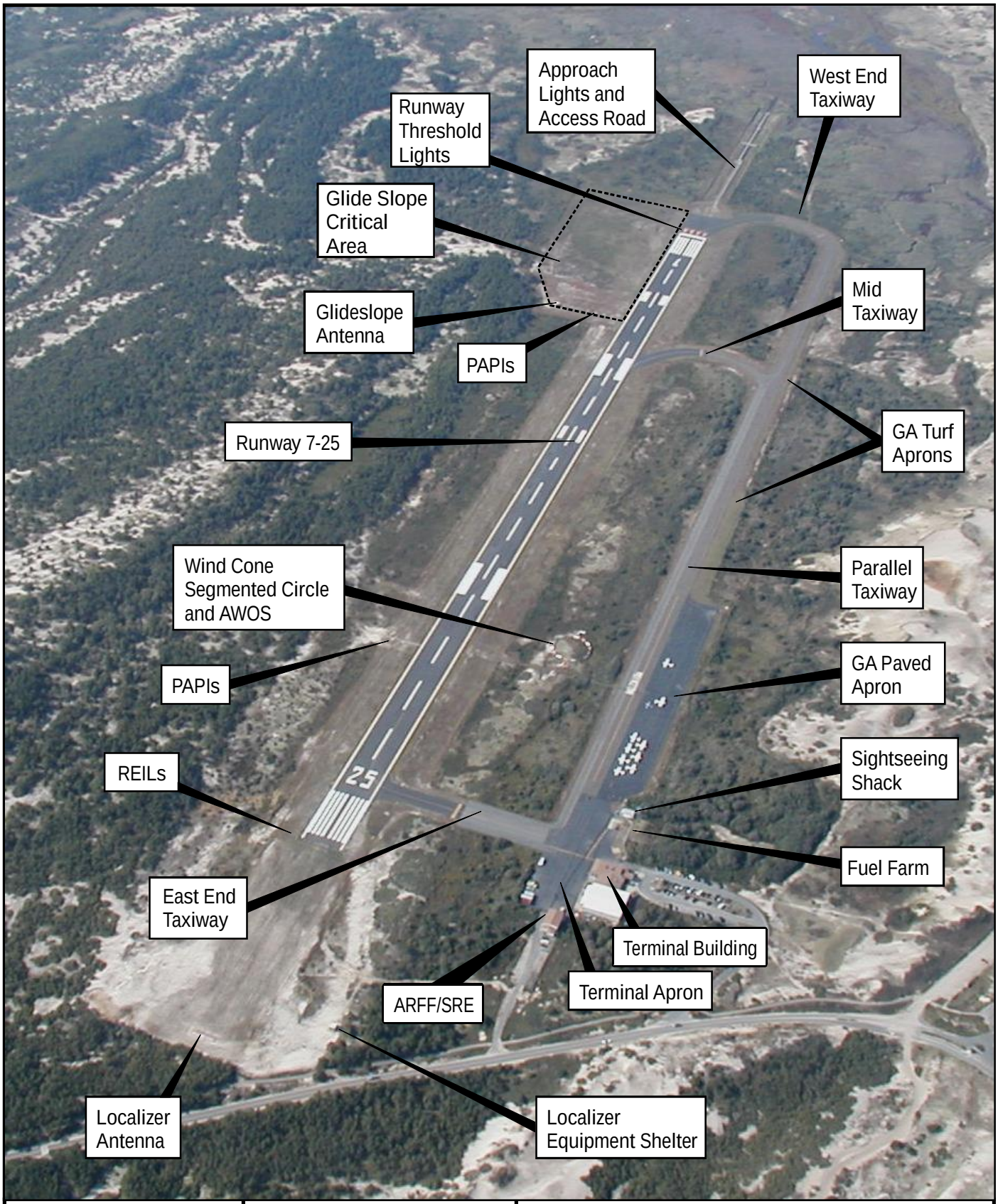
JACOBS™

Source: Edwards and Kelcey 2005

Provincetown Municipal Airport
Capital Improvements Plan

Landside Facilities

Figure 3



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Note: See Glossary for definitions and descriptions of acronyms

Source: Edwards and Kelcey 2004

Provincetown Municipal Airport
Capital Improvements Plan

Airside Facilities

Figure 4

1. WESTERLY TAXIWAY SYSTEM IMPROVEMENTS

12. CONSTRUCT TURF APRON

5. INSTALL EDGE LIGHTS, TAXIWAY SIGNS AND CONSTRUCT ELECTRIC VAULT

11. EXPAND TERMINAL BUILDING

6. REPAIR SIGHTSEEING SHACK

10. EXPAND AUTO PARKING

3. RECONSTRUCT TERMINAL APRON WITHIN THE SAME FOOTPRINT

2. RELOCATE EAST END TAXIWAY

4. RECONSTRUCT EASTERLY END OF PARALLEL TAXIWAY WITHIN THE SAME FOOTPRINT

7. IMPROVE MALSF ACCESS ROAD

8. CONSTRUCT SERVICE ACCESS ROADS

9. INSTALL PERIMETER SAFETY/SECURITY FENCE

Prepared By:

JACOBS

EXISTING IMPERVIOUS AREA TO BE REMOVED

PROPOSED IMPERVIOUS PAVED AREA

PROPOSED PERIMETER FENCE

GLIDE SLOPE AND LOCALIZER CRITICAL AREAS

PROPOSED WETLAND IMPACT AREA

EXISTING LEASE LINE

Approx. Scale: 1"=350'

0 175 350

Provincetown Municipal Airport
Capital Improvements Plan

PROJECT OVERVIEW

Figure 5

OUTSIDE OF STUDY AREA

MANAGED CULTURAL GRASSLAND (UNHATCHED AREAS)

OUTSIDE OF STUDY AREA

OUTSIDE OF STUDY AREA

AIRPORT LEASE LINE

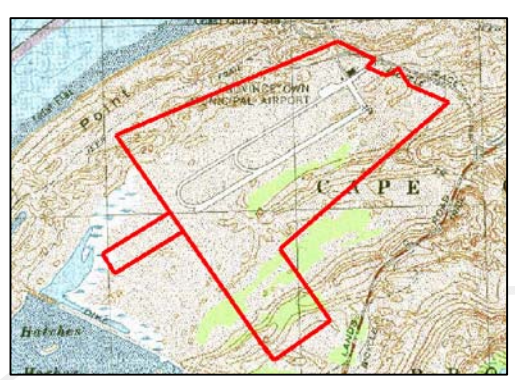
BIKE PATH

LEGEND

- WETLAND AREAS
- DUNE AREAS
- APPROXIMATE LIMIT OF MANAGED CULTURAL GRASSLAND
- (CT) WETLAND LABEL

500 0 500

SCALE IN FEET



USGS LOCUS

SCALE: 1"=3500'

Title: *FIGURE 6*
WETLAND RESOURCE AREA MAP

Project:
PROVINCETOWN MUNICIPAL AIRPORT
PROVINCETOWN, MASSACHUSETTS

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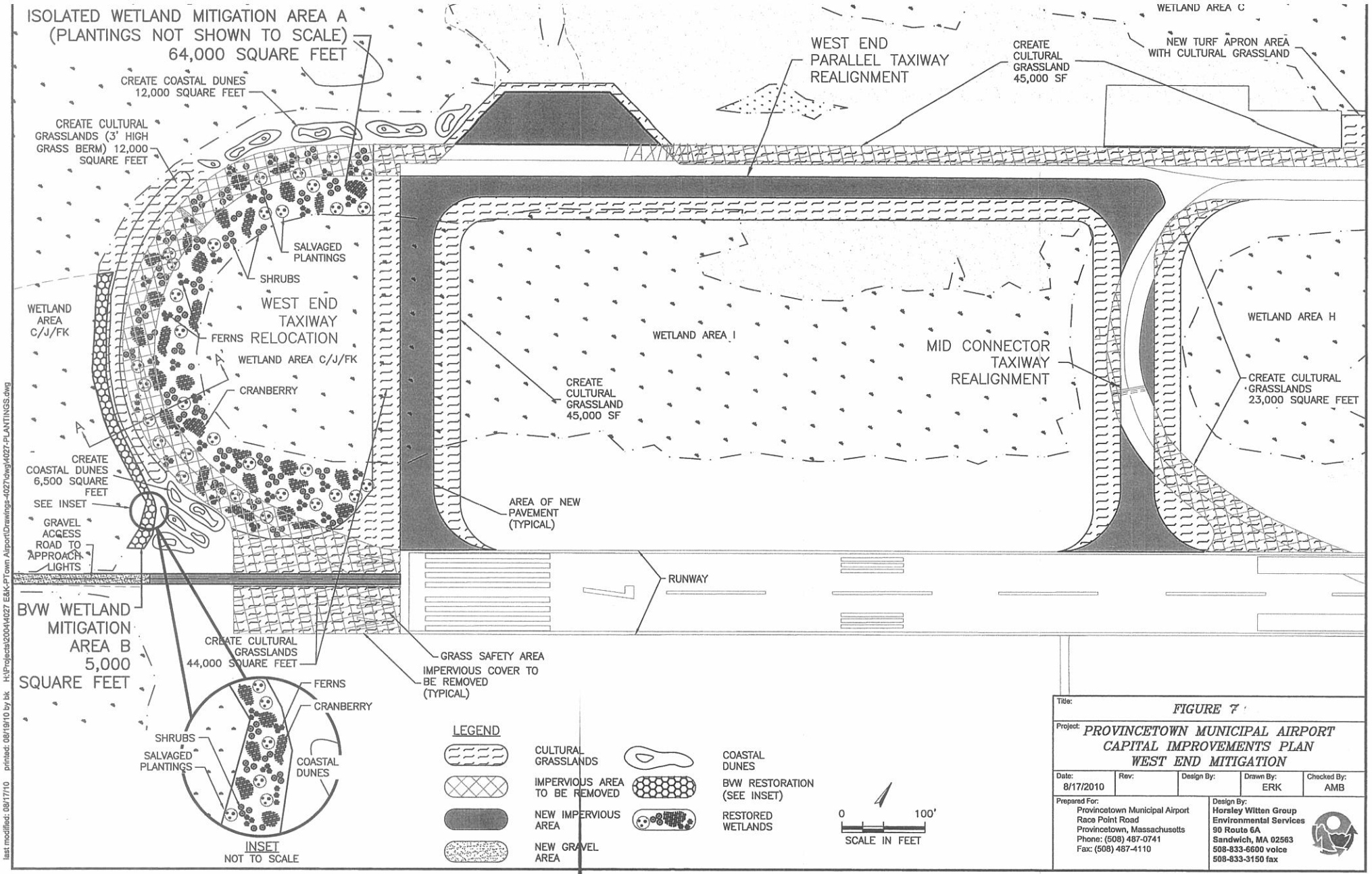

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Title: *FIGURE 7*

Project: *PROVINCETOWN MUNICIPAL AIRPORT CAPITAL IMPROVEMENTS PLAN WEST END MITIGATION*

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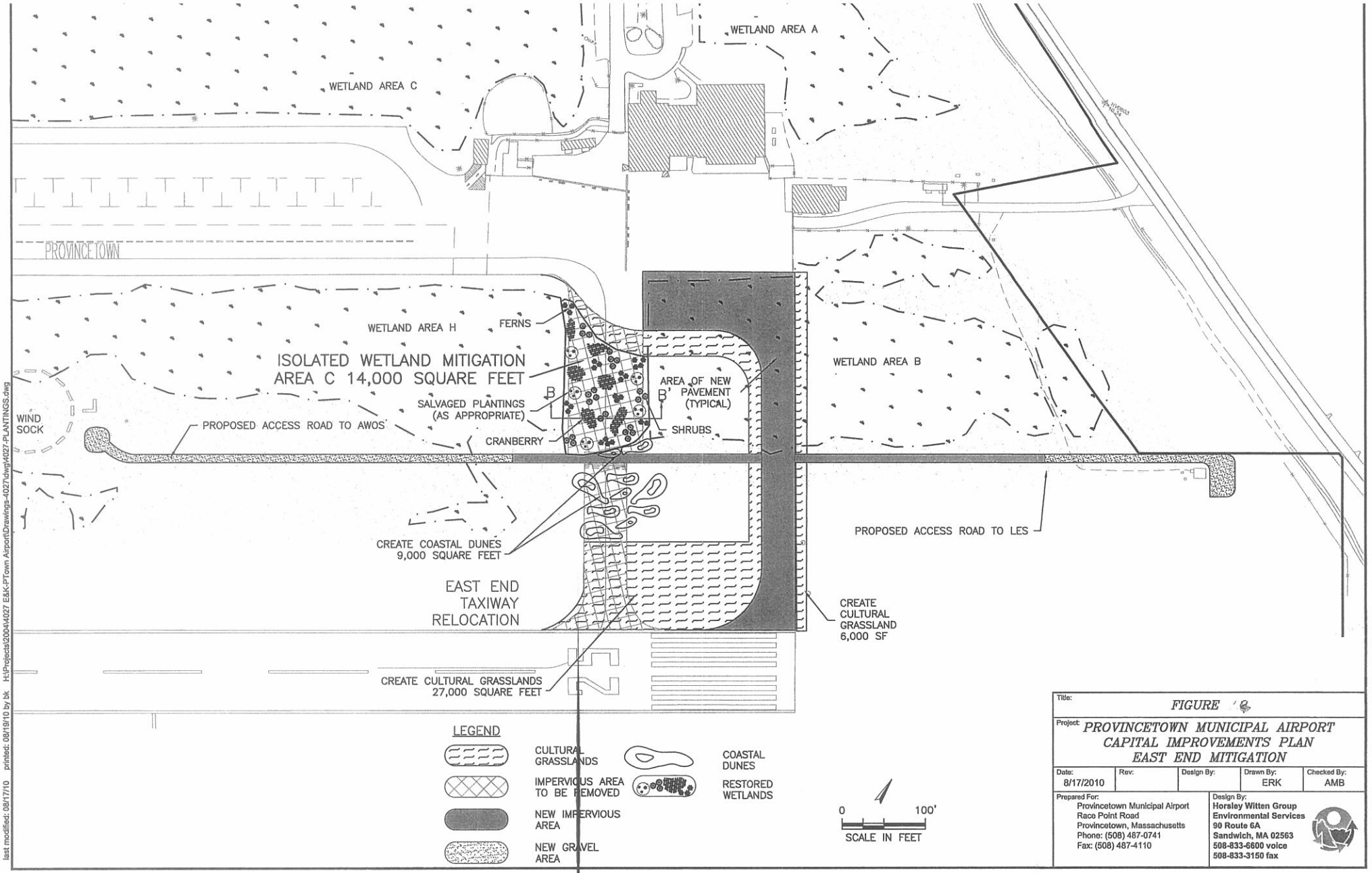

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Title: *FIGURE 8*

Project: *PROVINCETOWN MUNICIPAL AIRPORT*
CAPITAL IMPROVEMENTS PLAN
EAST END MITIGATION

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TABLES

	Table 1 Summary Of Impacts And Proposed Mitigation Measures For Preferred Alternatives For CIP Projects						
	PROPOSED ALTERATION				**PROPOSED MITIGATION**		
Project	**Type of Resource Area**	**Area of Proposed Alteration (acres)**	**Area of Proposed Alteration (SF)**	**Description of Proposed Alteration**	**Description of Proposed Mitigation**	**Area of Proposed Mitigation**	**Net Change in Area (SF)**
(1) Westerly TW System Improvements	Isolated Freshwater Wetland	0.66	28,655 (Wetland I)	Fill	On-site wetland restoration	Areas A & C	
(2) Relocate East End TW	Isolated Freshwater Wetland	0.65	28,300 (Wetland B)	Fill	On-site wetland restoration	Areas A & C	
(3) Reconstruct Terminal Apron	--		--	--	--	--	--
(4) Reconstruct Easterly End of Partial Parallel TW	--		--	--	--	--	--
(5) Install TW Lighting and Construct Electric Vault				--	--	--	--
(6) Repair Sightseeing Shack	--		--	--	--	--	--
(7) Improve Access Road to Approach Lights (MALSF)	Bordering Vegetated Wetland	0.02	960 (Wetland C/J/FK)	Fill	On-site wetland restoration	Area B	
(8) Construct Service Access Roads LES Road	--		--	--	--	--	--
(8) Construct Service Access Roads AWOS Road	Isolated Freshwater Wetland	0.01	290 (Wetland H)	Fill	On-site wetland restoration	Areas A & C	
(9) Install Perimeter Fence (REVISED alternative) **"Concept 6"**	Bordering Vegetated Wetland	0.03 (direct) 0.2 (indirect) (Wetland C/J/FK)	1,152 (direct) 8,972 (indirect) (Wetland C/J/FK)	Direct Impact consists of Fill for Fence Post Installation or Vegetation Maintenance. Indirect/Secondary Impacts consists of Vegetation Maintenance within *Phragmites* or temporary construction-related impacts.	On-site wetland restoration	Area B	
	Isolated Freshwater Wetland	0.58 (direct) 0.09 (indirect)	25,648 (direct) 3,952 (indirect)		On-site wetland restoration	Areas A & C	
					On-site wetland enhancement	14.15 acres 616,350 SF (Wetland H & I)	
(10a) Expand Auto Parking (Phase 1) **(10b) Auto Parking** (Phase 2) **"Concept 4"**	--		--	--	--	--	--
(11) Expand Terminal Building (Vertical Expansion)	--		--	--	--	--	--
(12) Expand Turf Apron	--		--	--	--		
						Acres	**SF**	**Acres**	**SF**
TOTAL DIRECT ALTERATION: (SF)	Isolated Freshwater Wetland	1.9	82,893	**TOTAL MITIGATION: (SF)**	On-site restoration	1.8	78,000	**-0.1**	**-4,893 (~1:1)**
					On-site wetland enhancement (indirect impacts) (Wetland H & I)	14.15	616,350		**(~7.4:1)**
	Bordering Vegetated Wetland	0.05	2,112		On-site restoration	0.11	5,000	**+0.07**	**+2,888 (2.4:1)**

Table 2. Summary of wetland areas delineated at the Provincetown Municipal Airport, Provincetown, Massachusetts.

WETLAND AREA	CLASSIFICATION	FUNCTIONS AND VALUES
Salt Marsh SM	EEM	Protection of Marine Fisheries, Wildlife Habitat; Storm Damage Prevention; Groundwater and Water Quality
Wetland AA	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland AB	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland AC	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland AD	PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland AE	PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland AF	PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland AG	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland AI	PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland AJ	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland AK	PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality
Wetland AL	PFO/PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality
Wetland AM	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland BA	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland BB	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland BC	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CA	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CB	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CC	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CD	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CE	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CF	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CG	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CH	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CI	PSS	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CJ	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CK	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CL	PFO/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CM	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CN	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CO	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CP	PFO/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CQ	PFO/PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CR	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CS	PFO/PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CT	PFO/PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland CU	PEM	Flood Storage/Flood Control; Groundwater and Water Quality
Wetland CV	PEM	Flood Storage/Flood Control; Groundwater and Water Quality
Wetland DA	PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland DB/FG	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland DC	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland DD	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland DE	PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland DF	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland DG	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland DH	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland DI	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland DJ	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland DK	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland DL	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland DM	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat

Table 2 (cont.)

WETLAND AREA	CLASSIFICATION	FUNCTIONS AND VALUES
Wetland EA	PSS	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland EB	PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland FA	PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland FB	PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland FC	PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland FD	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland FE	PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland FF	PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland FH	PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland FI	PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland FJ	PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland A	PSS/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland B	PSS/PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland C/J/FK	PSS/PEM/PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland D	PFO	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland E	PFO/PSS	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland F	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland G	PSS	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland H	PSS	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland I	PSS	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland K	PEM	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland L	PFO/PSS	Flood Storage/Flood Control; Groundwater and Water Quality; Wildlife Habitat
Wetland M	PEM	Flood Storage/Flood Control; Groundwater and Water Quality
Wetland N	PEM	Flood Storage/Flood Control; Groundwater and Water Quality

KEY

Classification (Cowardin, et al., 1979)

PSS Palustrine Scrub-Shrub wetland
PFO Palustrine Forested habitat
PEM Palustrine Emergent Marsh
EEM Estuarine Emergent Marsh

9.6 Statement of Findings, E.O. 11988 Floodplain Management

STATEMENT OF FINDINGS FOR EXECUTIVE ORDER 11988
(Floodplain Management)

Provincetown Municipal Airport

Capital Improvement Program Projects
Provincetown, Massachusetts

Recommended:

_____
George E. Price, Jr., Superintendent

Certification of Technical Adequacy and Servicewide Consistency:

_____
_____, Chief, Water Resources Division

Approved:

_____
_____, Regional Director

National Park Service - Cape Cod National Seashore
STATEMENT OF FINDINGS
Pursuant to

Floodplain Management - E.O. 11988, D.O. 77-2
Provincetown Municipal Airport

1. INTRODUCTION

The Provincetown Municipal Airport Commission and the Federal Aviation Administration (FAA) have prepared an Environmental Assessment (EA) for the proposed Capital Improvement Program (CIP) of safety and facility improvements at Provincetown Municipal Airport (Airport). This EA will also be used by the National Park Service (NPS) to satisfy their National Environmental Policy Act (NEPA) requirements. Executive Order 11988 (E.O. #11988): Floodplain Management requires the NPS and other federal agencies to evaluate the likely impacts of action in floodplains.

This Statement of Findings (SOF) has been prepared in accordance with the guidelines in NPS Director's Order Number 77-2, *Floodplain Management*, and the accompanying Procedural Manual Number 77-2. The purpose of this Director's Order is to establish NPS polices, requirements, and standards for implementing Executive Order Number 11988. The objective of this Executive Order is to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.

This Statement of Findings documents compliance status with these NPS floodplain management procedures and presents the rationale for undertaking a project with potential adverse impacts to floodplains and to document the anticipated effects.

1.1 Proposed Action

The Airport proposes the implementation of twelve CIP projects. The purpose of these projects is to enhance Airport safety and security and to enhance the efficiency of the Airport to more fully meet current and anticipated needs. Nine of the twelve proposed projects will provide operational safety and security improvements which will bring the Airport into compliance with current Federal Aviation Administration (FAA), Massachusetts Department of Transportation - Aeronautics Division (MassDOT), and Transportation Security Administration (TSA) safety and security design standards for an airport of this type.

The proposed CIP projects include:

1. Westerly Taxiway System Improvements (Realign West End, Mid Connector and a portion of the parallel Taxiways);
2. Relocate East End Taxiway;
3. Reconstruct Terminal Apron;
4. Reconstruct Easterly End of Partial Parallel Taxiway;
5. Install Taxiway Lighting and Construct Electric Vault;
6. Repair Sightseeing Shack;
7. Improve Access Road to Approach Light System;
8. Construct Service Access Roads to Localizer Equipment Shelter (LES) and to the Automated Weather Observation Station (AWOS);
9. Install a Perimeter Safety/Security Fence;
10. Expand Auto Parking;
11. Expand Terminal Building; and
12. Expand Turf Apron.

An overview of the proposed CIP projects is provided on Figure 1.

1.2 Site Description

1.2.1 Airport Facilities

The Airport is a primary service, public use airport with scheduled passenger service to and from Logan International Airport in Boston, Massachusetts. Located in Provincetown, Massachusetts, and situated on the northern tip of Cape Cod, the Airport is confined within the bounds of the Cape Cod National Seashore (CCNS), sited on approximately 322 acres of federally-owned land administered by the NPS (Figure 2). The Airport consists of developed airside and landside areas that are maintained for airport facilities and operations, as well as undeveloped areas that consist of coastal dunes, freshwater wetlands, and grasslands.

Airside Facilities

Airside facilities include a single runway (Runway 7-25), a taxiway system, aircraft parking aprons (ramps), an approach lighting system (Medium Intensity Approach Light System with Flashing lights or MALSF), navigational aids, and an Automated Weather Observation Station (AWOS). Runway 7-25, first paved in 1948, is currently 3,500 feet long and 100 feet wide with paved runway safety areas (RSAs). The taxiway system provides aircraft with direct routes between the terminal area and the runway, and include a partial parallel taxiway and three entrance taxiways (West-End, Mid-Connector, and East End Taxiways). Aircraft parking aprons include both paved and turf aprons to accommodate both commercial service and general aviation (GA) aircraft.

The Instrument Landing System (ILS) consists of a glide slope antenna, the glide slope critical area (a flat area maintained to bounce radio signals), a localizer antenna and its critical area, and an approach lighting system (MALSF) and its critical area. The Airport also has an on-field weather instrumentation (AWOS), located between Runway 7-25 and the parallel taxiway. Figure 3 depicts the locations of the airside facilities.

Landside Facilities

Landside facilities include a terminal building, aircraft hangar, an aircraft rescue and firefighting/snow removal equipment garage (ARFF/SRE), ground support facilities, the former administration building referred to as the Sightseeing Shack, and two auto parking areas. Figure 4 depicts the location of the Airport's landside facilities.

The terminal building is an approximately 4,800 square foot (SF) single story wooden structure, which provides passenger facilities, TSA screening areas, and a conference room. The Airport has a paved/gravel parking lot which provides 62-parking spaces for passengers and visitors, and a separate, 20-space employee gravel parking area located east of the terminal area.

The single hangar, which is attached to the passenger terminal building, is a 6,000 SF steel-framed structure that houses a large central bay for aircraft storage. The ARFF/SRE garage is approximately 40 feet wide by 80 feet long located on the east end of the terminal ramp, adjacent to the employee parking lot. The garage houses the ARFF vehicle and some SRE equipment.

Constructed in approximately 1948, the Sightseeing Shack is thought to be the original administration building, although it is no longer used for passenger waiting space. Currently this structure), airfield navigational aid electrical equipment, a Remote Communications Outlet (RCO) for radio signal repeater equipment, and the airfield electric lighting vault, as well as a small bathroom (now out of service).

There is one 10,000-gallon below ground tank housed immediately east of the Sightseeing Shack. The fuel tank is a double steel-walled underground storage tank (UST) with a leak detection monitoring system.

Finally, there are small sections of security fencing located at the east end of Runway 7-25, around the terminal apron and around the fueling station.

1.2.2 Natural Resources

Wetlands

The Cape Cod National Seashore supports a wide variety of marine and freshwater resources formed by the geological events that created Cape Cod, many of which are found within the Provincetown Municipal Airport lands. The geologic characteristics combined with a fluctuating, seasonally-high groundwater table results in seasonal saturation of the upper portion of the soil profile for significantly long periods of time during early portions of the growing season. Inundated and/or saturated soil conditions favor the establishment of hydrophyte-dominant plant communities and the deposition of organic material, which are typical of wetland habitats. Rainfall received during storm events also contributes to saturated soil and inundated land conditions.

Wetland habitats at the Airport include isolated freshwater wetlands dominated by grass and herbaceous species (Palustrine Emergent Wetlands or PEM); shrub-dominated isolated wetlands (Palustrine Scrub-Shrub Wetland or PSS); and isolated freshwater forested wetlands (Palustrine Forested Wetland or PFO), dominated by pitch pine (*Pinus rigida*). These isolated wetlands, ranging in size from a few hundred square feet to several acres in size, are associated with coastal interdunal swales, and are often separated from each other by low to moderate dune ridges closer to the airfield, and extensive higher dune ridges, oriented approximately parallel to the Airport runway, further out from the airfield. Isolated PSS wetlands also occur within the existing airfield, located between the existing taxiways and the runway, and separated from paved surfaces by managed grassland communities of varying width.

The shrub-dominant interdunal wetlands (PSS), which are the predominant type of wetland habitat at the Airport, have a non-tidal, seasonally or temporarily flooded water regime. The relatively dense shrub communities include plant species such as winterberry (*Ilex verticillata*), red maple (*Acer rubrum*), meadowsweet (*Spiraea latifolia*), highbush blueberry (*Vaccinium corymbosum*), northern bayberry (*Myrica pensylvanica*), red chokeberry (*Aronia* spp.), and American cranberry (*Vaccinium macrocarpon*), which often occurs in dense mats. Herbaceous plants observed frequently among the Airport wetlands include sphagnum moss (*Sphagnum* spp.), various sedges (*Carex* spp.), rushes (*Juncus* spp.), cinnamon fern (*Osmunda cinnamomea*), royal fern (*O. regalis*), and sensitive fern (*Onoclea sensibilis*), common reed (*Phragmites australis*), cattail (*Typha* sp.), woolgrass (*Scirpus cyperinus*), and various goldenrods (*Solidago* spp.).

Within the pitch pine-forested area between the runway and the steep coastal dune habitat to the southeast of the Airport managed areas, there is an extensive mosaic of additional interdunal forested wetland swales. Within these freshwater wetlands, pitch pine (*Pinus rigida*) has adapted to the seasonally saturated conditions and is considered a local wetland indicator species.

In the far western reaches of the Airport, there is a larger wetland system (Wetland C/J/FK) that transitions along a salinity gradient from a freshwater system (PEM-PSS-PFO) to a brackish system (primarily PEM, trending toward Estuarine Emergent Marsh or EEM) as groundwater seeps are met with the tidal influence of the Hatches Harbor estuarine system. Brackish portions of this wetland system are dominated by a non-native invasive species, common reed. Efforts to control and manage this invasive plant community were implemented in the early 2000s through the Hatches Harbor Restoration Project, and areas of *Phragmites* die-back with an emerging salt marsh community can be observed along the landward-reaches of the restored salt water regime influence. Wetland areas are identified on Figure 5.

Coastal Dunes

Surrounding the wetland areas and in an approximate parallel configuration to the shoreline and the Airport runway, are a series of coastal dunes. These dune habitats range from developing mounds of sands occupied by American beachgrass (*Ammophila breviligulata*) or other grass and herbaceous species, to extensive forested dune ridges that are stabilized with mature vegetation, including trees and shrubs.

The coastal dune habitats located along the lease line to the northwest of the airfield are mapped within the boundaries of the Race Point barrier beach system. Although the barrier beach system includes both primary

and secondary dune habitats, there are no primary dunes located within the Airport lease area. Dunes north of the Airport are generally vegetated with American beachgrass and common hairgrass in open exposed areas. Occasionally, seaward-facing slopes (both primary and secondary dunes) are completely devoid of vegetation. Topography among these dunes varies widely from nearly flat to steeply sloping.

The coastal dune habitats located to the southeast of the airfield are secondary coastal dune habitats that are not within the barrier beach system. While the topography among these secondary dunes is equally varied, the more stable substrate of these areas supports a greater diversity of vegetative species, including trees and shrubs. It is in these areas that communities of Maritime Pitch Pine on Dunes and Maritime Shrubland occur to varying degrees. Coastal dune areas are indicated on Figure 5.

Cultural Grasslands

Cultural Grassland habitat, at the Airport includes primarily Cultural Grassland with incipient (or developing) Sandplain Grassland, and/or Sandplain Heathland. Cultural Grasslands result from the Airport's active mowing of the airfield's operational safety areas, in compliance with FAA regulations, and occur adjacent to the taxiway and runway (See Figure 5). These areas are mowed frequently to maintain runway and taxiway safety areas as well as the clear surfaces for navigational instrumentation. Sandplain Grasslands are open communities with grasses and occasional small shrubs, which are maintained naturally by fire and salt spray, and less frequently by vegetation pruning. Sandplain Heathland is open with shrubs and low-growing trees such as scrub oak (*Quercus ilicifolia*).

1.3 Floodplain Characterization

1.3.1 FEMA Designation

The Airport facilities are situated within a low-lying area between parallel dune ridges. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Community Panel 255218 00001 C; July 15, 1992), this low area is within the 100-year coastal floodzone/floodplain (Figure 6). The majority of the Airport facilities are located within Zone A2, elevation 10 feet above mean sea level, while the Runway 7 end and west end taxiway entrance lie within Zone A4, elevation 11 feet above mean sea level. Thus, such, the Airport facilities and the immediate surrounding environs are located within the stillwater coastal floodplain. The extreme western tip of the runway approach lights (MALSF) is located within Velocity Zone V4 (elevation 13 feet above mean sea level), an area of 100-year coastal flood with velocity (wave action) where base flood elevations and flood hazard factors have been determined by FEMA. The surrounding elevated dune system is located within areas of minimal flooding (Zone C).

1.3.2 Floodplain Background

In 1930, a dike was constructed across the Hatches Harbor salt marsh in an attempt to control salt marsh mosquitoes. Due to the dike restriction, approximately half of the 200 acres of salt marsh floodplain (base flood elevation 11 feet) was isolated from tidal flow. The Airport was constructed in the 1940s on land that was filled in behind the dike. The Airport's primary facilities are approximately one to two feet below the base flood elevations. The presence of the Hatches Harbor dike has likely influenced the ebb and flow of tides at the Airport facility. As this is a coastal floodplain, rising tide levels will inundate only those low-lying areas that are able to receive floodwaters.

The Hatches Harbor Restoration Project was instituted in the 1990s by the NPS in partnership with the Town of Provincetown to restore up to 90 acres of salt marsh behind the dike. Several local, state, and federal agencies approved the salt marsh restoration plan. During the winter of 1998-99, new culverts with adjustable tide gates were installed in the dike to gradually allow tidal flow into the marsh. Prior to the installation of the new culverts, and under a 1997 agreement between NPS and the Town of Provincetown, an earthen flood protection berm was constructed to avoid tidal flooding of the Instrument Landing System (ILS) reflectance area within the Airport. The NPS is responsible for its maintenance. While a breach in this earthen berm

occurred in 2006, this has not resulted in flooding of the Airport ILS. A copy of the NPS letter dated July 20, 2007, is attached.

2. JUSTIFICATION FOR USE OF THE FLOODPLAIN

2.1 Location of Proposed Action

Given that the proposed CIP projects are intended to address safety and security deficiencies at the Airport, as well as to meet projected demand for Airport use, and that the Airport is located entirely within the coastal floodplain, the proposed projects must also logically occur within the coastal floodplain, in order to address the FAA, MassDOT, and TSA safety and security mandates.

2.2 Investigation of Alternative Sites

Each of the twelve project elements proposed under the CIP would occur within areas at the Airport that are within the100-year coastal floodplain, as the Airport itself is located within its entirety in the coastal floodplain. However, no work is proposed within the Velocity Zone. Given the purpose and need and the general nature of these proposed improvement projects at an existing airport facility, there is no feasible alternative location for implementing the proposed improvements at the Airport, such that the work could occur beyond the limits of the coastal floodplain. A complete alternatives analysis is provided in Section 3 of the FEIR/EA/Section 4(f), which describes the Preferred Alternative (Proposed Action), the No Action Alternative, and reasonable alternatives (if any) for each of the proposed project elements that would occur within the coastal floodplain. As defined in FAA Order 5050.4B, the Proposed Action is "*the solution the airport sponsor wishes to implement to solve the problem(s) it is facing*." Alternatives to the Proposed Action have been considered and evaluated. Of the twelve CIP projects, only the expansion of the Airport terminal building has an alternative that can avoid any further direct work within the coastal floodplain, aside from the No Action alternatives. A vertical expansion of the terminal building was selected as the Preferred Alternative.

3. DESCRIPTION OF SITE-SPECIFIC FLOOD RISK

As discussed above, due to the presence of the Hatches Harbor dike and, to a lesser degree, the earthen berm, significant flooding does not generally occur at the Airport outside of a major hurricane or coastal "nor'easter." In accordance with Procedural Manual 77-2: Floodplain Management, the flood hazard risk for activities at this location fall within Action Class I (100-year base floodplain), as the projects include "*location or construction of administrative, residential, warehouse, and maintenance buildings; non-excepted parking lots; or other man-made features which by their nature entice or require individuals to occupy the site, are prone to flood damage, or result in impacts to natural floodplain values. Class I Actions are subject to the floodplain policies and procedures if they lie within the 100-year floodplain (the Base Floodplain).*" The Class I designation is defined as a one percent chance of flooding during one year with a 39 percent chance of flooding during fifty years.

The Town of Provincetown, which owns and operates the Airport, has an emergency preparedness plan for the entire municipality, with specific provisions for the Airport. This plan was developed in cooperation with the Massachusetts Emergency Management Agency (MEMA). The Provincetown Emergency Management Agency is charged with the responsibility to develop and implement this Comprehensive Emergency Management (CEM), which addresses preparedness and response to all risks, including man-caused emergencies and natural disasters, as well as mitigation and recovery phases of the CEM (http://www.provincetown-ma.gov/safety.html).

Coastal communities are subject to storm surge, flooding, and wind damage from hurricanes and strong coastal storms. Per the CEM, "*Of all emergencies/disasters that can affect Massachusetts, hurricanes provide the most lead warning time. Even at the 'hurricane watch' stage, the storm could be hundreds of miles away from the Massachusetts coast. MEMA assumes 'standby status' when a hurricane's location is determined to be 35 North Latitude, (Cape Hatteras), unless the storm is moving unusually fast which may necessitate standby at an earlier time. When the hurricane has reached 40 North Latitude, (Long Island), MEMA assumes 'alert'*

status and the decision may be made by the Governor or the local head of government to recommend evacuation of areas that the storm is likely to strike."

The CEM plan addresses emergency situations in which the actions of many different agencies must be coordinated. This major coordination effort differs from those emergencies handled on a daily basis by local fire, law enforcement, and medical service personnel. The CEM is structured in six parts: Part I deals with the Basic Plan; Part II deals with Emergency Response Organizations; Part III deals with Emergency Management Processes and Protective Procedures; Part IV deals with specific Hazard/Emergencies/Disasters. Part V deals with Hazardous Materials. Part VI is the Terrorism Incident Response Plan. This includes the necessary actions and procedures to be taken by Airport personnel in the event of a major storm event, such as a hurricane, as well as other emergency situation to ensure human health and safety as well as protection of property.

Loss of flood storage is generally not an issue in the coastal environment. The flood risk for the Airport facilities or the Airport personnel or visitors to the CCNS would not increase as a result of implementing proposed CIP projects. Activities that would directly impact floodplains include the taxiway projects, access roadways to the LES and AWOS, and the fence. These project elements will occur immediately adjacent to the existing Airport facilities, and will allow for abandonment and restoration of previously paved areas, and thus yielding a reduction in impervious surface within the coastal floodplain. The No Build Alternative for each of the proposed CIP projects would not result in a reduction of impervious surfaces. Moreover, proposed improvements and subsequent reduction in impervious surfaces will provide opportunities for freshwater wetland restoration, which, upon successful restoration, will mitigate for any loss of local flood storage capacity at the Airport, and potentially provide for slightly greater flood storage capacity, although the effects would be negligible in the coastal floodplain.

4. DESCRIPTION OF FLOOD MITIGATION

Cumulatively, implementation of the Preferred Alternatives would result in alterations to approximately 2.34 acres (101,915 SF) of coastal floodplain, which involves direct alterations to freshwater wetlands and coastal dune habitats, all of which also occur within the coastal floodplain. Aside from the No Action alternatives, of the twelve CIP project elements proposed at the Airport, only one project, the proposed expansion of the Airport terminal building, has an available alternative that would result in less direct impact within the coastal floodplain. The vertical expansion of the terminal building has been selected as the Preferred Alternative. All remaining projects must logically be sited within the coastal floodplain in order to meet the purpose and need of each project element.

Minor to negligible, short-term, direct, adverse impacts will occur to the coastal floodplain as a result of implementing the Preferred Alternatives for the Airport CIP projects during construction, specifically for the reconstruction and/or realignment of the of the taxiways, installation of the access roadways, and installation of the proposed safety/security fence. Flood storage capacity will be compensated by the proposed wetland mitigation areas upon successful mitigation.

Proposed mitigation measures, which involve removal of impervious surfaces and restoration or creation of natural habitats (wetland and coastal dune mitigation areas) and a slight increase in the amount of grassland habitat at the Airport, will result in a net gain of vegetated areas. Ultimately, no additional coastal floodplain will be impacted, and there will be a net reduction of approximately 0.65 acres (28,086 SF) of existing impervious surface at the Airport, which may provide some additional temporary flood storage during a major flooding event.

Mitigation also includes past mitigation efforts provided through the Hatches Harbor Saltmarsh Restoration Project ("Hatches Harbor Project") in accordance with the April 28, 1997 Memorandum of Understanding between the NPS and the Town of Provincetown and as reiterated in the November 5, 2010, letter from NPS to FAA. The Hatches Harbor Project, implemented in the early 2000s, included a substantial restoration effort of salt marsh and freshwater wetland habitat. As such, the Airport will apply mitigation credits granted through the participation in the Hatches Harbor Salt Marsh Restoration Project. Previously, it was thought that

additional off-site mitigation would be necessary in order to satisfy the NPS requirements for resource impacts. However, in accordance with the April 28, 1997 MOU between the Town and NPS, and reiterated in the recent letter from NPS (dated November 5, 2010), implementation of the Hatches Harbor Salt Marsh Restoration Project was to result in 60 to 90 acres of wetland habitat restoration, and the 1997 MOU established that the mitigation provided by the implementation of the Hatches Harbor Salt Marsh Restoration Project "*will be classified as mitigation for the wetland impacts of required present AND FUTURE airport safety improvements.*" In their November 5, 2010 letter, NPS/CCNS "*agrees that FAA's contribution to salt marsh restoration at Hatches Harbor can be applied as off-site mitigation for activities covered in the Current Capital Improvements Plan.*"

No long-term adverse impacts on the flood storage capacity relative to the ability of these low-lying areas to temporarily retain and release coastal waters during and following a flooding event at the Airport or within the surrounding CCNS lands are anticipated.

4.1 Hazard Reduction Plans

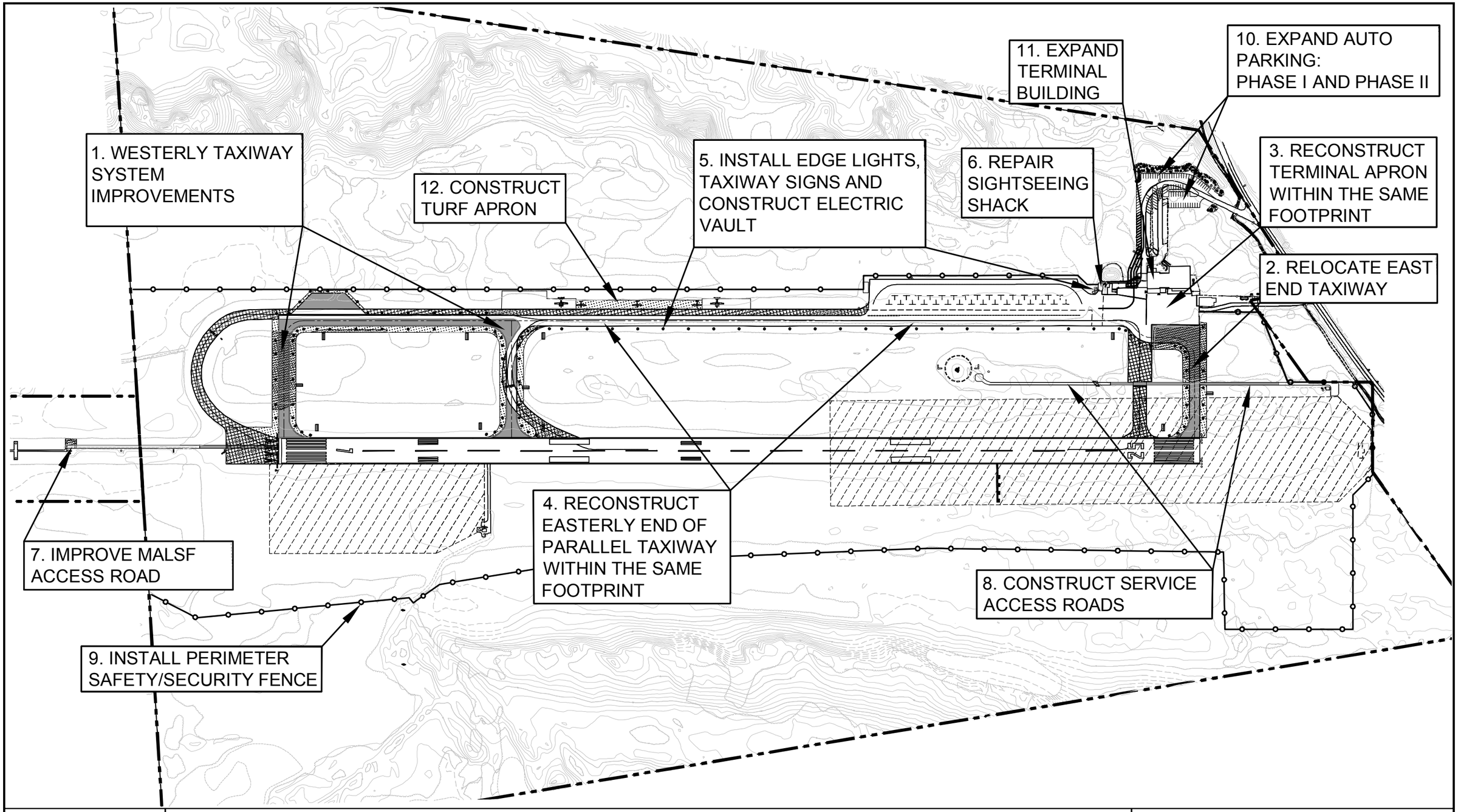
As noted above, the Town of Provincetown and consequently, the Airport, has a contingency plan (CEM) in place, outlining the necessary actions and procedures to be taken by Airport personnel in the event of a major storm. The Preferred Alternatives for the CIP projects are not anticipated to have any adverse impact on the ability of the coastal floodplain to provide continued protection from storm damage and coastal flooding, and the reduction of impervious surfaces that will occur as a result of the implementation of certain CIP preferred alternatives may contribute to these functions and values. There is no anticipated increase in the flood hazard at the Airport as a result of the proposed project.

4.2 Structural Design

Any new construction will adhere to local building codes for work within the 100-year floodplain. The existing structures and facilities are designed to be consistent with the standards and criteria of the National Flood Insurance Program (44 CFR Part 60), as well as any state and local building codes.

5. SUMMARY

Proposed CIP projects at the Provincetown Municipal Airport are designed to address safety and security needs at the Airport and to address the efficiency of the Airport to more fully meet current and anticipated demand of its use. The Airport is situated wholly within the 100-year coastal floodplain, and as a result, all proposed projects associated with these infrastructure improvements, with the exception of the vertical expansion of the terminal building, must be logistically sited within the floodplain by design. No alternative sites outside of the coastal floodplain exist that could reduce potentially hazardous conditions at the Airport beyond those that currently exist. Mitigation and compliance with regulations and policies to prevent impacts to water quality, floodplain values, and loss of property or human life would be strictly adhered to during and following construction. Individual permits with other federal and cooperating state, regional, and local agencies would be obtained prior to construction activities. No long-term adverse impacts would occur as a result of implementing the proposed CIP projects.



Prepared By:

JACOBS

EXISTING IMPERVIOUS AREA TO BE REMOVED

PROPOSED IMPERVIOUS PAVED AREA

PROPOSED WETLAND IMPACT AREA

PROPOSED PERIMETER FENCE

EXISTING LEASE LINE

PROPOSED CULTURAL GRASSLAND

GLIDE SLOPE AND LOCALIZER CRITICAL AREAS

GENERAL NOTE:
SEE FIGURES IN SECTION 6 FOR PROJECT DETAILS.

Approx. Scale: 1"=350'

0 175 350

Provincetown Municipal Airport
Capital Improvements Plan

PROJECT OVERVIEW

Figure 1

Prepared By:

JACOBS

Approx. Scale in Feet

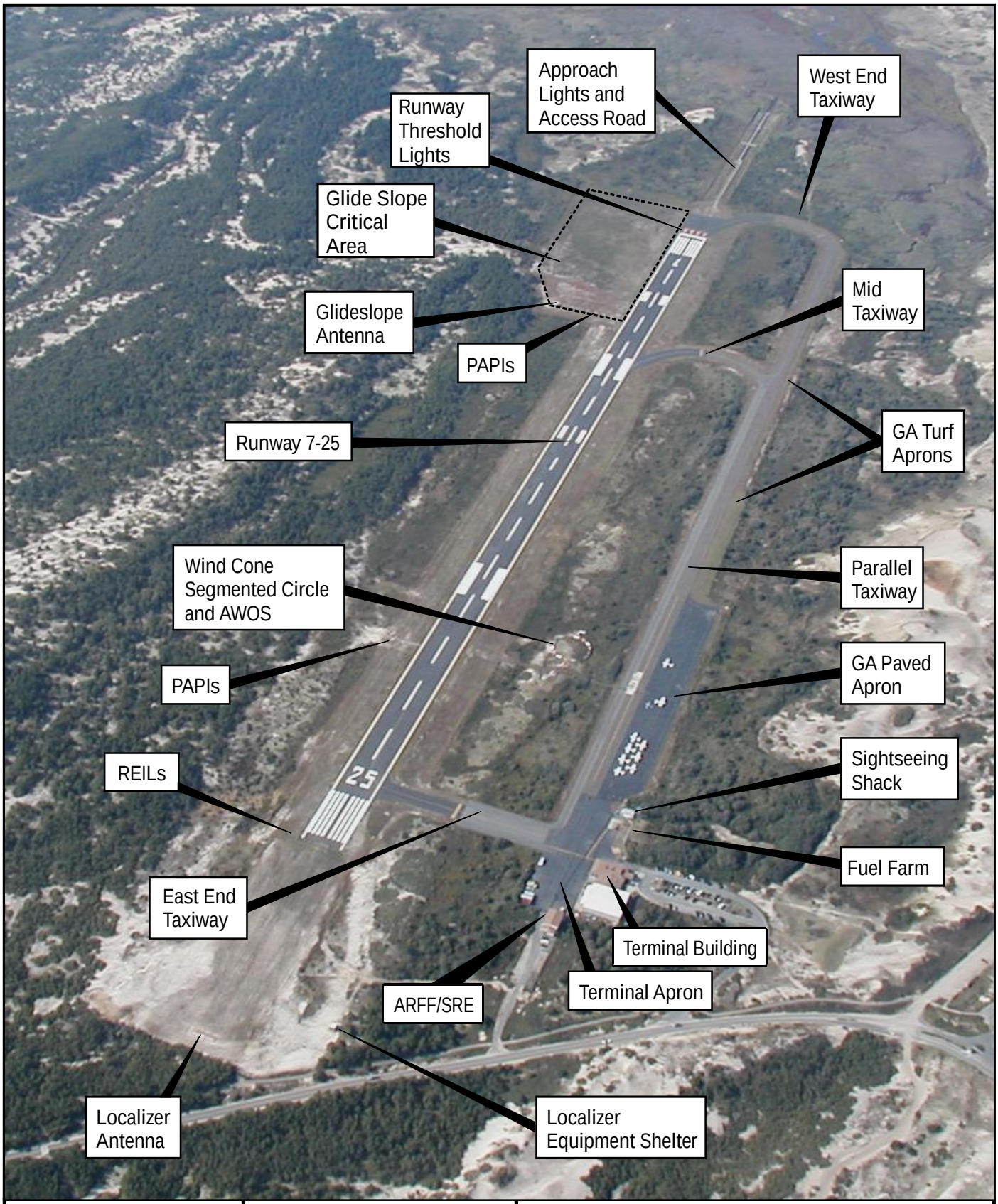
0 4,000

Data compiled from the following source:
MassGIS, Commonwealth of Mass. EOEA

Provincetown Municipal Airport
Capital Improvements Plan

LOCUS MAP

Figure 2



Prepared By:

JACOBS™

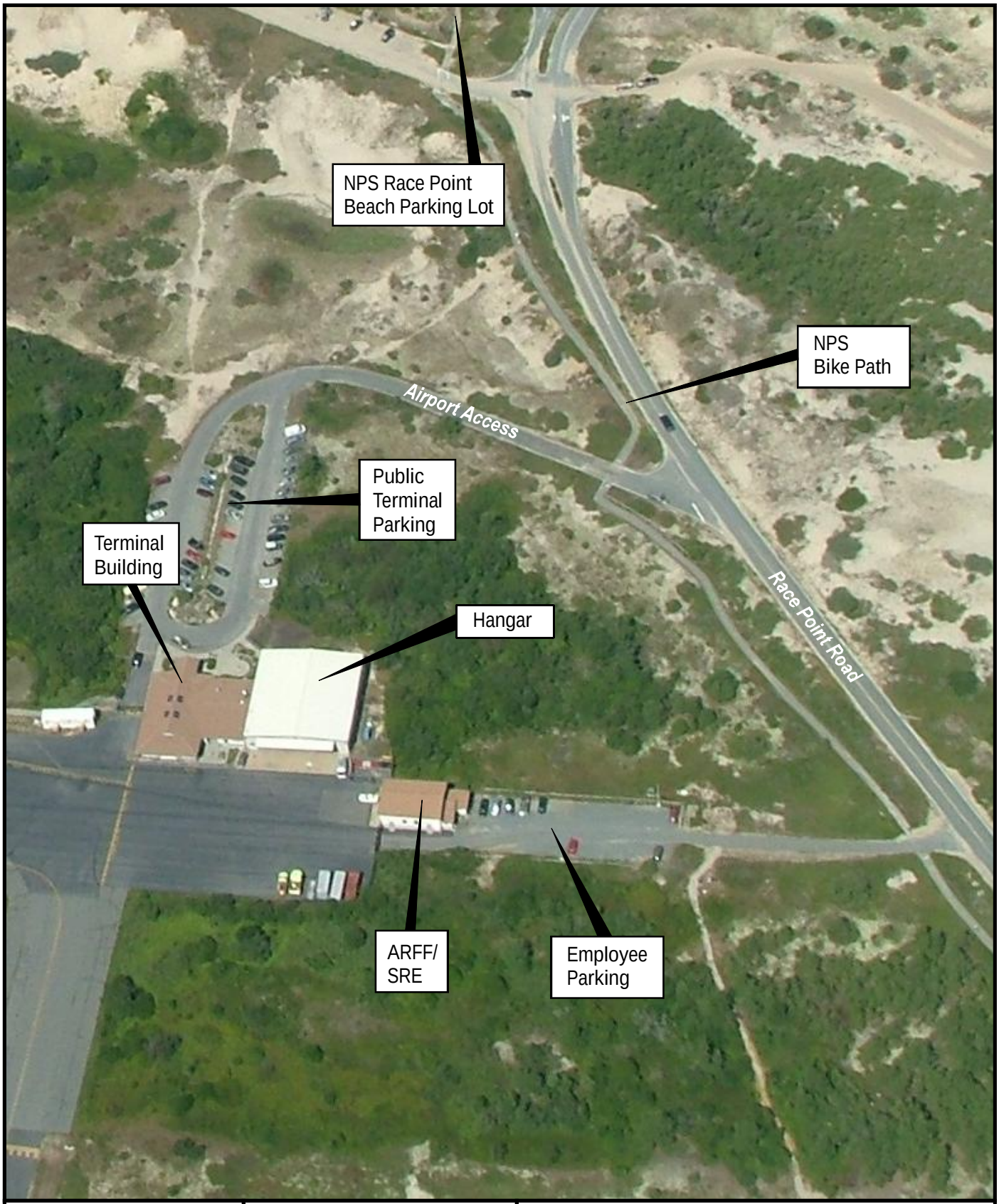
Note: See Glossary for definitions and descriptions of acronyms

Source: Edwards and Kelcey 2004

Provincetown Municipal Airport
Capital Improvements Plan

Airside Facilities

Figure 3



Prepared By:

JACOBS™

Source: Edwards and Kelcey 2005

Provincetown Municipal Airport
Capital Improvements Plan

Landside Facilities

Figure 4

OUTSIDE OF STUDY AREA

AA AB AC AE AF AG AJ AK AL AM

EA EB

A B C CC CG CH CI CJ CK CL CM CN CO CP CQ CR CS CT CU CV CW CX DA DB DC DD DE DF DG DH DI DJ DK DL DM E FA FB FC FD FE FF FH FI FJ K L M N

CW/FX

SM

MANAGED CULTURAL GRASSLAND (UNHATCHED AREAS)

OUTSIDE OF STUDY AREA

OUTSIDE OF STUDY AREA

BIKE PATH

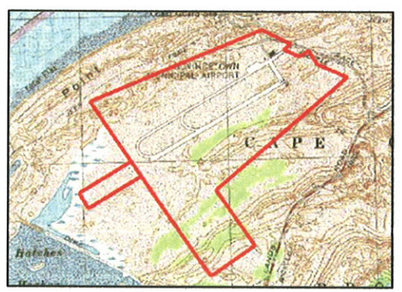
AIRPORT LEASE LINE

LEGEND

- WETLAND AREAS
- DUNE AREAS
- APPROXIMATE LIMIT OF MANAGED CULTURAL GRASSLAND
- (CT) WETLAND LABEL

500 0 500

SCALE IN FEET



USGS LOCUS
SCALE: 1"=3500'

Figure 5

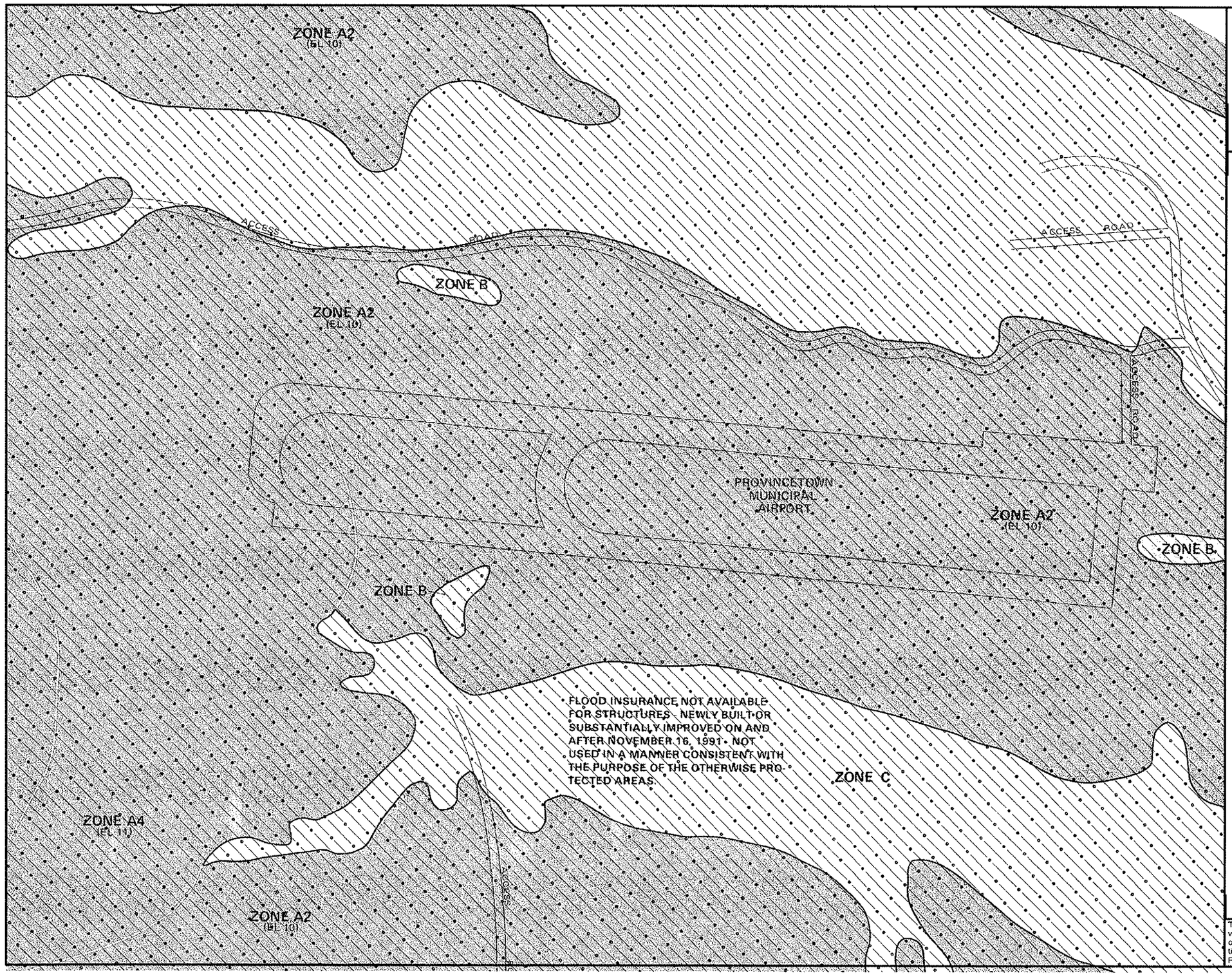
Title:
WETLAND RESOURCE AREA MAP

Project:
PROVINCETOWN MUNICIPAL AIRPORT
PROVINCETOWN, MASSACHUSETTS

Sheet:	Date:	Design By:	Drawn By:	Checked By:
1	3/31/2009		EK	AB

Prepared For:
Provincetown Municipal Airport
Race Point Road, P.O. Box 657
Provincetown, Massachusetts
Phone: (508) 487-0241
Fax: (508) 487-4110

Design By:
Horsley Witten Group
Environmental Services
90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax



APPROXIMATE SCALE

400 0 400 FEI

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

TOWN OF
PROVINCETOWN,
MASSACHUSETTS
BARNSTABLE COUNTY

PANEL 1 OF 5
(SEE MAP INDEX FOR PANELS NOT PRINTED)

·NOTE·

THIS MAP INCORPORATES APPROXIMATE BOUNDARIES OF COASTAL BARRIER RESOURCES SYSTEM UNITS AND/OR OTHERWISE PROTECTED AREAS ESTABLISHED UNDER THE COASTAL BARRIER IMPROVEMENT ACT OF 1990 (PL 101-591)

COMMUNITY-PANEL NUMBER
255218 0001 C

MAP REVISED:
JULY 15, 1992

Federal Emergency Management Agency

Figure 6

United States Department of the Interior

NATIONAL PARK SERVICE
Cape Cod National Seashore
99 Marconi Site Road
Wellfleet, MA 02667
508.349.3785
508.349.9052 Fax

IN REPLY REFER TO:
N1619

July 20, 2007

Provincetown Airport Commission
Michael Leger, Chairman
Race Point Road,
Provincetown, MA 02657

Subject: Efficacy of flood protection berm seaward of Runway 7, Provincetown Airport, Provincetown, Massachusetts

Dear Commissioners:

This is to transmit water-level data collected by my staff this spring, in cooperation with Airport Manager Butch Lisenby, to assess the effects of a breach in the flood-protection berm seaward of Runway 7 on surface water levels. You will recall that under the 1997 agreement between the Town and the Seashore for the Hatches Harbor Salt Marsh Restoration Project, the NPS took responsibility for building and maintaining this berm to avoid tidal flooding of the ILS reflectance area.

The earthen berm was damaged and repaired during the construction of the catwalk associated with a general upgrade of the ILS system several years ago. Unfortunately, the contractor who installed the catwalk also removed peat that supported and stabilized the original earthen berm built by NPS. As a result, that portion of the berm that passed under the catwalk was prone to slumping and consequent overtopping and erosion by high tides.

According to Mr. Lisenby, a major breach in the berm developed last summer; our staff first observed it last fall. The issue was discussed at the annual meeting of the Hatches Harbor Review Committee meeting in February (minutes attached), where it was decided to allow the breach to remain open until the Airport and we could monitor the effects on surface water flooding near the reflectance area.

We used an automated data logger to obtain water-level data in a well at the northeast corner of the wetland just seaward of Runway 7 (Figure1). The logger was deployed from 12 March to 19 April, and again from 8 May to 17 June 2007. The elevation (m-NAVD88) of the well-casing measuring point was determined by differential leveling from a bronze disk east of Runway 7 (northing 4658198; easting 398517; elevation= 1.695 determined by RTK GPS). Thus water level and land surface data for both deployments are presented relative to NAVD88 in Figures 2.

To summarize, the breach in the earthen berm has not resulted in flooding of the airport reflectance area. Fortuitously, the situation was given an extreme test in mid-April when a severe northeast storm hit the Cape during a period of spring tides. Precipitation exceeded 2.6 inches and tide heights (recorded by the Boston NOAA tide station) reached 14 feet MLLW. Even during this extreme event, surface water from Hatches Harbor did not reach the reflectance area (Fig. 2).

We have shared and discussed these data with Mr. Lisenby, who suggests that airport management may be satisfied that the earthen berm is no longer necessary to protect the airport instrument landing system. Therefore, unless there is further discussion, NPS will not attempt to repair the berm breach.

Finally, I believe that this small collaborative project serves as an excellent example of how Seashore and Airport managers have been able to work together so well over the past ten years to achieve both flood protection for the airport and salt-marsh restoration at Hatches Harbor.

Sincerely,

George E. Price, Jr.
Superintendent

Enclosures:

Figure 1. Relative locations of earthen berm, ILS reflectance area, and NPS observation well used to monitor surface water levels adjacent to Runway 7, Provincetown Airport.
Figure 2. Water levels behind the breached earthen berm seaward of Provincetown Airport Runway 7, relative to elevations of the ILS reflectance area.
Minutes of February 27, 2007, Hatches Harbor Technical Review Committee meeting

cc: Sharon Lynn, Town Manager, Provincetown
Richard Doucette, Federal Aviation Administration
Mathew DeSorbo, Massachusetts Aeronautics Commission
Butch Lisenby, Provincetown Airport
Jim Mahala, Massachusetts Department of Environmental Protection

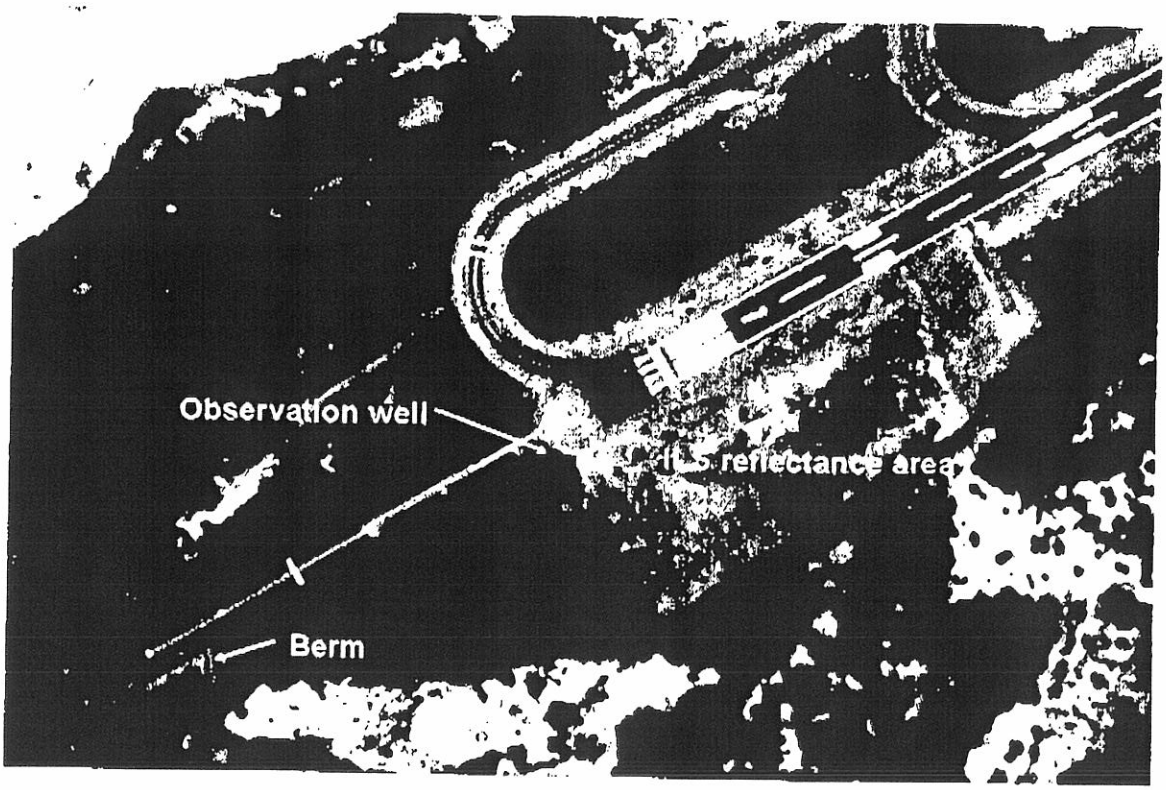


Figure 1. Relative locations of earthen berm, ILS reflectance area, and NPS observation well used to monitor surface water levels adjacent to Runway 7, Provincetown Airport.

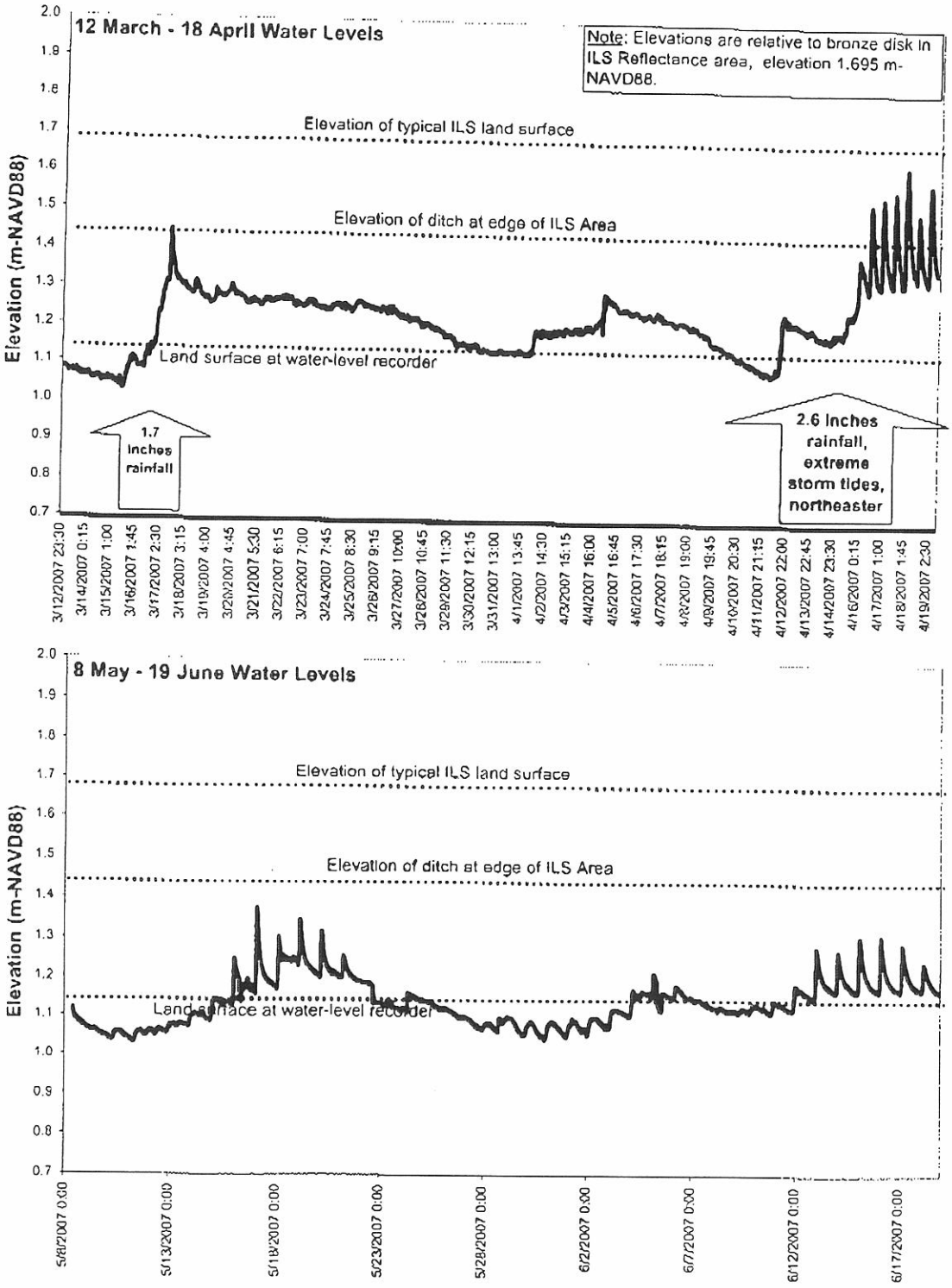


Figure 2. Water levels behind the breached earthen berm seaward of Provincetown Airport Runway 7, relative to elevations of the ILS reflectance area.

27 February 2007

Minutes of Hatches Harbor Technical Review Committee meeting

Attendees: Stephen Smith (NPS), Butch Lisenby (Provincetown Airport), Evan Gwilliam (NPS), Richard Doucette (FAA, by speaker phone), Jim Mahala (DEP), Matthew DeSorbo (MAC), Carrie Phillips (NPS), Graham Giese (Provincetown Center for Coastal Studies), Gabrielle Sakolsky (CCMCP), Dennis Minsky (Provincetown Conservation Commission), David Crary (NPS) and John Portnoy (NPS).

Cape Cod National Seashore staff Smith, Gwilliam and Portnoy presented a summary of 2006 tide-height, vegetation and nekton monitoring results. A full report on this monitoring was sent to all members prior to the meeting.

D. Minsky asked about northern harrier use of the floodplain. There are usually 1-2 pairs of these raptors using the restoration area above the dike. Two reports by Seashore cooperators are in preparation.

Smith and Crary described plans for a prescribed burn of Phragmites and salt-killed shrubs this fall seaward of the airport approach. The purpose is to clear away standing vegetation that impedes the spread of wrack and seeds of salt-marsh plants. Preferred wind direction for smoke control would be from the northwest to northeast. The Seashore will coordinate with Airport authorities to ensure that this project does not create an aviation safety hazard.

J. Portnoy reported on the condition of structures whose maintenance is the responsibility of the Seashore. The culvert aprons, which began to erode in summer 2005, were repaired with the addition of much larger stones in March 2006. The aprons now appear stable but will be monitored regularly by park staff.

The earthen berm at the airport approach breached under the catwalk, reportedly (Lisenby) last summer. Portnoy noted that during construction of the catwalk, the berm was weakened and underlying peat was removed, making the berm more prone to breaching. He also noted that this peat removal created a linear pond all along the length of the catwalk which attracts waterfowl, a safety hazard to aircraft. In this regard, the breach is beneficial in improving low-tide drainage and limiting the time that the new "pond" is flooded and attractive to ducks.

B. Lisenby stated that the FAA still maintains that the berm is needed to protect the airport approach system; however, that agency and the airport are willing to tolerate the breach at least over the short term to reassess the need for the berm. Airport authorities will notify the Seashore if tidal flooding becomes a problem at the end of Runway 7 and within the ILS reflectance area to the southwest of the runway. Portnoy offered to install a water-level recorder in the area of concern; he and Lisenby will meet soon to plan this monitoring.

As agreed at last year's TRC meeting, we hereafter switch to a biennial schedule, with the next meeting planned for winter of 2008-9. Nevertheless, the Seashore will continue to produce annual reports on the progress of the restoration project.

Respectfully submitted,

John Portnoy

9.7 CZM Federal Consistency Certification

JACOBS

343 Congress Street
Boston, Massachusetts 02210 USA
1.617.242.9222 Fax 1.617.242.9824

December 17, 2011

Massachusetts Office of Coastal Zone Management
251 Causeway Street, Suite 900
Boston, MA 02114
Attn: Project Review Coordinator

Subject: **Federal Consistency Review**
Capital Improvements Project
Provincetown Municipal Airport

Dear Project Review Coordinator,

As the consultant to the Provincetown Airport Commission, we request that your office review the proposed Capital Improvements Project for consistency with the Coastal Zone Management (CZM) program. A FEIR/EA has been prepared and submitted to MEPA. A copy has been sent to MA CZM and provides additional information on the projects.

Project Description

The Provincetown Municipal Airport Commission proposes a Capital Improvements Plan (CIP) of safety and facility improvements at the Provincetown Municipal Airport (Airport). Implementation of the CIP will fulfill the mission of the Airport to operate a safe, secure, and reliable primary service airport receiving scheduled airline passenger service.

1) Westerly Taxiway System Improvements
2) East End TW Relocation
3) Terminal Apron Reconstruction
4) Easterly End of Parallel TW Reconstruction
5) TW Lighting, Lighted TW Signs, and Electric Vault Installation
6) Sightseeing Shack Improvements
7) Access Road to MALSF Approach Lights Improvements
8) Service Roads to LES and AWOS Construction
9) Perimeter Safety/Security Fence Installation
10) Auto Parking Expansion
11) Terminal Building Expansion
12) Turf Apron Expansion

Discussion of Consistency with Applicable Program Policies

Water Quality Policy # 1: Ensure that point source discharges in or affecting the coastal zone are consistent with federally approved state effluent limitations and water quality standards.

The existing drainage system at the Airport consists of catch basins and a trench drain which have been fitted with a filtration system to intercept petroleum-based pollutants from the stormwater runoff on the Terminal Apron. The outlet has been fitted with a sediment outlet trap.

The proposed CIP projects will promote the attainment of water quality standards. The proposed drainage design for the parking lot includes BMPs such as bioretention areas and infiltration swales

and complies with the current DEP Massachusetts stormwater regulations and standards to protect water quality. There are no other point source discharges at the Airport.

Water Quality Policy # 2: Ensure that nonpoint pollution controls promote the attainment of state surface water quality standards in the coastal zone.

There is limited potential for sources of non point pollution at the Airport. Salt is not applied to the runway or taxiways. Aircraft are not serviced at the Airport. Fertilizers and herbicides are not used at the Airport.

Water Quality Policy # 3: Ensure that activities in or affecting the coastal zone conform to applicable state and federal requirements governing subsurface waste discharges.

The Airport's septic system was updated in 1998 according to current standards. It is maintained in compliance with local and state and federal requirements.

Habitat Policy #1: Protect coastal resource areas including salt marshes, shellfish beds, dunes, beaches, barrier beaches, salt ponds, eelgrass beds, and fresh water wetlands for their important role as natural habitats.

The proposed CIP projects have avoided and minimized impacts to wetlands to the extent feasible. Wetland restoration is proposed and erosion controls will be incorporated into the construction plans to protect adjacent wetlands.

Habitat Policy #2: Restore degraded or former wetland resources in coastal areas and ensure that activities in coastal areas do not further wetland degradation but instead take advantage of opportunities to engage wetland restoration.

Mitigation for the projects included in the CIP includes restoration of wetlands onsite and will also include additional wetland mitigation identified during the permitting process.

Coastal Hazard Policy #1: Preserve, protect, restore, and enhance the beneficial functions of storm damage prevention and flood control provided by natural coastal landforms, such as dunes, beaches, barrier beaches, coastal banks, land subject to coastal storm flowage, salt marshes, and land under the ocean.

Natural coastal landforms will be protected or restored to the fullest extent possible. The fence alignment has been selected to minimize impacts.

Coastal Hazard Policy #2: Ensure construction in water bodies and contiguous land areas will minimize interference with water circulation and sediment transport. Approve permits for flood or erosion control projects only when it has been determined that there will be no significant adverse effects on the project site or adjacent or downcoast areas.

Natural coastal landforms will be protected or restored to the fullest extent possible. The fence alignment has been selected to minimize impacts.

Coastal Hazard Policy #3: ensure that state and federally funded public works projects proposed for location within the coastal zone will:

- *Not exacerbate existing hazards or damage natural buffers or other natural resources,*

- *Be reasonably safe from flood and erosion related damage, and*
- *Not promote growth and development in hazard-prone or buffer areas, especially in Velocity Zones and ACECs, and*
- *Not be used on Coastal Barrier Resource Units…*

The project will not exacerbate existing hazards and natural buffers have been protected. Flood studies indicate that the project will be safe from flooding. The CIP projects are not within a Velocity Zone, ACEC, or Coastal Barrier Resource Unit.

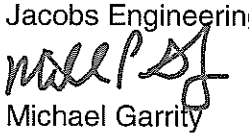
Growth Management Principle #2: ensure that state and federally funded transportation and wastewater projects primarily serve existing developed areas, assigning highest priority to projects that meet the needs of urban and community development centers.

The CIP projects will serve the existing transportation system.

Consistency Certification

The proposed activity complies with the program policies of the Massachusetts approved coastal management program and will be conducted in a manner consistent with such policies.

Sincerely,
Jacobs Engineering



Michael Garrity
Senior Airport Planner, Project Manager

cc: Heath Gatlin, Chairman, Provincetown Airport Commission
Arthur "Butch" Lisenby, Airport Manager
Michelle Ricci, FAA, Airports Division
Katie Servis, MassDOT Aeronautics