GEIR UPDATE / EXPANDED GENERIC ENVIRONMENTAL NOTIFICATION FORM
for the
STATEWIDE VEGETATION MANAGEMENT PROGRAM
AT
MASSACHUSETTS PUBLIC USE AIRPORTS

UPDATE OF ACTIVITIES AND PROGRAM ELEMENTS

EOEA Nos. 8978 & 12092

Prepared For

MASSACHUSETTS ENVIRONMENTAL POLICY ACT OFFICE
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

Submitted By

MASSACHUSETTS AERONAUTICS COMMISSION

In Association With

MASSACHUSETTS PORT AUTHORITY
&
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

prepared by

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Table of Contents

Environmental Notification Form

1.0 Introduction

1.1.Purpose of Document

1.2.Background

1.3.Prior MEPA Involvement & Regulatory Summary

2.0 Status of the Statewide Vegetation Management Program

2.1. Introduction

2.2. Permitted and Implemented VMP Projects

2.3. Monitoring Program

2.4. Maintenance & Continuing Activities under the SVMP

2.5. New VMP activities

2.6. Interagency VMP Guidance Document to Conservation Commissions

3.0 Individual Airport Summaries of Activities and Issues

3.1. Overview of VMP Activities at Airports

3.2. Status Update of Existing VMPs at Individual Airports

3.2.1 Overview
3.2.2 Beverly
3.2.3 Fitchburg
3.2.4 Hanscom
3.2.5 Lawrence
3.2.6 Mansfield
3.2.7 Marshfield
3.2.8 New Bedford,
3.2.9 North Adams
3.2.10 Norwood
3.2.11 Orange
3.2.12 Southbridge
3.2.13 Taunton

3.3. Status of Emerging VMPs at Individual Airports

3.3.1 Overview
3.3.2 Stow-Minute Man
3.3.3 Pittsfield
3.3.4 Westfield-Barnes

4.0 Discussion of VMP & 2000 GENF Certificate Issues

4.1 Summary of VMP & 2000 GENF Certificate Issues

4.2 Status Reports & Guidance Document

4.3 Regrowth in Vegetation Management Areas

4.4 Invasive Species Control

4.5 Wildlife Habitat Analysis & Mitigation

4.6 Potential For VMP Alteration Of Local Hydrology

4.7 Integrated Vegetation Management

4.8 Acquisition Of Off-Airport Property Easements For VMPs

4.9 Compatible Agricultural Use

5.0 Future SVMP Activities and Regulatory Compliance

5.1 Overview

5.2 Updates to VMP Yearly Operational Plan

5.3 Modification of Existing VMPs

5.4 New VMPs

5.5 GENF Updates and Annual Status Reports

Bibliography of VMP-Related Documents

Appendices

Appendix A. 1993 GEIR Certificate

Appendix B. 2000 GENF Certificate

Appendix C. Response to Comments on 1999 GENF (as provided in 2001 MEPA Status Report)

Appendix D. Section 61 Finding

Appendix E. Guidance Document to Conservation Commissions

Commonwealth of Massachusetts
Executive Office of Environmental Affairs ■ MEPA Office

ENF Environmental Notification Form

For Office Use Only *Executive Office of Environmental Affairs*
EOEA No.: MEPA Analyst: Phone: 617-626-

The information requested on this form must be completed to begin MEPA Review in accordance with the provisions of the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: **Airport Vegetation Management GEIR Update**		
Street:		
Municipality: **Statewide**	Watershed: **N/A**	
Universal Tranverse Mercator Coordinates: **N/A**	Latitude: **N/A** Longitude:	
Estimated commencement date: **on going**	Estimated completion date: **N/A**	
Approximate cost: **N/A**	Status of project design: **N/A** %complete	
Proponent: **Massachusetts Aeronautics Commission with MA DEP and Massport**		
Street: **State Transportation Bldg, Ten Park Plaza, Rm. 3510**		
Municipality: **Boston**	State: **MA**	Zip Code: **02116**
Name of Contact Person From Whom Copies of this ENF May Be Obtained: **Denise Garcia**		
Firm/Agency: **Mass. Aeronautics Comm.**	Street: **Ten Park Plaza, Rm. 3510**	
Municipality: **Boston**	State: **MA**	Zip Code: **02116**
Phone: **617-973-8881**	Fax: **617-973-8889**	E-mail: **Denise.Garcia@state.ma.us**

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
☐Yes ☒No

Has this project been filed with MEPA before?
☒Yes (EOEA No. **8978 & 12092**) ☐No

Has any project on this site been filed with MEPA before?
☐Yes (EOEA No._____) ☒No

Is this an Expanded ENF (see 301 CMR 11.05(7)) requesting:

a Single EIR? (see 301 CMR 11.06(8))	☐Yes	☒No
a Special Review Procedure? (see 301CMR 11.09)	☐Yes	☒No
a Waiver of mandatory EIR? (see 301 CMR 11.11)	☐Yes	☒No
a Phase I Waiver? (see 301 CMR 11.11)	☐Yes	☒No

Identify any financial assistance or land transfer from an agency of the Commonwealth, including the agency name and the amount of funding or land area (in acres):
Many of these activities are funded by the Massachusetts Aeronautics Commission.

Are you requesting coordinated review with any other federal, state, regional, or local agency?
☐Yes(Specify_____) ☒No

List Local or Federal Permits and Approvals:
Conservation Commissions (various) – Orders of Conditions
FAA - funding

Which ENF or EIR review threshold(s) does the project meet or exceed (see 301 CMR 11.03):
*** - potential site specific impacts**

☒ Land	☐ Rare Species *	☒ Wetlands, Waterways, & Tidelands
☐ Water	☐ Wastewater	☐ Transportation
☐ Energy	☐ Air	☐ Solid & Hazardous Waste
☐ ACEC *	☐ Regulations	☐ Historical & Archaeological Resources *

Summary of Project Size & Environmental Impacts	Existing	Change	Total	State Permits & Approvals
LAND				☒ Order of Conditions ☐ Superseding Order of Conditions ☐ Chapter 91 License ☐ 401 Water Quality Certification ☐ MHD or MDC Access Permit ☐ Water Management Act Permit ☐ New Source Approval ☐ DEP or MWRA Sewer Connection/ Extension Permit ☐ Other Permits (*including Legislative Approvals*) – Specify:
Total site acreage	N/A			
New acres of land altered		N/A		
Acres of impervious area	N/A	None	N/A	
Square feet of new bordering vegetated wetlands alteration		Site specific		
Square feet of new other wetland alteration		Site specific		
Acres of new non-water dependent use of tidelands or waterways		N/A		
STRUCTURES				
Gross square footage	N/A	None	N/A	
Number of housing units	N/A	None	N/A	
Maximum height (in feet)	N/A	None	N/A	
TRANSPORTATION				
Vehicle trips per day	N/A	None	N/A	
Parking spaces	N/A	None	N/A	
WATER/WASTEWATER				
Gallons/day (GPD) of water use	N/A	None	N/A	
GPD water withdrawal	N/A	None	N/A	
GPD wastewater generation/ treatment	N/A	None	N/A	
Length of water/sewer mains (in miles)	N/A	None	N/A	

CONSERVATION LAND: Will the project involve the conversion of public parkland or other Article 97 public natural resources to any purpose not in accordance with Article 97?

☐Yes (Specify_____) ☒No

Will it involve the release of any conservation restriction, preservation restriction, agricultural preservation restriction, or watershed preservation restriction?

☐Yes (Specify_____) ☒No

RARE SPECIES: Does the project site include Estimated Habitat of Rare Species, Vernal Pools, Priority Sites of Rare Species, or Exemplary Natural Communities?

☒Yes (Specify: **Site specific**._____) ☐No

HISTORICAL /ARCHAEOLOGICAL RESOURCES: Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

☒Yes (Specify_**Site specific** _____) ☐No

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources?

☐Yes (Specify_____) ☒No

AREAS OF CRITICAL ENVIRONMENTAL CONCERN: Is the project in or adjacent to an Area of Critical Environmental Concern?

☒Yes (Specify_**Site specific** _____) ☐No

PROJECT DESCRIPTION: The project description should include **(a)** a description of the project site, **(b)** a description of both on-site and off-site alternatives and the impacts associated with each alternative, and **(c)** potential on-site and off-site mitigation measures for each alternative (*You may attach one additional page, if necessary*.)

This GENF/GEIR Update provides an Update to MEPA on the ongoing Statewide Vegetation Management Program (SVMP) for vegetation management at airports in Massachusetts, as controlled by the Massachusetts Aeronautics Commission (MAC) and the Massachusetts Port Authority (Massport). This Update is submitted in response to the request of the Secretary of Environmental Affairs in the Certificate (EOEA #12092) issued in January of 2000 relative to a previously required Update on the implementation of the SVMP. The SVMP program has been conducted over the past 12 years, following the guidance developed under the Generic Environmental Impact Report (Certificate issued in October 15, 1993; EOEA #8978).

The Secretary's Certificate on the 1999 GENF required an update GENF to be filed with MEPA in 2005. In an effort to respond to the January 2000 Certificate, the GENF narrative:

- summarizes the SVMP program and MEPA regulatory history;
- provides an update on MAC activities since the last Update to the GEIR;
- identifies the past, ongoing and future VMP activities at the various airports;
- addresses the specific issues noted in the 2000 Certificate; and
- discusses how the SVMP program is anticipated to proceed in the future from both an operational and regulatory/public review process.

The Certificate on the 1993 GEIR indicated that the objective of the first update document (1999 GEIR Update/Expanded GENF Airport Vegetation Management) was to "... evaluate the effectiveness of [the resultant limited project provision to the WPA Regulations] and to provide all those involved...the opportunity to evaluate it based on actual field experience." In response, the attached GENF narrative is essentially a progress report on the SVMP activities at the airports in Massachusetts where vegetation management has been proceeding under VMP projects controlled by MAC and Massport. These airports currently include: Beverly Airport, Fitchburg Airport, Hanscom Airport, Lawrence Airport, Mansfield Airport, Marshfield Airport, New Bedford Airport, North Adams (Harriman-West) Airport, Norwood Airport, Orange Airport, Southbridge Airport, and Taunton Airport. A review of the annual wetland monitoring reports for these airports consistently documents a lack of adverse impact to wetland resources and wildlife. Instead, the monitoring reports have documented the recovery of the wetlands and the establishment of viable, although altered, wildlife habitat. Information is also provided on the regulatory review at these airports and anticipated VMP projects at other airports.

In addition to a review of the program based on field experience, the January 2000 Certificate identified certain issues to be addressed under the SVMP program. These issues, which are addressed in the GENF narrative, include:

- the use of an Integrated Vegetation Management (IVM) approach for the development of new VMPs, and the extension of the IVM methods into the upland areas of airports under both new and existing VMP airports;
- the evaluation of wildlife habitat at airports under new VMPs and existing VMP monitoring efforts, including mitigation and enhancement opportunities for new VMP efforts, with improved reporting of this information;
- the evaluation of invasive species of vegetation at airports under new VMPs and existing VMP monitoring efforts, including management efforts for new VMP efforts, with improved reporting of this information;
- the continued development of annual VMP Status Reports; and
- the development of an interagency (MAC, Massport, FAA, & DEP) Guidance Document for Conservation Commissions on the VMPs.

In addition to responding to the Secretary's request for a 2005 update to the GENF/GEIR, some additional goals have been developed as part of this filing. After 12 years of experience in successfully implementing the SVMP program on a Statewide basis, MAC and Massport believe that the purposes of MEPA's involvement have been well proven. MEPA provided the initial platform for MAC, Massport, and DEP, with input from Conservation Commissions and the environmental community, to cooperatively develop a regulatory and oversight process for vegetation management at airports. With the program's "coming of age", there is now a well-defined process for: developing airport VMPs, conducting public review and permitting, implementation and ongoing maintenance, and finally monitoring the effectiveness of airport VMPs. The ongoing experience of monitoring the effectiveness of VMPs at the 10 airports has refined the process of Integrated Vegetation Management, and allowed the evolution and use of BMPs to minimize environmental impacts.

The goal of the GENF is not only to provide an update to the SVMP program to MEPA, but also to document the effectiveness of the program, which exists with both internal and external checks and balances, with oversight processes that provide for continuing agency and public review, and provide protection for the environment of the airport. At this point in the program's growth and with the completion of this filing, we believe that periodic MEPA updates to the 1993 GEIR beyond this point will not provide additional environmental benefit. While the SVMP program will continue to mature as additional experience is gained over the next many years, such improvements in the program will occur readily under the regulatory processes which mandate permitting and coordination with Conservation Commissions, DEP, DCR, NHESP, and DFA. This process was most recently described and codified in the interagency MAC/Massport/FAA/DEP Guidance Document to Conservation Commissions (Appendix E). These various processes provide ample incentive to avoid, minimize and mitigate environmental impacts, and therefore, improve VMP methodologies as the new information and methodologies become known.

Subsequent to this filing, the conduct of individual VMP projects will occur in response to aviation safety requirements, the statewide environmental regulatory framework, and budget local airport priorities, always following the standards of the established SVMP protocols established by MAC and Massport, as well as maintaining full compliance with MEPA, WPA and other environmental regulatory requirements.

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1)
___ Yes ___ No; if yes, specify each threshold:

Site specific at each airport. Alteration is limited to changing the mix of vegetation to achieve FAA safety standards. The amount of vegetation initial clearing varies for each airport. No change in topography or impervious surfaces will result.

II. Impacts and Permits

A. Describe, in acres, the current and proposed character of the project site, as follows:

	Existing	Change	Total
Footprint of buildings	_____	_**None**___	_____
Roadways, parking, and other paved areas	_____	_**None**___	_____
Other altered areas (describe)	_____	_**None**___	_____
Undeveloped areas	_____	___*_____	_____

*** Site specific at each airport – limited to altering the mix of vegetation to achieve standards, no change in topography or impervious surfaces.**

B. Has any part of the project site been in active agricultural use in the last three years?
_**X**_ Yes ___ No; if yes, how many acres of land in agricultural use (with agricultural soils) will be converted to nonagricultural use? **The amount is site specific. No conversion of agricultural use is proposed.**

C. Is any part of the project site currently or proposed to be in active forestry use?
___ Yes _**X**_ No; if yes, please describe current and proposed forestry activities and indicate whether any part of the site is the subject of a DEM-approved forest management plan:

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97? ___ Yes _**X**_ No; if yes, describe:

E. Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction? ___ Yes ___ No; if yes, does the project involve the release or modification of such restriction? ___ Yes _**X**_ No; if yes, describe:

F. Does the project require approval of a new urban redevelopment project or a fundamental change in an existing urban redevelopment project under M.G.L.c.121A? ___ Yes _**X**_ No; if yes, describe:

G. Does the project require approval of a new urban renewal plan or a major modification of an existing urban renewal plan under M.G.L.c.121B? Yes ___ No _**X**_ ; if yes, describe:

H. Describe the project's stormwater impacts and, if applicable, measures that the project will take to comply with the standards found in DEP's Stormwater Management Policy: - **N/A**

I. Is the project site currently being regulated under M.G.L.c.21E or the Massachusetts Contingency Plan? Yes ___ N/A _**X**_ No ___; if yes, what is the Release Tracking Number (RTN)?

J. If the project is site is within the Chicopee or Nashua watershed, is it within the Quabbin, Ware, or Wachusett subwatershed? ___ Yes ___ No _**X**_ Site Specific; if yes, is the project site subject to regulation under the Watershed Protection Act? ___ Yes ___ No

S**ite specific. Should an airport fall under the jurisdiction of the Watershed Protection Act, the draft VMP will be forwarded to that agency for review and comment. The final VMP will be responsive to input from this agency.**

K. Describe the project's other impacts on land:

Vegetation management at airports results in a modification of the types of vegetation growing near runways. Management favors low growing species and seeks to remove tall species that would cause a safety hazard for airplanes.

III.. Consistency

A. Identify the current municipal comprehensive land use plan and the open space plan and describe the consistency of the project and its impacts with that plan(s): **Site specific. Most comprehensive land use plans favor the continuation of airports for local transportation and open space. The vegetation management is mandated by FAA safety standards. Maintaining the vegetation is necessary to maintain the airport. Therefore, vegetation management is likely to be consistent with local and regional land use planning.**

B. Identify the current Regional Policy Plan of the applicable Regional Planning Agency and describe the consistency of the project and its impacts with that plan: **Site specific. See answer above. Most comprehensive land use plans favor the continuation of airport for local transportation and open space. The vegetation management is mandated by FAA safety standards. Maintaining the vegetation is necessary to maintain the airport. Therefore, vegetation management is likely to be consistent with regional plans.**

C. Will the project require any approvals under the local zoning by-law or ordinance (i.e. text or map amendment, special permit, or variance)? Yes ___ No **_X_** ; if yes, describe:

D. Will the project require local site plan or project impact review?
___ Yes **_X_** No; if yes, describe:

RARE SPECIES SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **rare species or habitat** (see 301 CMR 11.03(2))? ___ Yes ___ No; if yes, specify, in quantitative terms:
Rare species habitat is site specific to each airport. No adverse impacts are anticipated. Each draft VMP will be submitted to NHESP for review and comment before implementation. They will also be notified and coordinated with in the NOI process. Should a proposed VMP affect known rare species habitat, the VMP will be responsive to input provided by this agency.

B. Does the project require any state permits related to **rare species or habitat**? ___ Yes ___ No
No adverse impacts to rare species habitat are anticipated. Draft VMPs and NOIs are submitted to NHESP for review and comment prior to implementation. If a proposed VMP affects known rare species habitat, the VMP will be responsive to input provided by this agency.

C. If you answered "No" to <u>both</u> questions A and B, proceed to the **Wetlands, Waterways, and Tidelands Section**. If you answered "Yes" to <u>either</u> question A or question B, fill out the remainder of the Rare Species section below.

II. Impacts and Permits

A. Does the project site fall within Priority or Estimated Habitat in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ___ Yes ___ No. If yes,

1. Which rare species are known to occur within the Priority or Estimated Habitat (contact: Environmental Review, Natural Heritage and Endangered Species Program, Route 135, Westborough, MA 01581, allowing 30 days for receipt of information):
2. Have you surveyed the site for rare species? ___ Yes ___ No; if yes, please include the results of your survey.
3. If your project is within Estimated Habitat, have you filed a Notice of Intent or received an

Order of Conditions for this project? ___ Yes ___ No; if yes, did you send a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program, in accordance with the Wetlands Protection Act regulations? ___ Yes ___ No

B. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes ___ No; if yes, describe:

C. Will the project alter "significant habitat" as designated by the Massachusetts Division of Fisheries and Wildlife in accordance with M.G.L. c.131A (see also 321 CMR 10.30)? ___ Yes ___ No; if yes, describe:

D. Describe the project's other impacts on rare species including indirect impacts (for example, stormwater runoff into a wetland known to contain rare species or lighting impacts on rare moth habitat):

WETLANDS, WATERWAYS, AND TIDELANDS SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wetlands, waterways, and tidelands** (see 301 CMR 11.03(3))? ___ Yes ___ No; if yes, specify, in quantitative terms: **Site specific.**

B. Does the project require any state permits (or a local Order of Conditions) related to **wetlands, waterways, or tidelands**? **_X_** Yes ___ No; if yes, specify which permit: **Order of Conditions**

C. If you answered "No" to <u>both</u> questions A and B, proceed to the **Water Supply Section**. If you answered "Yes" to <u>either</u> question A or question B, fill out the remainder of the Wetlands, Waterways, and Tidelands Section below.

II. Wetlands Impacts and Permits

A. Describe any wetland resource areas currently existing on the project site and indicate them on the site plan: **Extent of area and wetland resources are site specific. See attachment.**

B. Estimate the extent and type of impact that the project will have on wetland resources, and indicate whether the impacts are temporary or permanent:
Extent of area and wetland resources are site specific. See attachment.

<u>Coastal Wetlands</u>	<u>Area (in square feet) or Length (in linear feet)</u>
Land Under the Ocean	_____
Designated Port Areas	_____
Coastal Beaches	_____
Coastal Dunes	_____
Barrier Beaches	_____
Coastal Banks	_____
Rocky Intertidal Shores	_____
Salt Marshes	_____
Land Under Salt Ponds	_____
Land Containing Shellfish	_____
Fish Runs	_____
Land Subject to Coastal Storm Flowage	_____
<u>Inland Wetlands</u>	
Bank	_____
Bordering Vegetated Wetlands	_____
Land under Water	_____

Isolated Land Subject to Flooding _____
Bordering Land Subject to Flooding _____
Riverfront Area _____

C. Is any part of the project
1. a limited project? _**X**_ Yes ___ No
2. the construction or alteration of a dam? ___ Yes _**X**_ No; if yes, describe:
3. fill or structure in a velocity zone or regulatory floodway? ___ Yes _**X**_ No
4. dredging or disposal of dredged material? ___ Yes _**X**_ No; if yes, describe the volume of dredged material and the proposed disposal site:
5. a discharge to Outstanding Resource Waters? ___ Yes _**X**_ No
6. subject to a wetlands restriction order? ___ Yes _**X**_ No; if yes, identify the area (in square feet):

D. Does the project require a new or amended Order of Conditions under the Wetlands Protection Act (M.G.L. c.131A)? ___ Yes ___ No; if yes, has a Notice of Intent been filed or a local Order of Conditions issued? ___ Yes ___ No; if yes, list the date and DEP file number:_____. Was the Order of Conditions appealed? ___ Yes ___ No. Will the project require a variance from the Wetlands regulations? ___ Yes ___ No.
Wetland permitting is site specific. See attachment.

E. Will the project: **Extent of area, wetland resources and local regulations are site specific. See attachment.**
1. be subject to a local wetlands ordinance or bylaw? ___ Yes ___ No
2. alter any federally-protected wetlands not regulated under state or local law? ___ Yes ___ No; if yes, what is the area (in s.f.)?

F. Describe the project's other impacts on wetlands (including new shading of wetland areas or removal of tree canopy from forested wetlands): **During the initial VMP implementation, a decrease in stream and forested wetland shading may occur. However, the rapid understory and shrub regrowth render this affect temporary. See Section 4.4 of the GENF Narrative for the discussion of canopy tree removal effects.**

III. Waterways and Tidelands Impacts and Permits

A. Is any part of the project site waterways or tidelands (including filled former tidelands) that are subject to the Waterways Act, M.G.L.c.91? ___ Yes _**X**_ No; if yes, is there a current Chapter 91 license or permit affecting the project site? ___ Yes ___ No; if yes, list the date and number:

B. Does the project require a new or modified license under M.G.L.c.91? ___ Yes _**X**_ No; if yes, how many acres of the project site subject to M.G.L.c.91 will be for non-water dependent use?
Current ___ Change ___ Total ___

C. Is any part of the project
1. a roadway, bridge, or utility line to or on a barrier beach? ___ Yes __**X**___ No; if yes, describe:
2. dredging or disposal of dredged material? ___ Yes _**X**_ No; if yes, volume of dredged material _____
3. a solid fill, pile-supported, or bottom-anchored structure in flowed tidelands or other waterways? ___ Yes _**X**_ No; if yes, what is the base area? _____
4. within a Designated Port Area? ___ Yes _**X**_ No

D. Describe the project's other impacts on waterways and tidelands: **N/A**

IV. Consistency:

A. Is the project located within the Coastal Zone? ___ Yes ___ No; if yes, describe the project's consistency with policies of the Office of Coastal Zone Management:

Site specific

B. Is the project located within an area subject to a Municipal Harbor Plan? ___ Yes ___ No; if yes, identify the Municipal Harbor Plan and describe the project's consistency with that plan: **Site specific**.

WATER SUPPLY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **water supply** (see 301 CMR 11.03(4))? ___ Yes **_X_** No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **water supply**? ___ Yes **_X_** No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Wastewater Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Water Supply Section below.

II. Impacts and Permits

A. Describe, in gallons/day, the volume and source of water use for existing and proposed activities at the project site:

	Existing	Change	Total
Withdrawal from groundwater	_____	_____	_____
Withdrawal from surface water	_____	_____	_____
Interbasin transfer	_____	_____	_____
Municipal or regional water supply	_____	_____	_____

B. If the source is a municipal or regional supply, has the municipality or region indicated that there is adequate capacity in the system to accommodate the project? ___ Yes ___ No

C. If the project involves a new or expanded withdrawal from a groundwater or surface water source,

1. have you submitted a permit application? ___ Yes ___ No; if yes, attach the application
2. have you conducted a pump test? ___ Yes ___ No; if yes, attach the pump test report

D. What is the currently permitted withdrawal at the proposed water supply source (in gallons/day)? _____Will the project require an increase in that withdrawal?___ Yes ___ No

E. Does the project site currently contain a water supply well, a drinking water treatment facility, water main, or other water supply facility, or will the project involve construction of a new facility? ___ Yes ___ No. If yes, describe existing and proposed water supply facilities at the project site:

	Existing	Change	Total
Water supply well(s) (capacity, in gpd)	_____	_____	_____
Drinking water treatment plant (capacity, in gpd)	_____	_____	_____
Water mains (length, in miles)	_____	_____	_____

F. If the project involves any interbasin transfer of water, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed?

G. Does the project involve

1. new water service by a state agency to a municipality or water district? ___ Yes ___ No
2. a Watershed Protection Act variance? ___ Yes ___ No; if yes, how many acres of alteration?
3. a non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking

water supply for purpose of forest harvesting activities? ___ Yes ___ No

H. Describe the project's other impacts (including indirect impacts) on water resources, quality, facilities and services:

III. Consistency -- Describe the project's consistency with water conservation plans or other plans to enhance water resources, quality, facilities and services:

WASTEWATER SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wastewater** (see 301 CMR 11.03(5))? ___ Yes **_X_** No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **wastewater**? ___ Yes **_X_** No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Transportation -- Traffic Generation Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wastewater Section below.

II. Impacts and Permits

A. Describe, in gallons/day, the volume and disposal of wastewater generation for existing and proposed activities at the project site (calculate according to 310 CMR 15.00):

	Existing	Change	Total
Discharge to groundwater (Title 5)	_____	_____	_____
Discharge to groundwater (non-Title 5)	_____	_____	_____
Discharge to outstanding resource water	_____	_____	_____
Discharge to surface water	_____	_____	_____
Municipal or regional wastewater facility	_____	_____	_____
TOTAL	_____	_____	_____

B. Is there sufficient capacity in the existing collection system to accommodate the project? ___ Yes ___ No; if no, describe where capacity will be found:

C. Is there sufficient existing capacity at the proposed wastewater disposal facility?___ Yes ___ No; if no, describe how capacity will be increased:

D. Does the project site currently contain a wastewater treatment facility, sewer main, or other wastewater disposal facility, or will the project involve construction of a new facility? ___ Yes ___ No. If yes, describe as follows:

	Existing	Change	Total
Wastewater treatment plant (capacity, in gpd)	_____	_____	_____
Sewer mains (length, in miles)	_____	_____	_____
Title 5 systems (capacity, in gpd)	_____	_____	_____

E. If the project involves any interbasin transfer of wastewater, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed?

F. Does the project involve new sewer service by an Agency of the Commonwealth to a municipality or sewer district? ___ Yes ___ No

G. Is there any current or proposed facility at the project site for the storage, treatment, processing,

combustion or disposal of sewage sludge, sludge ash, grit, screenings, or other sewage residual materials? ___ Yes ___ No; if yes, what is the capacity (in tons per day):

	Existing	Change	Total
Storage	_____	_____	_____
Treatment, processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

H. Describe the project's other impacts (including indirect impacts) on wastewater generation and treatment facilities:

III. Consistency -- Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to wastewater management:

A. If the project requires a sewer extension permit, is that extension included in a comprehensive wastewater management plan? ___ Yes ___ No; if yes, indicate the EOEA number for the plan and describe the relationship of the project to the plan

TRANSPORTATION -- TRAFFIC GENERATION SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **traffic generation** (see 301 CMR 11.03(6))? ___ Yes **_X_** No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **state-controlled roadways**? ___ Yes **_X_** No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Roadways and Other Transportation Facilities Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Traffic Generation Section below.

II. Traffic Impacts and Permits

A. Describe existing and proposed vehicular traffic generated by activities at the project site:

	Existing	Change	Total
Number of parking spaces	_____	_____	_____
Number of vehicle trips per day	_____	_____	_____

ITE Land Use Code(s):

B. What is the estimated average daily traffic on roadways serving the site?

Roadway	Existing	Change	Total
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____

C. Describe how the project will affect transit, pedestrian and bicycle transportation facilities and services:

III. Consistency -- Describe measures that the proponent will take to comply with municipal, regional, state, and federal plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services:

ROADWAYS AND OTHER TRANSPORTATION FACILITIES SECTION

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **roadways or other transportation facilities** (see 301 CMR 11.03(6))? ___ Yes **_X_** No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **roadways or other transportation facilities**? ___ Yes **_X_** No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Energy Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Roadways Section below.

II. Transportation Facility Impacts

A. Describe existing and proposed transportation facilities at the project site:

	Existing	Change	Total
Length (in linear feet) of new or widened roadway	_____	_____	_____
Width (in feet) of new or widened roadway	_____	_____	_____

Other transportation facilities:

B. Will the project involve any

1. Alteration of bank or terrain (in linear feet)? _____
2. Cutting of living public shade trees (number)? _____
3. Elimination of stone wall (in linear feet)? _____

III. Consistency -- Describe the project's consistency with other federal, state, regional, and local plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services, including consistency with the applicable regional transportation plan and the Transportation Improvements Plan (TIP), the State Bicycle Plan, and the State Pedestrian Plan:

ENERGY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **energy** (see 301 CMR 11.03(7))? ___ Yes **_X_** No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **energy**? ___ Yes **_X_** No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Air Quality Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Energy Section below.

II. Impacts and Permits

A. Describe existing and proposed energy generation and transmission facilities at the project site:

	Existing	Change	Total
Capacity of electric generating facility (megawatts)	_____	_____	_____
Length of fuel line (in miles)	_____	_____	_____
Length of transmission lines (in miles)	_____	_____	_____
Capacity of transmission lines (in kilovolts)	_____	_____	_____

B. If the project involves construction or expansion of an electric generating facility, what are

1. the facility's current and proposed fuel source(s)?
2. the facility's current and proposed cooling source(s)?

C. If the project involves construction of an electrical transmission line, will it be located on a new, unused, or abandoned right of way?___ Yes ___ No; if yes, please describe:

D. Describe the project's other impacts on energy facilities and services:

III. Consistency -- Describe the project's consistency with state, municipal, regional, and federal plans and policies for enhancing energy facilities and services:

AIR QUALITY SECTION

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **air quality** (see 301 CMR 11.03(8))? ___ Yes **_X_** No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **air quality**? ___ Yes **_X_** No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Solid and Hazardous Waste Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Air Quality Section below.

II. Impacts and Permits

A. Does the project involve construction or modification of a major stationary source (see 310 CMR 7.00, Appendix A)?___ Yes ___ No; if yes, describe existing and proposed emissions (in tons per day) of:

	Existing	Change	Total
Particulate matter	_____	_____	_____
Carbon monoxide	_____	_____	_____
Sulfur dioxide	_____	_____	_____
Volatile organic compounds	_____	_____	_____
Oxides of nitrogen	_____	_____	_____
Lead	_____	_____	_____
Any hazardous air pollutant	_____	_____	_____
Carbon dioxide	_____	_____	_____

B. Describe the project's other impacts on air resources and air quality, including noise impacts:

III. Consistency

A. Describe the project's consistency with the State Implementation Plan:

B. Describe measures that the proponent will take to comply with other federal, state, regional, and local plans and policies related to air resources and air quality:

SOLID AND HAZARDOUS WASTE SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **solid or hazardous waste** (see 301 CMR 11.03(9))? ___ Yes **_X_** No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **solid and hazardous waste**? ___ Yes **_X_** No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Historical and Archaeological Resources Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Solid and Hazardous Waste Section below.

II. Impacts and Permits

A. Is there any current or proposed facility at the project site for the storage, treatment, processing, combustion or disposal of solid waste? ___ Yes ___ No; if yes, what is the volume (in tons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Treatment, processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

B. Is there any current or proposed facility at the project site for the storage, recycling, treatment or disposal of hazardous waste? ___ Yes ___ No; if yes, what is the volume (in tons or gallons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Recycling	_____	_____	_____
Treatment	_____	_____	_____
Disposal	_____	_____	_____

C. If the project will generate solid waste (for example, during demolition or construction), describe alternatives considered for re-use, recycling, and disposal:

D. If the project involves demolition, do any buildings to be demolished contain asbestos?

___ Yes ___ No

E. Describe the project's other solid and hazardous waste impacts (including indirect impacts):

III. Consistency--Describe measures that the proponent will take to comply with the State Solid Waste Master Plan:

HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION

I. Thresholds / Impacts

A. Is any part of the project site a historic structure, or a structure within a historic district, in either case listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes ___ No; if yes, does the project involve the demolition of all or any exterior part of such historic structure? ___ Yes **_X_** No; if yes, please describe: **Historic Places and Historic and Archaeological Assets may be present depending on the airport. However, the VMPs relate only to vegetation management. There will be no grading or demolition as part of the project.**

B. Is any part of the project site an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes ___ No; if yes, does the project involve the destruction of all or any part of such archaeological site? ___ Yes **_X_** No; if yes, please describe:
Historic Places and Historic and Archaeological Assets may be present depending on the airport. However, the VMPs relate only to vegetation management. The VMPs will not involve grading or demolition that may impact an archaeological site.

C. If you answered "No" to all parts of both questions A and B, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to any part of either question A or question B, fill out the remainder of the Historical and Archaeological Resources Section below.

D. Have you consulted with the Massachusetts Historical Commission? ___ Yes ___ No; if yes, attach correspondence

Site specific, but all draft VMPs are submitted to this agency for review and comment.

E. Describe and assess the project's other impacts, direct and indirect, on listed or inventoried historical and archaeological resources:

N/A

II. **Consistency** -- Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to preserving historical and archaeological resources:

No adverse impacts are anticipated. Draft VMPs are submitted to the Mass. Historical Commission for review and comment prior to implementation. Should there be a VMP proposed which affects a known archaeological site, the VMP will be responsive to input provided by this agency.

ATTACHMENTS:

1. Plan, at an appropriate scale, of existing conditions of the project site and its immediate context, showing all known structures, roadways and parking lots, rail rights-of-way, wetlands and water bodies, wooded areas, farmland, steep slopes, public open spaces, and major utilities.
2. Plan of proposed conditions upon completion of project (if construction of the project is proposed to be phased, there should be a site plan showing conditions upon the completion of each phase).
3. **Original** U.S.G.S. map or good quality **color** copy (8-½ x 11 inches or larger) indicating the project location and boundaries
4. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2).
5. Other:

CERTIFICATIONS:

1. The Public Notice of Environmental Review has been/will be published in the following newspapers in accordance with 301 CMR 11.15(1):

(Name)	(Date)
Boston Globe	7/1/06

2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

Date	Signature of Responsible Officer or Proponent	Date	Signature of person preparing ENF (if different from above)
6/30/06	Eric Mills for Denise Garcia	6/30/06	Paul Davis

Name (print or type)	Name (print or type)
Denise Garcia	Paul G. Davis
Firm/Agency Mass. Aeronautics Commission	Firm/Agency Baystate Environmental Cons. Inc.
Street 10 Park Plaza, Rm. 3510	Street 296 North Main Street
Municipality/State/Zip Boston, MA 02116	Municipality/State/Zip East Longmeadow, MA 01028
Phone (617) 973-8881	Phone (413) 525-3822

1.0 INTRODUCTION

1.1 PURPOSE OF DOCUMENT

This document provides an Update to MEPA on the ongoing Statewide Vegetation Management Program (SVMP) for vegetation management at airports in Massachusetts, as controlled by the Massachusetts Aeronautics Commission (MAC) and the Massachusetts Port Authority (Massport). This Update is submitted in response to the request of the Secretary of Environmental Affairs in the Certificate issued in January of 2000 (Appendix 1) relative to a previously required Update on the implementation of the SVMP. The SVMP program has been conducted over the past 12 years, following the guidance developed under the Generic Environmental Impact Report (Certificate issued in October 15, 1993; EOEA #12092).

This document is essentially a progress report on the SVMP activities at the airports in Massachusetts at which vegetation management has been proceeding under VMP projects controlled by MAC and Massport. These airports currently include:

- Beverly Airport
- Fitchburg Airport
- Hanscom Airport
- Lawrence Airport
- Mansfield Airport
- Marshfield Airport
- New Bedford Airport
- North Adams (Harriman-West) Airport
- Norwood Airport
- Orange Airport
- Southbridge Airport
- Taunton Airport

Additional information is provided on anticipated VMP projects at other airports.

The Secretary's Certificate on the 1999 GENF required a 2005 update GENF to be filed with MEPA. While the January 2000 Certificate did not specifically mandate the contents of the Update, the Certificate on the GEIR indicated that the objective of the first update document (1999 GEIR Update/Expanded GENF Airport Vegetation Management) was to "...evaluate the effectiveness of [the resultant limited project provision to the WPA Regulations] and to provide all those involved...the opportunity to evaluate it based on actual field experience." The January 2000 Certificate did identify certain issues to be addressed

under the SVMP program, which are reported upon in addition to the general summary of the program status. These issues include:

- the use of an Integrated Vegetation Management (IVM) approach for the development of new VMPs, and the extension of the IVM methods into the upland areas of airports under both new and existing VMP airports;
- the evaluation of wildlife habitat at airports under new VMPs and existing VMP monitoring efforts, including mitigation and enhancement opportunities for new VMP efforts, with improved reporting of this information;
- the evaluation of invasive species of vegetation at airports under new VMPs and existing VMP monitoring efforts, including management efforts for new VMP efforts, with improved reporting of this information;
- the continued development of annual VMP Status Reports; and
- the development of an interagency (MAC, Massport, FAA, & DEP) Guidance Document for Conservation Commissions on the VMPs.

The remainder of this document will summarize the SVMP program and MEPA regulatory history (Sections 1 & 2); provide an update on MAC activities since the last Update to the GEIR (Section 2); identify the past, ongoing and future VMP activities at the various airports (Sections 2 & 3); address the specific issues noted in the 2000 Certificate (Section 4); and discuss how the SVMP program is anticipated to proceed in the future from both an operational and regulatory/public review process (Section 5).

1.2 BACKGROUND

Vegetation Management at Massachusetts airports is generally performed under the auspices of two State agencies:

- the Massachusetts Aeronautics Commission (MAC); and
- the Massachusetts Port Authority (Massport).

MAC is the oversight and certification agency for 40 public use airports in Massachusetts. Logan International Airport and Hanscom Field are owned and operated by Massport. Both agencies are committed to maintaining airport operations in compliance with all FAA requirements, especially as related to safety. MAC's stated mission is to "promote aviation while establishing and maintaining a safe, efficient airport system.....".

Both MAC and Massport sponsor vegetation management projects at their airports in order to meet minimum Federal Aviation Administration (FAA) safety standards. FAA regulations and standards require that airspace Protection Zones, must be achieved and maintained in order to assure an appropriate level of safety at each airport, and to maintain eligibility for federal grant funds. The areas of "protected", navigable airspace that must be kept free from obstructions are defined by:

- FAA Regulation Part 77 (14 CFR 77),
- FAA Advisory Circular 150/5300-13 (Navigational Aids),
- FAA Order 6480.4 (Air Traffic Control Tower Siting Criteria), and
- MAC approved aeronautical rules and regulations for public use airports (pursuant to 702 CMR, as amended; for airports subject to MAC certification pursuant to M.G.L. c.90, Section 39B).

Analysis in the early 1990's indicated that 37 of the 42 Massachusetts public use airports had growth of vegetation that had encroached upon these Protection Zones, in area totaling over 1300 acres for all the airports. Federal standards are requirements to be achieved and maintained in order to assure an appropriate level of safety at each airport, and to maintain eligibility for federal grant funds. Historically, vegetation management had been conducted sporadically, often in response to FAA enforcement of its safety regulations through the withholding of federal funds for a particular project, subject to certain tree clearing efforts. However, until 1992, there was no long range or comprehensive mechanism for the managing vegetation at Massachusetts public use airports. The interagency discussions and planning developed in the early 1990's between MAC, Massport, FAA, and DEP, largely via the MEPA process (see Section 1.3), instituted the current Statewide Vegetation Management Program (SVMP) for airports.

Under the SVMP for airports, both MAC & Massport provide leadership and exercise oversight over all such projects at their respective facilities. Both agencies have developed standards for developing and implementing VMPs, structured a process of broad public participation, and introduced environmentally sensitive program components, all of which has been subject to continual statewide regulatory review of the vegetation management program. MAC imposes standards, for both technical and procedural matters, upon local airports through their inclusion in grant agreements for specific vegetation management projects. While the purpose and need for vegetation management projects is safety-driven, the implementation utilizes Best Management Practices (BMPs) relative to the conduct of forestry, other vegetation management practices, and control of erosion and sedimentation. These include practices analyzed for statewide application in the 1993 Generic Environmental Impact Report for Tree Clearing in Wetlands (1993 GEIR) at all Massachusetts airports and BMPs for forestry and herbicide application for Rights of Way (ROW) management.

Regulatory Evolution of the SVMP Process: Prior to 1994, vegetation removal at airports required an unusually extensive environmental regulatory process. If cutting of vegetation was required within wetland areas larger than 5000 SF, the MA Wetlands Protection Act required a variance be issued from the Commissioner of DEP, which in and of itself triggered the requirement for an ENF/EIR under MEPA. The WPA variance request process requires sequential denial by the local Conservation Commission (frequently more than one Town for single airport), and denial by the Regional Office of DEP, prior to requesting a variance from the DEP Commissioner. Each of these procedural steps, with its own required documentation, notification, and time requirements,

had to be repeated at each airport, resulting in significant delay of necessary safety actions mandated by the FAA and MAC.

Recognizing the repetitive and extensive permitting to be done for each of the airports, MAC and Massport began a public process with the Department of Environmental Protection (DEP) in 1991 to address the conflicts with the Wetlands Protection Act. This effort was intended to create a special category of action under the wetland regulations to allow airport safety related vegetation management projects to proceed as "Limited Projects" in a timely and comprehensive fashion, subject to proper environmental impact analysis, documentation, and planning to minimize impacts. It was recognized that vegetation management at airports, similar to VMP work along utility right-of-ways, needed to be done for the public good, and that a streamlined regulatory process needed to be developed to allow these activities without requiring a WPA variance and a MEPA EIR for each of the airports. It was mutually determined to seek a regulatory remedy while studying and identifying the general environmental effects of VMP activities on wetland resources at airports.

MEPA Process: MAC, Massport, and DEP collaborated in the preparation of the 1993 Generic EIR (GEIR) to analyze the statewide impacts of airport vegetation management on wetlands and develop modifications to the wetland regulations to more readily allow vegetation management at airports for purposes of public safety. The focus of this MEPA process was stated in the Secretary's Certificate on the ENF.

> *"The overall objective is to stream line the review process so that airport operators can undertake badly needed tree clearing projects without extensive delays so that navigational airspace can be maintained."*

Vegetation management to keep the protected airspace free of penetrations (whether in wetlands or uplands) is viewed as an ongoing maintenance activity, which is required for safety compliance. Such work is typically independent of other scheduled improvement projects at the airport. Table 1 sumarizes the MEPA process undertaken relative to VMPs at airports, and identifies the continuing reporting ongoing to MEPA. After extensive public review and comment, the Final GEIR was accepted and a regulatory blueprint was created to greatly improve the regulatory process allowing VMP activities at airports within wetland resources, avoiding the need for procedural denials by local Commissions and regional DEP, and full EIRs for each airport.

Proposed amendments to the WPA regulations were included in the 1993 GEIR for public review and comment. The final regulatory amendments incorporated several specific additional requirements specifically requested by the Secretary of EOEA, including preparing vegetation management plans (VMPs) before any vegetation management activities could occur in wetlands; conducting a wildlife habitat evaluation as part of each VMP; and actively discouraging invasive exotic plant species while promoting re-vegetation. Draft and final regulations for a "Limited Project" status category under the Wetlands Protection Act were developed, approved and incorporated into the regulations [(310 CMR 10.53(3)(n)] on

January 1, 1994. With this provision, local Conservation Commissions can now approve airport vegetation management projects. The potential approval of VMP projects under the Limited Project regulation was limited to MAC and Massport airports, and to VMP activities related to existing airport facilities. In all other cases, such as a runway extension or entirely new facilities, the WPA Limited Project status does not apply, and a separate EIR must be filed and wetlands variance would be required, if applicable.

Table 1.1 List of MEPA Documents and Actions for Airport VMP Process

Document	Date
ENF (#8978)	early 1992
ENF Certificate	April 8, 1992
Draft GEIR	early 1993
Draft GEIR Certificate	April 15, 1993
Final GEIR submitted	Aug. 31, 1993
Final GEIR Certificate	Oct. 15, 1993
GEIR Update/ Expanded ENF	Nov. 1999
GEIR/GENF Certificate (#8978/12092)	Jan. 14, 2000
Section 61 Finding	March 2, 2000
Annual Status Reports Submitted to MEPA	March 2001 February 2002 March 2003 February 2004 February 2005
Guidance Document to Conservation Commissions	March 2004

Another outcome of the MEPA process was that the Secretary's Certificate on the GEIR (see Appendix A) requested an update to the GEIR filing to report on the effectiveness of the revised WPA regulation and on the progress in implementing vegetation management projects. The Certificate required "...DEP, Massport and MAC to prepare and file a new Generic Environmental Notification Form (GENF) in two years". The objective of the GENF was to "...evaluate the effectiveness of [the resultant limited project provision to the WPA Regulations] and to provide all those involved...the opportunity to evaluate it based on actual field experience." With the consent of DEP, the Proponent waited until 1999 to submit the document to allow the analysis of several VMP programs at various airports in order to provide a meaningful progress report.

Following the review of the 1999 Update to the GEIR, the Secretary's Certificate was issued on January 14, 2000. Due to the still relative youth of the SVMP program and some continuing concerns, MEPA requested that several additional issues be addressed and that continued reporting take the form of Annual Status Reports to MEPA and an additional update to the GEIR to be filed with MEPA in 2005. This new Update to the GEIR was required to address:

1. the use of an Integrated Vegetation Management (IVM) approach for the development of new VMPs;
2. the evaluation of wildlife habitat at airports relative to new and existing VMPs;

3. invasive species of vegetation for new and existing VMPs; and
4. the development of an interagency (MAC, Massport, FAA, & DEP) Guidance Document for Conservation Commissions on the VMP process, as recommended by the MAC and Massport.

VMP Implementation: Subsequent to the Secretary's approval of the 1993 GEIR and the corresponding revisions to the WPA regulations, VMP projects at ten (10) MAC airports and Hanscom Field (Massport) have been conducted, with follow-up monitoring and annual monitoring reports for each airport (see Section 2.2, Table 2). One additional MAC airport (Lawrence) has just completed the permitting process in March 2006 and initial implementation is slated for August 2006. VMP projects are also underway at Pittsfield, Barnes and Stow airports. The experience in permitting and monitoring of these VMPs has provided substantial information on the best approaches, common concerns experienced at the various airports, and the successful Best Management Practices ("BMPs").

1.3 GOALS OF THIS FILING

In addition to satisfactorily responding to the Secretary's request for a 2005 update to the GENF/GEIR, we believe that it is appropriate to establish some additional goals as part of this filing. After 12 years of experience in successfully implementing the SVMP program on a Statewide basis, MAC and Massport believe that the purposes of MEPA's involvement have been well proven. MEPA provided the initial platform for MAC, Massport, and DEP, with input from Conservation Commissions and the environmental community, to cooperatively develop a regulatory and oversight process for vegetation management at airports. With the program's "coming of age", there is now a well-defined process for:

- developing airport VMPs,
- conducting public review and permitting,
- implementation and ongoing maintenance, and
- finally monitoring the effectiveness of airport VMPs.

The ongoing experience of monitoring the effectiveness of VMPs at the 10 airports has refined the process of Integrated Vegetation Management and allowed the evolution and use of BMPs to minimize environmental impacts.

The goal of this document is not only to provide an update to the SVMP program to MEPA, but also to show the maturity of the program, which exists with both internal and external checks and balances, with oversight processes that provide for continuing agency and public review, and provide protection for the environment of the airport. At this point in the program's growth and with the completion of this filing, we believe that continued periodic updates to the 1993 GEIR will not provide additional environmental benefit. While we anticipate the SVMP program to mature beyond this point as we gain additional experience over the next many years, such improvements in the program will occur readily under the regulatory processes which mandate permitting and coordination with Conservation Commissions, DEP, Massachusetts Department of Conservation and Recreation (DCR),

Mass. Natural Heritage and Endangered Species Program (NHESP), and Mass. Department (DFA). These regulatory processes were most recently described and codified in the interagency MAC/Massport/FAA/DEP Guidance Document to Conservation Commissions (Appendix E). The various processes provide ample incentive to avoid, minimize and mitigate environmental impacts, and therefore, improve VMP methodologies as the new information and methodologies become known.

Subsequent to this filing, individual VMP projects will be conducted in response to aviation safety requirements, the statewide environmental regulatory framework, and local airport priorities and budget, always following the standards of the established SVMP protocols established by MAC and Massport, as well as maintaining full compliance with MEPA, WPA and other environmental regulatory requirements.

2.0 STATUS OF THE STATEWIDE VEGETATION MANAGEMENT PROGRAM

2.1 INTRODUCTION

To date, over $5 million has been has been spent by MAC and Massport in coordinating, developing and implementing Vegetation Management Programs (VMPs) at various airports. The VMP is a written document that addresses all vegetation management needs in a comprehensive manner regardless of whether the vegetation removal or maintenance activity will be conducted in or near wetlands or on uplands. The VMP includes a 5-Year Yearly Operational Plan (YOP), updated every 5 years, which is the implementation plan designed to address specific actions regarding vegetation removal or maintenance to be taken within a particular program year. Together, a VMP and its associated YOP(s) provide a comprehensive approach to vegetation management that will help to minimize environmental impacts, maximize limited financial resources, and maintain public safety.

The Program has evolved significantly since the approval of the 1993 GEIR with:

- the increased public participation component during review and permitting;
- the inclusion of more technical data "up front" in the VMP than required by the 1993 GEIR, including information on wildlife habitat;
- the implementation of "Integrated Vegetation Management" concepts at the airports;
- the implementation of VMPs at 10 airports;
- the ongoing maintenance of the VMP areas (VMAs) at each of the airports;
- the monitoring of impacts to wetlands with increased emphasis on wildlife habitat;
- the consolidation of the MAC Statewide VMP program under a 5-year contract to a single Statewide consultant, to provide more consistent monitoring, VMP review and coordination tasks; and
- the codification of the VMP process in an interagency document, summarizing the permitting process of VMPs ["Vegetation Management at Airports, A Guidance Document to Conservation Commissions" (MAC/Massport/FAA/DEP) – see Appendix E].

These activities and modifications to the program have made and will continue to make the Program more responsive to the needs of the aviation community, the natural environment and the affected communities.

The vegetation management process at airports now follows a regular, predictable path. It starts with the comprehensive five-year capital plans that are required of each airport for their capital budgeting process and must be prepared and submitted each year by each airport in order to be eligible for state (MAC or Massport) and federal (FAA) capital fund allocations. In each of the airports where vegetation management is a required safety measure, it is incorporated into the airport's capital improvement plan including the allocation of potential funding for conducting the vegetation management program at the airport.

Once funding is available, the steps in the VMP process include:

1. Development of Draft VMP
2. Public Presentation of Draft VMP and Outreach
3. Preparation and Submittal of Notice of Intent and VMP
4. Issuance of Orders of Conditions
5. Finalization of VMP
6. Implementation of VMP
    - Short-term cutting plan
    - Long-term maintenance plan
    - Monitoring plan

The "Guidance Document" describes each of these steps in detail (Section 2.6; Appendix E).

2.2 IMPLEMENTED AND PERMITTED VMP PROJECTS

Subsequent to the Secretary's approval of the 1993 GEIR and the corresponding revisions to the WPA regulations, VMP projects at ten (10) MAC airports and Hanscom Field (Massport) have been conducted, with follow-up monitoring and annual monitoring reports for each airport (Table 2). These airports include Beverly Municipal Airport, Fitchburg Municipal Airport, Harriman and West (North Adams) Airport, Mansfield Municipal Airport, Marshfield Municipal Airport, New Bedford Regional Airport, Norwood Memorial Airport, Orange Municipal Airport, Southbridge Municipal Airport, and Taunton Municipal Airport. One additional MAC airport (Lawrence) had completed the permitting process but due to a lengthy appeal period, a new obstruction analysis is currently proposed.

The experience in permitting and monitoring these VMPs has provided substantial information on the best approaches, common concerns experienced at the various airports, and successful Best Management Practices ("BMPs"). The number of acres managed under the approved VMPs at these airports exceeds 2300 acres, with less than a quarter of that within actual wetlands.

As summarized in Table 2, the VMP activities at each of the airports include not only the initial VMP tree and vegetation removal, but also routine, typically annual, maintenance under the Yearly Operational Plans (YOPs) or their 5-year updates (YOPUs), as described in Section 2.4. In addition, the permitting requirements typically require annual monitoring of the vegetative changes, which has been done for each of the 10 active VMP airports controlled by MAC under the Statewide VMP consultant (see Section 2.3).

Table 2.1 VMPs Permitted and Completed at Airports
Post-1993 Wetlands Protection Act Regulations Revision

Airport Name	Date Permit issued	Area (Ac) of Wetlands Managed	VMP Start-up	Monitoring Start-up	Current and Prior YOP Period	Issues*	Follow-up Herbicide Application
Beverly Beverly Wenham Danvers	4/15/97 3/13/97 2/11/97	52.2	February 1998	1998	1997-2001 updates: 2001-2005 2006-2010	WR, H, WH, IS	1999, 2001-2003
Fitchburg	12/7/99	14	Fall 2000	2001	2000–2004 update: 2005-2009	WR, H, WH, VP, IS	2001-2003
Hanscom Bedford Lexington Concord Lincoln	3/03 10/7/02 9/16/02 9/18/02	17.4**	January 2004	2005	2004-2008	WR, H, WH, VP, RS, IS	2005(-2006)
Lawrence	3/8/06	23.9	anticipated Aug 2006	2007	2006-2010	WR, H, WH, VP, RS, IS	NA
Mansfield Mansfield Norton	1/12/00 1/11/00	13.7	Summer 2000	2000	2000-2004 update: 2005-2009	WR, H, WH	2002
Marshfield	12/31/96	74.5	Winter 1997	1997	1998-2002 update: 2003-2007	WR, H, WH, IS	2001-2003
New Bedford New Bedford Dartmouth	5/14/97 4/30/97	177.5	March 1998	2000	1998-2002 update: 2003-2007	WR, H, WH, VP, RS, IS	1999, 2001-2003
North Adams North Adams Williamstown	1/8/98 1/15/98	36.0	January 1998	2001	1998-2002 update: 2003-2007	WR, H, WH, RS	2002
Norwood	12/3/97	100.7	January 1998	2000	1998-2002 update: 2003-2007	WR, H, WH	2000-2003
Orange	2/01	17.1	Fall 2001	2001	2001-2005 update: 2005-2009	WR, H, WH, RS, IS	2003
Southbridge	6/6/97	4.7	Summer 1997	2001	1998-2002 update: 2003-2007	WR, H, WH	1998, 2003
Taunton	12/15/97	35.0	Winter 1998	2000	1998-2002 update: 2003-2007	WR, H, WH, RS	2000-2003

* WR = Wetland Regrowth/Boundary; H = Hydrology; WH = Wildlife Habitat; VP = Vernal Pools; RS = Rare Species; IS = Invasive Species

** Runway 11/29 only. Remainder subject to subsequent permitting.

2.3 MONITORING PROGRAM

Following the initiation of the VMPs at each of the airports, monitoring has been performed, typically focussing upon the vegetative regrowth, especially within wetlands, the evaluation of wildlife habitat, and overall health of the wetland. Additional observations have been made relative to overall site conditions including general conditions of erosion, stream scour, and sedimentation, especially in the immediate years following the initial site work, when the greatest vegetative change occurs.

In November 2000, MAC consolidated monitoring and other ongoing activities associated with the VMP program for the public use airports under its control, issuing a 5-year contract to a single Statewide consultant. Beginning with monitoring activities in 2001, the monitoring approach was unified into a single monitoring technique and reporting format applied to each of the airports, which allowed cross comparisons and increased project efficiency. The methodology used for assessing vegetative changes was essentially the same as used to assess vegetation in wetland plots, as outlined in *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act* (DEP 1995). Staked observation locations for vegetation monitoring plots at the airports consisted of concentric circular plots ranging in size from a radius of 5 feet for groundstory vegetation to a radius of 30 feet for trees and lianas, as described in Table 3.

Table 2.3 Description of Observation Plots for Airport Monitoring Locations

Stratum	Description	Circular Plot Dimensions (radius)
Trees	Woody plants ≥ 5" dbh and 20' in height	30 feet
Lianas	Climbing woody vines	30 feet
Saplings	Woody plants ≥ 20' in height, ≥ 0.4", and ≤ 5" dbh	15 feet
Shrubs	Woody plants ≥ 3' and < 20' in height	15 feet
Groundcover	Woody plants < 3', non-climbing woody vines < 3', and non-woody plants	5 feet

Measurements of plant species abundance were recorded within each plot. Percent cover measurements were taken in groundcover, shrub, sapling, and liana strata, while basal area was used as a measurement of trees.

Wildlife habitat surveys were conducted in the vicinity of the vegetation monitoring plots, augmented by meander surveys and recognition of the varying habitats in proximity to and between the monitoring locations. The evaluation of wildlife habitat was primarily based upon the structure of the vegetative communities and food species associations. These habitat evaluations were supplemented by direct observation of wildlife and indirect observation by sign (i.e., scat, tracks, dens, nests, etc.), and auditory identification (calls, song, etc.). Specific target species (e.g., rare species known to be potentially present) were also looked for during monitoring.

A summary of the monitoring results at the individual airports is presented in Section 3.3. However, based upon the recent VMP activity, several general conclusions can be made relative to wetland impacts at Massachusetts airports. The general conclusions are based on the multiple years of wetland monitoring at each of the airports (37 aggregate years of monitoring for all airports; see Table 2). These specific results are detailed in the annual monitoring reports for each of the airports, which are submitted annually to the MAC, local airports and conservation commissions within the airport communities. These individual airport reports were then combined into a comprehensive report which is submitted annually to the MAC, MEPA and all the MEPA commenters. While some subtle, not directly observable changes cannot be ruled out, the following general observations have been made.

The most dramatic and basic change occurring under the typical VMP is axiomatic: mature and immature woodlands are transformed to herbaceous and shrub dominated systems. With this removal of the mature and immature wooded canopy, the vegetative and wildlife community is transformed, and the shrubs and herbaceous species already present in the wooded areas but repressed due to shading, rapidly begin to grow in dominance as other species begin to fill the vacant niche. Following the initial physical removal of the tree canopy, the wetland areas are kept in a state of early vegetative succession of shrubs, saplings, and herbaceous growth via routine maintenance under the Yearly Operational Plans approved in the VMPs. The shorter growing tree species, shrubs and grassland species can provide equal levels of soil stabilization, water quality protection and improved air quality. In some cases these values may be improved when converting from less dense areas of tall trees to more dense areas of shorter trees and shrubs.

Wildlife habitat of a forested community is obviously different than that of shrub, immature woodland or grassland communities. Wildlife expected to be present in managed areas are those species dependent on, or accepting and/or tolerant of the ecological niches present in such early successional vegetative complexes, characterized by dense herbaceous and shrub-sized woody species. Experience at the various airports, and in similar projects, demonstrates that some of the same mammal, avian, reptiles and amphibians present prior to cutting are able to utilize the habitat after cutting. For example, raptors such as red-tailed hawk that use the trees for nesting or perching prior to cutting, may use the modified area for hunting of exposed prey. Similarly, spotted turtle (delisted in 2006) and eastern box turtle have both been documented at airports in the same general areas, before and after tree removal. This does not mean that the habitat is equivalent. However, the alteration does not necessarily result in the elimination of all wildlife previously utilizing the area and enhances some wildlife habitats that are typically more locally rare. The Massachusetts Audubon Society indicates that airports provide most of the last refuges for grassland species in the Northeast. This important habitat type including some wetlands and buffer zone areas, can be protected, and even enlarged, by airport vegetation management efforts. Therefore, in many cases, important wildlife habitat can actually be improved by vegetation management at airports under a well designed program.

Secondary adverse impacts have been either not observed or far less dramatic:

- Wetland jurisdictional boundaries have not been observed to change as a consequence of the VMP activities.

- Incidental observations of water features at airports (e.g., streams or vernal pools) have not shown any noticable change in local hydrology, such as diminished or increased flooding boundaries in pools or increased stream scour. While there is a theoretical increase in runoff potential following tree removal due to the loss of rainfall interception by the tree canopy, this appears to be offset by the dense regrowth of the shrub layer once the light is able to reach the former forest floor. Increased stream scour and excessive erosion have not been noted following any of the VMP cutting at any of the airports. This is likely also a function of the fact that the typical VMP cutting areas surround the existing airfields. Therefore, the cutting areas are most often separated into several separate subwatersheds, thereby spreading any potential adverse impacts over multiple drainageways, lessening the potential impact in each.

- When surface water was tested at Beverly Airport and surface and well water were tested at Orange Airport, there was no detection of herbicide residuals at either airport due to localized herbicide application as part of VMP activities.

- There have been no long-term impacts on erosion or sedimentation within wetlands due to the tree cutting activity. Short term erosion during initial cutting has been controlled and restored during operations.

- Periodic maintenance of the vegetative management areas under the VMP Yearly Operational Plans (i.e., long-term maintenance plans) has not increased impacts to wetland resources, based upon annual observations of these wetlands.

- No diminishment of rare species or their habitat has been observed as part of VMP activities and some improvements to rare species habitat have been noted (e.g., eastern box turtle at Mansfield Airport; grassland birds at Beverly, New Bedford, and Orange Airports).
- Some invasive vegetation (e.g., European buckthorn, Japanese knotweed, purple loosestrife) can become more dominant following VMP activities and require active management.

Relative to the last condition, the removal of the tree canopy under a VMP can possibly create conditions that favor the expansion of invasive species into the exposed unoccupied niche, especially if such species are already living in the area. The presence of purple loosestrife and European buckthorn has been a concern at several airports. These and other invasive species are a pervasive problem throughout the northeast, and the problems witnessed at airports are not significantly different than experienced elsewhere. Solutions to such invasive species problems are elusive, and the evolving focus of the environmental

community relative to invasive species is to focus upon the newer invaders, that are not currently pandemic throughout the ecosystem. Therefore, the VMP program needs to address these concerns under new proposed VMPs at airports or under the YOP Updates. Dominance in the vegetative regrowth by invasive species limits the establishment of a broader, more desirable vegetative community of diverse native species in the VMP areas. Follow-up work under the YOPs typically includes semi-annual or annual mowing of regrowth areas or the selective use of herbicides, all of which have proved successful in limiting growth of invasive species.

2.4 MAINTENANCE & CONTINUING ACTIVITIES UNDER THE SVMP

Vegetation maintenance activities at the various airports are identified within each of the VMPs developed for the airports and are specifically listed and described within the Yearly Operations Plans (YOPs) and their subsequent updates. The YOPs list the annual activities to occur at each of the airports within the various Vegetation Management Areas (VMAs) over a five-year period. The five-year YOPs allowing the maintenance of the VMAs are approved along with the VMP activities. The initial five-year period of the YOPs is extended for an additional five years by providing a YOP Update (YOPU), and this can be extended indefinitely provided that the basic activities at the airport do not change, requiring a change in the VMP.

Currently, the YOPs have been updated for the 10 active VMPs at MAC airports and Hanscom Airport (Massport) (see Table 2.1). The second 5-Year YOPU has also been prepared and submitted for Beverly Airport.

Typical vegetation maintenance activities at airports include:

- Mowing of the primary surfaces at multiple times during the year
- Annual mowing of other near runway and taxiway surfaces
- Rough cut mowing of areas in alternate or less frequent years
- Selective tree cutting or topping of individual penetrations
- Herbicide Treatment for undesirable species (growth habitat or invasive species)

Occasionally, some major clearing of penetrations approved under the VMPs is delayed at the airports until the later years in a YOP. The reasons for this delay can be various, but include such reasons as contract logistics or financing.

YOPs also often include some longer term planning elements, such as the pursuit of off-airport easements and the acquisition of vegetation management equipment. MAC implemented an herbicide treatment program for several of the current VMP Airports. MAC has also assisted many of the Airports in the purchase of maintenance equipment (tractors, mowers), specifically to maintain previously cleared areas. Detailed summaries of the VMP and YOP programs at the various airports are given in Section 3.

2.5. NEW VMP ACTIVITIES

New VMP activities, beyond general VMA maintenance, that are anticipated over the next several years at MAC and Massport airports will occur either:

1. as part of an existing VMP; or
2. as a new VMP developed for airports that have no current or existing formal VMP.

Each of these conditions and pending projects are discussed below.

Existing VMPs: For the MAC and Massport airports with existing VMPs, pending activities to be conducted under existing VMPs at airports include three types:

1. Off-Airport Avigation Easement Acquisition for Vegetation Management;
2. New VMAs or VMA modification, requiring only minor change to the VMP; and
3. New VMAs or VMA modification, requiring major change to the VMP.

The VMPs for several of the airports identified the off-airport penetrations of vegetation into the protected air surfaces, and the YOPs were structured to indicate that off-airport avigation easements would be sought and implemented during the YOP or YOPU periods. As such, future cutting activities may occur several years after the initial vegetation cutting under the same original VMP, since the easement acquisition takes multiple years to complete. At Harriman-West Airport, the airport has been actively addressing acquisition of off-airport avigation easements under the existing VMP. Within the Town of North Adams, easements were purchased in 2000 and cutting was performed in 2001-2002, bringing the approach of Runway 11 into compliance with Part 77 surfaces. Currently, the process is being initiated in the Town of Williamstown for the Runway 29 approach. In the VMP, all of the areas of penetrations were identified and the seeking of avigation easements was an identified activity under the YOP and YOPU.

Occasionally, minor improvements at the airports result in changes and modifications to the VMAs originally approved under the VMP. These changes in the VMAs can be either minor or major, and may or may not require formal modification of the VMP and re-noticing in the Environmental Monitor. For example, in 2004, Beverly Municipal Airport and Mansfield Municipal Airport permitted some minor alterations in the runways and taxiways, which slightly altered the Part 77 surfaces. At Beverly Airport, the changes to the VMAs were identified and after conferring with MEPA, it was determined that the changes were minor enough such that the VMP did not need to be modified and re-noticed in the Environmental Monitor. However, the YOPU is being modified to reflect the minor changes. At Mansfield Municipal Airport, the modifications created similarly minor alterations in the existing VMAs, which are reflected in the current YOPU.

Changes in the VMAs or even the creation of new VMAs may result from some modification at airports. Such situations are currently under evaluation at New Bedford Airport and at Norwood Airport. In these cases, the modification of the VMP will be part

of the permitting process for the new projects. Major modifications to the VMP may require new wetland permitting, an ENF, and/or notification in the Environmental Monitor.

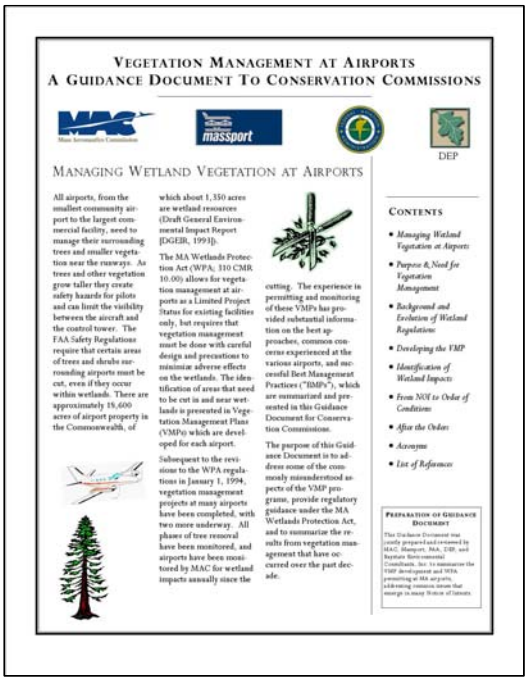
New Pending VMPs: Beyond the 11 MAC and Massport airports with existing VMPs developed since the approval of the GEIR, there are several airports with new VMPs under development or with planned airport improvements that will require changes to the existing VMPs. VMP projects are presently under development for permitting and implementation at three airports:

1. Pittsfield Municipal Airport,
2. Westfield-Barnes Municipal Airport,
3. Stow Minute Man Airport, and
4. Worcester Airport.

Details on each of these pending projects is summarized and presented in Chapter 3. At Pittsfield Airport, the VMP is being co-developed with the proposal for a new runway. Because of the new runway and associated wetland and rare species impacts, the VMP was also submitted as part of a MEPA ENF/EIR (EOEA # 12480). At Stow-Minuteman Airport, the VMP process is for the existing runway conditions and not associated with any proposed improvements or alterations. An Order of Conditions has been issued for one of the two Towns with clearing for Stow-Minuteman. At Westfield-Barnes, the proposed reconstruction of the cross-wind runway will require some relocation of the runway in order to minimize environmental impacts to wetlands and rare species. Therefore, there will be some displacement of the protected surfaces. A formal VMP does not currently exist at Barnes, and the VMP will be developed in association with the runway reconstruction.

2.6 INTERAGENCY VMP GUIDANCE DOCUMENT

In its submission of the 1999 GEIR Update, MAC and Massport volunteered to work with DEP to develop an interagency guidance document for Conservation Commissions to describe the VMP process, and address some of the complex and confusing issues which seemed to re-emerge frequently during the local permitting process. MEPA agreed with this concept and the Secretary's Certificate on the GENF/GEIR in 2000 required that the Guidance Document be developed jointly with DEP. Starting in 2000, MAC hired an outside consultant to facilitate the process. MAC, Massport, FAA and DEP began meeting on the Guidance Document during late 2001, and multiple draft documents were reviewed and discussed. The final Guidance Document was approved by all of the agencies in early 2004, and it was released and distributed that year. Copies were distributed broadly throughout the government, including each branch office of DEP and all Conservation Commissions with airports within their communities, as well as several public interest groups. The document was noticed in the environmental monitor and posted on the MAC website (www.massaeronautics.org).



VEGETATION MANAGEMENT AT AIRPORTS
A GUIDANCE DOCUMENT TO CONSERVATION COMMISSIONS

massport

DEP

MANAGING WETLAND VEGETATION AT AIRPORTS

All airports, from the smallest community airport to the largest commercial facility, need to manage their surrounding trees and smaller vegetation near the runways. As trees and other vegetation grow taller they create safety hazards for pilots and can limit the visibility between the aircraft and the control tower. The FAA Safety Regulations require that certain areas of trees and shrubs surrounding airports must be cut, even if they occur within wetlands. There are approximately 19,600 acres of airport property in the Commonwealth, of which about 1,350 acres are wetland resources (Draft General Environmental Impact Report [DGEIR, 1993]).

The MA Wetlands Protection Act (WPA; 310 CMR 10.00) allows for vegetation management at airports as a Limited Project Status for existing facilities only, but requires that vegetation management must be done with careful design and precautions to minimize adverse effects on the wetlands. The identification of areas that need to be cut in and near wetlands is presented in Vegetation Management Plans (VMPs) which are developed for each airport.

Subsequent to the revisions to the WPA regulations in January 1, 1994, vegetation management projects at many airports have been completed, with two more underway. All phases of tree removal have been monitored, and airports have been monitored by MAC for wetland impacts annually since the cutting. The experience in permitting and monitoring of these VMPs has provided substantial information on the best approaches, common concerns experienced at the various airports, and successful Best Management Practices ("BMPs"), which are summarized and presented in this Guidance Document for Conservation Commissions.

The purpose of this Guidance Document is to address some of the commonly misunderstood aspects of the VMP programs, provide regulatory guidance under the MA Wetlands Protection Act, and to summarize the results from vegetation management that have occurred over the past decade.

CONTENTS

- *Managing Wetland Vegetation at Airports*
- *Purpose & Need for Vegetation Management*
- *Background and Evolution of Wetland Regulations*
- *Developing the VMP*
- *Identification of Wetland Impacts*
- *From NOI to Order of Conditions*
- *After the Order*
- *Acronyms*
- *List of References*

PREPARATION OF GUIDANCE DOCUMENT

The primary purpose of the interagency Guidance Document was to clarify issues that have arisen in the earlier vegetation management projects at airports, and help Commissions understand the permitting process for these unusually, large-scale projects in wetlands. The document was deliberately created in a newsletter-type format to make it readily comprehensible and user-friendly.

The Guidance Document specifically

- reviews the history and background of vegetation management at airports,
- purpose and need for airport vegetation management,
- the contents of the typical VMP,
- typical wetland impacts associated with VMP implementation,
- the results from monitoring VMPs activities at 11 airports over the past 10 years,
- the regulatory process for VMPs, and
- the continuation of VMP maintenance activities at airports under the permits.

Finally, and perhaps most importantly, the document addresses some of the commonly misunderstood aspects of the VMP programs and provides regulatory guidance under the MA Wetlands Protection Act. As an interagency document, which includes DEP as co-author, the Guidance Document offers the Conservation Commissions confidence in the information presented and in the regulatory guidance.

3.0 INDIVIDUAL AIRPORT SUMMARIES OF ACTIVITIES AND ISSUES

3.1 OVERVIEW

The conduct of Vegetation Management Programs at the various airports has been deliberate and methodical due to the extensive planning process required to create each individual VMP and limited funding availability. Following the MEPA GEIR for vegetation management at airports and the implementation of the ensuing regulatory changes, MAC initiated the Statewide Vegetation Management Program in 1994 by prioritizing airports for VMPs based upon aerial photogrammetric mapping and obstruction analyses for airports with the greatest threat of vegetative penetrations into protected airspace. MAC implemented vegetation control for the subject airports in three groups. In 1994, MAC initiated VMPs at 5 priority airports, followed by two additional groups of priority airports. As of the 1999 submitted GENF Update to the GEIR, VMPs had been implemented at seven MAC airports, with additional activities anticipated at several others (Table 3.1). Massport had also completed its vegetation maintenance program for runways 11/29 at Hanscom (Bedford, Concord, Lexington) in 1995.

Table 3.1 Status Summary of VMP Projects as of 2006

AIRPORT NAME	VMP COMPLETED	PERMITS OBTAINED	TREE REMOVAL COMPLETE	FOLLOW UP MAINTENANCE ONGOING
Beverly	✓	✓	✓	✓
Hanscom	✓	✓	✓	✓
Marshfield	✓	✓	✓	✓
New Bedford	✓	✓	✓	✓
North Adams	✓	✓	✓	✓
Norwood	✓	✓	✓	✓
Southbridge	✓	✓	✓	✓
Taunton	✓	✓	✓	✓
Fitchburg	✓	✓	✓	✓
Lawrence	✓	✓		
Mansfield	✓	✓	✓	✓
Orange	✓	✓	✓	✓

Since that time, the SVMP program has continued at each of the original VMP airports to maintain the protected airspace. Pending VMP projects at Fitchburg, Mansfield, and Orange Airports have also been completed, and these airports have moved into the maintenance phases of VMP work (Table 3.2). Permits are presently complete at Lawrence Airport and initial clearing work is anticipated in August 2006. MAC continues to lead the Statewide Vegetation Management Program (SVMP) at the public use airports under its jurisdiction, providing overall guidance and assistance for the individual airports to pursue.

Table 3.2 Status Summary of VMPs at Airport as of June 2006.

Airport Name	Date Permit issued	Area (Ac) of Wetlands Managed	VMP Start-up	Monitoring Start-up	Current and Prior YOP Period	Issues*	Follow-up Herbicide Application
Beverly Beverly Wenham Danvers	4/15/97 3/13/97 2/11/97	52.2	February 1998	1998	1997-2001 updates: 2001-2005 2006-2010	WR, H, WH, IS	1999, 2001-2003
Fitchburg	12/7/99	14	Fall 2000	2001	2000–2004 update: 2005-2009	WR, H, WH, VP, IS	2001-2003
Hanscom Bedford Lexington Concord Lincoln	3/03 10/7/02 9/16/02 9/18/02	17.4**	January 2004	2005	2004-2008	WR, H, WH, VP, RS, IS	2005(-2006)
Lawrence	3/8/06	23.9	anticipated startup August 2006	NA	NA	WR, H, WH, VP, RS, IS	NA
Mansfield Mansfield Norton	1/12/00 1/11/00	13.7	Summer 2000	2000	2000-2004 update: 2005-2009	WR, H, WH	2002
Marshfield	12/31/96	74.5	Winter 1997	1997	1998-2002 update: 2003-2007	WR, H, WH, IS	2001-2003
New Bedford New Bedford Dartmouth	5/14/97 4/30/97	177.5	March 1998	2000	1998-2002 update: 2003-2007	WR, H, WH, VP, RS, IS	1999, 2001-2003
North Adams North Adams Williamstown	1/8/98 1/15/98	36.0	January 1998	2001	1998-2002 update: 2003-2007	WR, H, WH, RS	2002
Norwood	12/3/97	100.7	January 1998	2000	1998-2002 update: 2003-2007	WR, H, WH	2000-2003
Orange	2/01	17.1	Fall 2001	2001	2001-2005 update: 2005-2009	WR, H, WH, RS, IS	2003
Southbridge	6/6/97	4.7	Summer 1997	2001	1998-2002 update: 2003-2007	WR, H, WH	1998, 2003
Taunton	12/15/97	35.0	Winter 1998	2000	1998-2002 update: 2003-2007	WR, H, WH, RS	2000-2003

* WR = Wetland Regrowth/Boundary; H = Hydrology; WH = Wildlife Habitat;
VP = Vernal Pools; RS = Rare Species; IS = Invasive Species

** Runway 11/29 only. Remainder subject to subsequent permitting.

The original GEIR estimated the potential need for vegetation management in wetlands. The detailed preparation of the VMPs refined these estimates to actual impacts. The original estimate and actual impacts are compared in Table 3.3. The results show an overall decrease of almost 300 acres (33% reduction) between the original estimate and the actual impacts.

Table 3.3. Comparison of 1993 GEIR Estimates and Actual Wetland Areas Affected

Airport Name	1993 GEIR Estimate of Required Vegetation Management in Wetlands (acres)	Actual Required Vegetation Management in Wetlands (acres)	Percent Difference
Beverly	100.0	52.5	-47%
Fitchburg	4.0	14.0	+350%
Hanscom	166.0	17.4*	-90%
Lawrence	12.5	23.9	+91.2
Mansfield	42.0	13.7	-67.4
Marshfield	138.0	74.5	-46%
New Bedford	270.1	177.5	-34%
North Adams	1.4	36	+2471%
Norwood	61.1	100.7	+35%
Orange	11.5	17.1	+48.7%
Southbridge	8.6	4.7	-45%
Taunton	27.0	35.0	+30%
Totals	**842.2**	**567.0**	**-32.7%**

* Runway 11/29 only

3.2 STATUS UPDATE OF EXISTING VMPS AT INDIVIDUAL AIRPORTS

3.2.1 Overview

Vegetation Management Plans have been developed and supported at MAC and Massport airports, which include:

- Beverly Airport
- Fitchburg Airport
- Hanscom Airport
- Lawrence Airport
- Mansfield Airport
- Marshfield Airport
- New Bedford Airport
- North Adams (Harriman-West) Airport
- Norwood Airport
- Orange Airport
- Southbridge Airport
- Taunton Airport

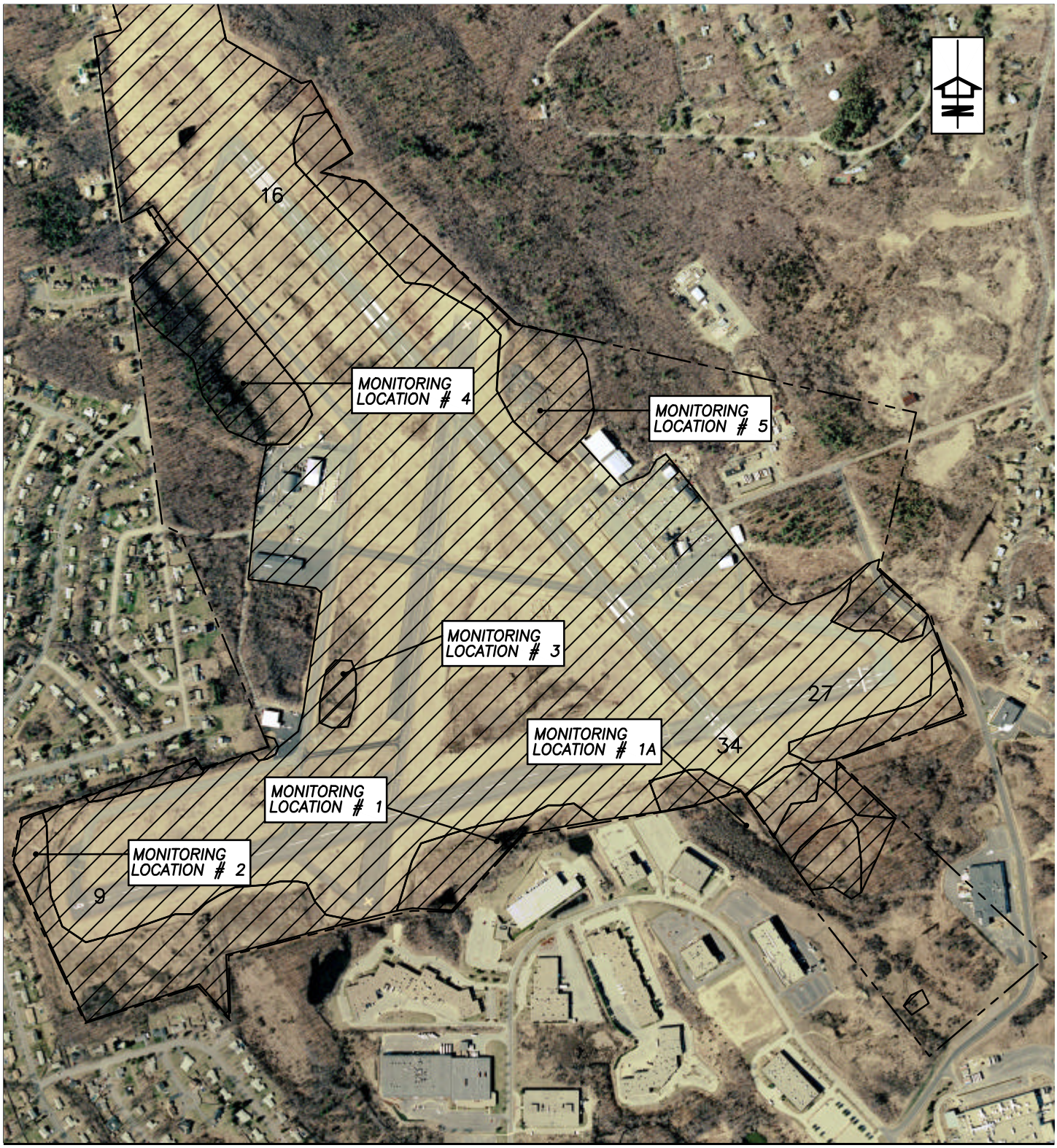
The ongoing VMP efforts at each of these airports is presented and summarized below relative to:

1. the past VMP activities,
2. the ongoing maintenance and other activities conducted under the Yearly Operational Plan and their updates (YOPs and YOPUs),
3. the monitoring results at the airports, and
4. any projected changes or modifications to the VMP activities.

3.2.2 Beverly Municipal Airport

General Description: Beverly Municipal Airport lies within three communities (Beverly, Wenham, and Danvers). The airfield has two paved runways: Runway 9-27 is 5001 feet long and 150 feet wide and Runway 16-34 is a non-precision instrument runway, 4634 feet long and 100 feet wide (Figure 3-1). The airfield also includes 6 taxiways and 2 aprons. The airport can accommodate single and multi-engine aircraft, as well as corporate jets and helicopters. A control tower operates generally during daylight hours. The runways and approach lighting system are equipped with pilot activated radio transmitter when the control tower is closed.

This 425-acre airport facility contains 52.5 acres of wetland resource area within vegetation management areas. Delineated vegetative community types identified in the original 1997 VMP include forested wetland, sapling wetland, shrub wetland, mixed upland forest, upland sapling forest, upland shrub, and open field. No protected species



VEGETATION MANAGEMENT AREA

AIRPORT PROPERTY BOUNDARY

BEC

TITLE: VEGETATION MANAGEMENT AREAS (VMAs), AIRPORT PROPERTY BOUNDARY, AND MONITORING LOCATIONS

BEVERLY MUNICIPAL AIRPORT
BEVERLY, MASSACHUSETTS

DIGITAL ORTHOPHOTO IMAGES PROVIDED BY MASS GIS

SCALE: 1" = 800'

3 – 1

PROJECT 04–0713

have been identified by the NHESP or the US Fish and Wildlife Service (USFWS). Biologists have not reported any such species during monitoring events conducted annually since the implementation of the VMP.

VMP Permitting and Initial Implementation: VMP permitting required local wetland permits from three municipalities. As reviewed in the 1999 GENF/GEIR Update, all permits were received in 1997. The initial permitting involved appeal of the Orders of Conditions issued by Beverly and Wenham by MAC, which were subsequently withdrawn with matters resolved locally with the Conservation Commissions. The initial vegetation removal was initiated in February 1998. While there was some controversy during the initial implementation of the VMP, with neighbors feeling they had not been properly informed of the extent of vegetation removal, after additional meetings with abutters and hearings with the Danvers Conservation Commission, initial vegetation removal was modified and completed in fall of 1998. The 2000 Certificate of the Secretary mentions some concerns relative to wetlands impacts associated with the VMP implementation (See Appendices B & C., 2000 Secretary's Certificate, and Response to Comments on GENF/GEIR Update). However, all of these issues were addressed early in 2001, and all subsequent VMP activities appear to have occurred without a continuation of misunderstanding or controversies.

Continuing YOP Activities: The existing annual maintenance program of mowing the primary surfaces was incorporated into the integrated vegetation management plan for the airport and continues to occur. Additionally, spot herbicide treatment of stump sprouts, potential penetrations, and invasive species was conducted in 1999 and 2001. In 2001, the effectiveness of the original VMP was reviewed and an updated 5-year YOP was submitted to the three Conservation Commissions, which was accepted without any expressed concerns. The VMAs maintained under VMP-YOP were consolidated into 8 overall maintenance areas where the maintenance treatment was expected to be relatively uniform. Based on the YOP Update and review, additional spot herbicide treatments were applied in 2002 and 2003. A new YOP Update was prepared and submitted for the next five-year period to direct VMP activities for the period 2006-2010.

Healthy early successional community in the vicinity of a monitoring plot at Beverly Airport. (Summer 2004)

Table 3.4. History of VMP-Related Activities at Beverly Airport, 1995 to 2005			
Category	**Activity**	**Description of Activities**	**Date**
Permitting	Vegetation Management Plan	Establish Vegetation Management Areas (VMAs) and Techniques for Removal and Maintenance under Yearly Operational Plan (YOP). Noticed in Environmental Monitor.	8/1995
	Wetlands Protection Act, Order of Conditions for VMP	Notice of Intent submitted for VMP for work in wetlands and/or buffer zone approved for 3 towns within airport	4/15/97 (Beverly) 3/13/97 (Wenham) 2/11/97 (Danvers)
	YOP Update	Update of 5 YOP and Plans submitted to Conservation Commissions	5/11/01 for period 2001-2005
	WPA Order of Conditions Issued. Coordination with MEPA on VMP modification	Approval to extend RW 34 and slightly shift VMAs. Modification to YOPU referred to MEPA. No additional MEPA documentation required.	Summer 2004
	YOP Update	Second update of 5 YOPU	February 2005 for period 2006 to 2010
Construction	VMP Implementation	Cut and chip, selective logging, selective tree topping, drop and mow in all airport VMAs	February 1998 to November 1998
Maintenance	Primary Surface	Maintenance mowing	annually
	VMAs	Follow-up herbicide treatment for stump sprouts and invasive species	1999
	VMAs	Selective herbicide treatment of invasive species and potential penetrations	2001-2003
Monitoring	VMAs	Monitoring of regrowth, impacts and wildlife habitat in VMAs	1998 - 2004

Results of Monitoring: A summary of the results of the VMP implementation within selected wetland monitoring plots is presented in Table 3.5. The results of the 1998 vegetation removal activity in and near wetland areas have been monitored annually since 2000, to record the effects of the VMP activities on vegetation structure, composition and wildlife habitat. The results of this effort have been reported in annual monitoring reports to the local Conservation Commissions as well as in the annual MEPA Status Reports. No adverse effects on wetland resources have been noted and the continuing presence of viable wetlands wildlife habitat has been documented.

Table 3.5. Summary of Beverly Municipal Airport VMP Monitoring				
Location	**Plot**	**Pre-VMP Plant Community**	**Original Treatment**	**Current Conditions**
Beverly	Plot 1A	Red Maple Forested Wetland	Logging	Continued steady increase in groundcover species and reduction of invasive glossy buckthorn.
	Plot 5	Shrub Dominant Wetland	Mowing	100% vegetation cover with a steady increase in native species diversity.
Danvers	Plot 1	Red Maple Forested Wetland	Logging	Continued steady increase in groundcover species, with some re-establishment of shrub layer (20%).
	Plot 2	Mixed Deciduous Forested Wetland	Drop & Mow	Buckthorn and other shrub reduction due to herbicide treatment. Species diversity decreased slightly.
	Plot 3	Shrub Dominant Wetland	Mowing	100% vegetation cover with a reduction of groundcover species and slight increase in shrub layer.
	Plot 4	Forested Wetland	Logging	100% vegetation cover. Herbicide treatments appear to be controlling growth of invasive and tree species.
Wenham	VMA	Upland Forest	Selective Logging	Steady increase in vegetative cover; revegetation exceeds 100%.

Monitoring plots located in Beverly continue to show stable vegetation regrowth with 100 percent coverage. The percentage of vegetative regrowth has continued to increase over the past many growing seasons. Some shrub layers have been colonized by the invasive species glossy buckthorn, although there has been some control effected by herbicide treatment. The groundcover is dominated by brambles which have increased in overall vegetative cover to 100 percent. Other sub-dominant species include common cinquefoil, whorled loosestrife and goldenrod species.

Lush herbaceous and shrub regrowth at Beverly Airport (2001)

Recent and Projected Activities Affecting the VMP: In 2004, Beverly Municipal Airport went through the permitting process relative to some proposed improvements to the airport and Runway 34 and related work. As a result, 6.2± acres of additional VMP area was added to the 97.8± vegetation management areas previously covered by the 1997 VMP. This was an increase of the total VMP area by about 6%. The proposed cutting methodology within this area was the same methodology as in the original 1997 VMP. The proposed work was reviewed by the Beverly Conservation Commission, and an Order of Conditions was granted for the work during 2004. MEPA reviewed the proposed minor changes to the

total VMP and determined that the alternations did not require the development of a new VMP and noticing in the Environmental Monitor.

Future anticipated work at Beverly Municipal Airport may include the modification of Runway 9/27. Additional alteration of the VMAs and the VMP may be required at that time and will potentially be subject to additional permitting and MEPA review.

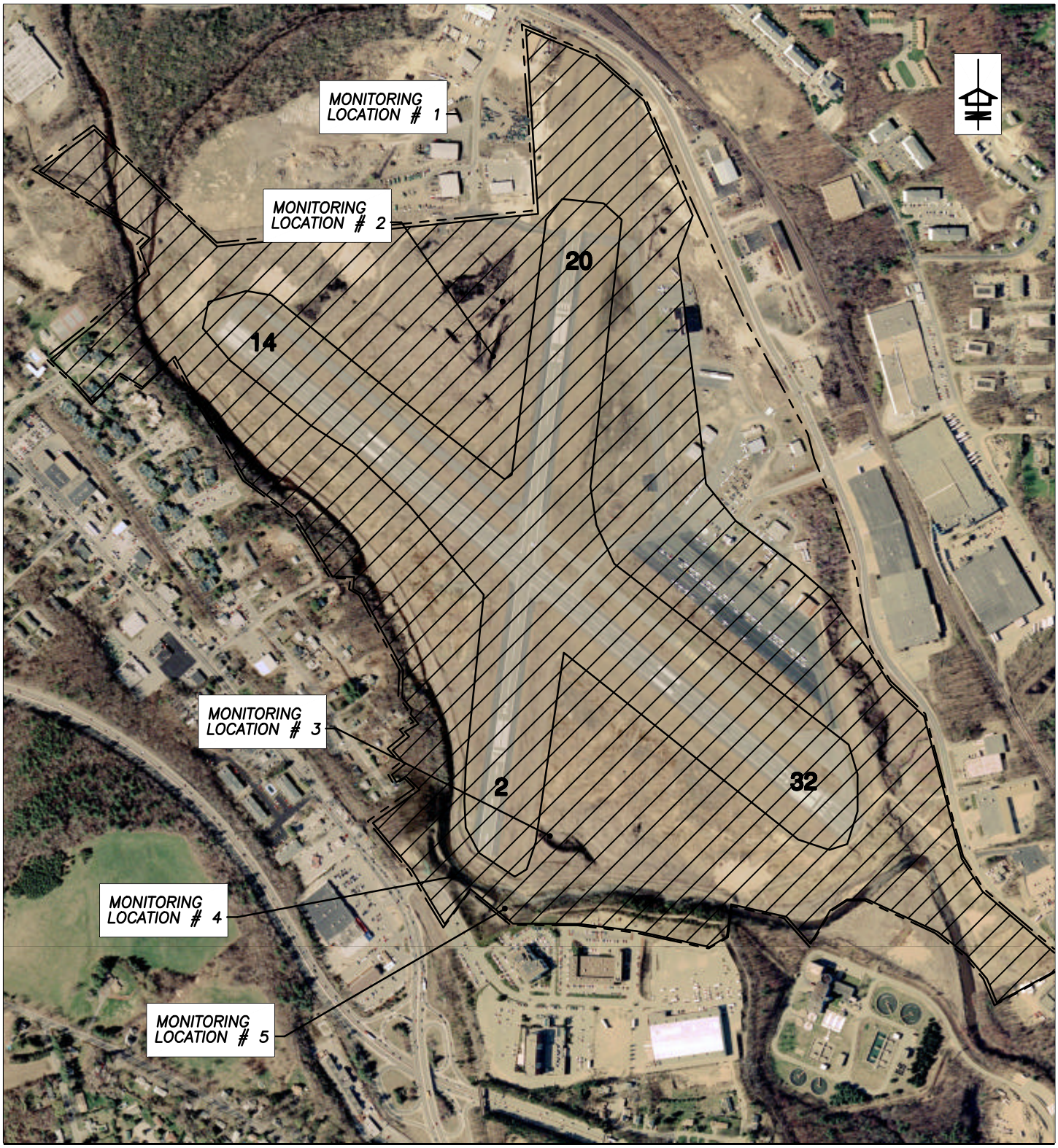
3.2.3 Fitchburg Municipal Airport

General Description: Fitchburg Municipal Airport is a 304 acre site located in the extreme southeastern portion of the City of Fitchburg, north of the Route 2 corridor in northern Worcester County, between Routes 12 and 13. The Fitchburg Airport operates two runways. Runway 14/32 is 4500 feet long, and Runway 2/20 is 3500 feet long, both of which are suitable for corporate jet use.

This airport contains approximately 22 acres of regulated wetland resource. According to the NHESP and the USFWS, no Threatened or Endangered plants or animals or Exemplary Communities are located in the project area. No certified vernal pool habitats are recorded on airport property although obligate and facultative vernal pool species including wood frogs, fairy shrimp, and spring peepers were found in wetland areas located in the western portion of the airport. Other local sensitive resources including agricultural land, hazardous materials sites, public parks and open space, and floodplains are located in the vicinity of the airport. Delineated vegetative community types identified in the VMP include forested wetland, scrub/shrub wetland, wooded upland, and scrub/shrub upland.

VMP Permitting and Initial VMP Implementation: VMP planning and permitting activities were completed in 2000, and the initial vegetation removal was completed in that year as well (Figure 3-2; Table 3.6). Annual monitoring of the airport's VMAs was also initiated in 2000, to record the effects of the VMP activities on vegetation structure, composition and wildlife habitat.

Continuing YOP Activities: As per the Order of Conditions and the YOPs outlined in the VMP, maintenance and monitoring of vegetation removal areas has been conducted since VMP implementation in January 2000. The existing annual maintenance program of mowing the primary surfaces was incorporated into the integrated vegetation management plan in 2000. Spot herbicide treatments of stump sprouts, and tree species that have the potential of developing into future penetrations were conducted in 2002 and 2003. The invasive species Japanese knotweed has also been a treated with herbicide at Fitchburg Airport in these years. These treatments targeted dense stands of Japanese knotweed located along the Nashua River corridor (see photo on a following page). Although Japanese knotweed is not likely to be a penetration, it is managed due to its invasive nature. All herbicide treatments were applied by a licensed applicator.



VEGETATION MANAGEMENT AREA

AIRPORT PROPERTY BOUNDARY

BEC

TITLE: VEGETATION MANAGEMENT AREAS (VMAs) AND AIRPORT PROPERTY BOUNDARY, AND MONITORING LOCATIONS

FITCHBURG MUNICIPAL AIRPORT
FITCHBURG, MASSACHUSETTS

DIGITAL ORTHOPHOTO IMAGES PROVIDED BY MASS GIS

SCALE: 1" = 800'

3-2

PROJECT 04-0713

Table 3.6. History of VMP-Related Activities at Fitchburg Municipal Airport, 2000 to 2005			
Category	**Activity**	**Description of Activities**	**Date**
Permitting	Vegetation Management Plan	Establish Vegetation Management Areas (VMAs) and Techniques for Removal and Maintenance under Yearly Operational Plan (YOP). Noticed in Environmental Monitor.	4/6/00
	Wetlands Protection Act, Order of Conditions for VMP	Notice of Intent submitted for VMP for work in wetlands and/or buffer zone approved	12/7/99
	YOP Update	Update of 5 –year YOP and Plans submitted to Conservation Commissions	February 2005 for period 2005 to 2009
Construction	VMP Implementation	Cut and chip, hand cutting with aerial removal, rough cutting and mow in all VMAs	Fall 2000
Maintenance	Primary surface	Maintenance	Annual
	VMAs	Cutting follow-up herbicide treatment	2001
	VMAs	Selective herbicide treatment of invasive species (Japanese knotweed on Nashua River) and potential penetrations	2002 - 2003
Monitoring	VMAs	Baseline monitoring wetlands and wildlife habitat in VMAs	2000
	VMAs	Monitoring of regrowth, impacts and wildlife habitat in VMAs	2001 - 2004

Japanese knotweed in the Nashua River corridor at Fitchburg Airport (2004).

This year (2004) was the last year of the current YOP. The effectiveness of this VMP was reviewed in 2004, and an updated YOP has been developed for the period of 2005 to 2009. A YOP Update for 2005-2009 has been prepared and submitted, indicating a general continuance of the mowing and other maintenance activities for the airport.

Results of Monitoring: A summary of the results of the VMP implementation within selected wetland monitoring plots is presented in Table 3.7. The results of the year 2000 vegetation removal activity in and near wetland areas have been monitored annually since the initial cutting, to record the effects of the VMP activities on vegetation structure, composition and wildlife habitat. The results of this effort have been reported in annual monitoring reports to the local Conservation Commissions as well as in the annual MEPA Status Reports. In general, there has been no loss of wetland resources and the continuing presence of viable wetlands wildlife habitat has been documented.

Prior to VMP implementation, forested plots were occupied by a closed canopy of red maple, big-tooth aspen, red oak, and black cherry. The shrub layers (65 percent coverage) included meadowsweet, silky dogwood, arrowwood, highbush blueberry, speckled alder, honeysuckle, buttonbush, and winterberry. The groundcover included sensitive fern, cinnamon fern, marsh fern, bracken fern, sarsparilla, wintergreen, goldenrod, burreed, water hemlock, yellow loosestrife, and aster. Invasive species found on-site include glossy buckthorn, European buckthorn, Asiatic bittersweet, Japanese knotweed, Japanese barberry, and Tartarian honeysuckle. Of these species, Japanese knotweed occurred in monotypic stands providing abundant seed stock in the soils, which has resulted in rapid regrowth of this species. Treatment by herbicides has helped moderate the spread of this species, but the extensive seed stock and other extensive local populations in the immediate area will likely continue to create a problem. The vegetative communities are rapidly succeeding into a scrub/shrub wetland community should also help moderate the dominance of this species, although herbicide treatment has slowed this transition somewhat.

Table 3.7. Summary of Fitchburg Municipal Airport VMP Monitoring

Transect	Plant Community	Treatment	Current Conditions
Transect 1 Plot 1B	Forested/Scrub/Shrub Wetland	Hand Cut and Aerial Removal/ Mechanized Shear	Herbaceous/Scrub/Shrub Wetland
Transect 2 Plots 2B & 2D	Forested/Scrub/Shrub Wetland	Hand Cut and Aerial Removal/ Mechanized Shear	Herbaceous/Scrub/Shrub Wetland
Transect 3 Plot 3A	Forested/Scrub/Shrub Riparian Wetland, isolated oxbow scar of Nashua River	Hand Cut and Aerial Removal/ Mechanized Shear	Herbaceous/Scrub/Shrub Wetland
Transect 4 Plot 4B	Wooded Riparian Wetland of Nashua River	Hand Cut and Aerial Removal/ Tracked Shear/Mowing	Herbaceous/Scrub/Shrub Wetland and Grassy Upland
Transect 5 Plot 5B	Wooded Riparian Wetland of Nashua River	Cutting/Mowing	Herbaceous/Scrub/Shrub Wetland and Grassy Upland

Isolated Wetland at Fitchburg Airport

Recent and Projected Activities Affecting the VMP: Alternatives for runway and taxiway improvements at Fitchburg Municipal Airport are currently being considered, seeking to best comply with FAA safety standards for the distance between runways and parallel taxiways, and standard Runway Safety Areas (RSAs) and Part 77 surfaces. Since, the existing VMP pertains mainly to on-airport clearing and maintenance with some small off-airport avigation easement areas, and virtually the entire airport lands are currently included within the areas of vegetation management, there is unlikely to be any significant modification required to the VMP. Therefore, vegetation management on-site is likely to remain unchanged.

Relative to off-airport penetrations, the airport is located in a depression, and as a result there are many off-airport obstructions of the Part 77 surfaces. The VMP currently recommends contacting surrounding off-airport owners for selective clearing if necessary and/or seeking easements. This plan is sufficient for off-airport work regardless of the obstruction analysis. For most of the proposed alternatives that alter the positions of the Part 77 surfaces, a new obstruction analysis will be required to assess the need to establish new off-airport vegetation management areas.

3.2.4 Laurence G. Hanscom Field

General Description: L.G. Hanscom Field is owned and operated by the Massachusetts Port Authority (Massport). The facility comprises approximately 1,300 acres of land north of Route 2A and west of Route 128 located in Bedford, Concord, Lexington and Lincoln (Figure 3-3). Topographically, the airport is located within a broad, level plain with intermittent low hills to the south and east. The airport consists of two paved runways.

Runway 11-29 is 7,001 feet long and 150 feet wide, and Runway 5-23 is 5106 feet long and 150 feet wide. South of the airport, and entirely outside of the project limits, is Minute Man National Historical Park.

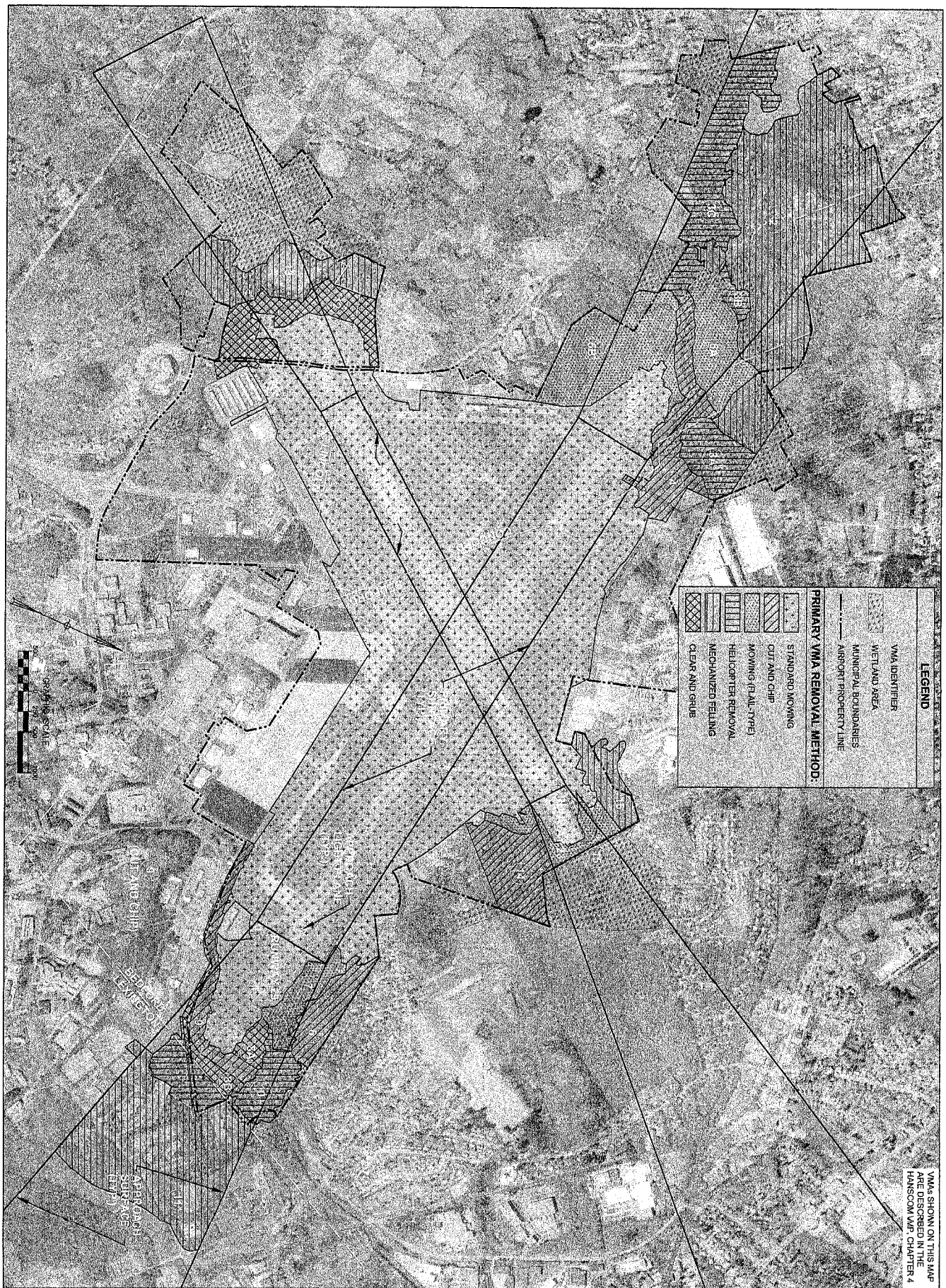
VMP Permitting and Initial VMP Implementation: Massport conducted vegetation management activities for runways 11/29 in 1994, performed an upland prescribed burn for runway 11 in April 1998, and submitted wetland delineation maps to the Conservation Commissions in late 1998. Based on an aerial photogrammetry study of 1999, a detailed VMP was developed for Hanscom Field for at each of the four runway ends. Approximately 123 acres of penetrations were identified as part of the obstruction analysis.

In October of 2001 an Abbreviated Notice of Resource Area Delineation (ANRAD) for the verification of the limit of bordering vegetated wetland at Hanscom Field was submitted to the four towns. After numerous site visits and meetings the wetlands delineation was approved before the submittal of the final VMP in March 2002. The VMP process included a Draft and Final VMP as well as numerous public meetings.

The permitting phase of the L.G. Hanscom Field Vegetation Management Plan (VMP) was completed in 2003 by Massport. It involved the filing of Notices of Intent under the Massachusetts Wetlands Protection Act in four municipalities; Bedford, Concord, Lexington and Lincoln. Orders of Conditions were successfully obtained in all four towns. The 5-year VMP involved approximately 135 acres of obstructions, to be initially cleared using various techniques including clear/grub, selective removal, logging, cut/chip and helicopter removal. The helicopter removal was modified to topping/girdling during the clearing phase. The project was bid in November 2003 and initiated in January 2004. The initial clearing phase was completed in March 2004. Follow-up seeding of staging areas and the clear/grub zones was completed in the spring of 2004.

Continuing YOP Activities: The VMP is now in the maintenance phase which will extend through 2008. Massport has recently completed a bid process to address the first two years of maintenance that will include up to 70 acres of herbicide application, and up to 32 acres of maintenance cut/chip and flail mowing. Mowing of the clear/grub areas was completed in late-summer 2004, and will proceed according to an established schedule from now on. Portions of the mowing schedule address the protection of grassland birds that are known to occur on the property. The herbicide application and additional clearing work is to be completed from June through September in both 2005 and 2006. Based on the success of the initial maintenance contract, Massport may issue a new contract to address the final two years of this VMP.

Results of Monitoring: Post-clearing vegetation monitoring, streamflow monitoring, and invasive species monitoring has been completed for the second year. Wetland shrubs (400) were planted in fall 2005 as mitigation for potential wetland impacts.



DI	Sheet 1 of 1	Project No. 8100010 Proj. Manager SGL Proj. Designer RPC Drawn By BVD Checked By SGL Scale Approved DCD Date 01-16-02	3-3	HANSCOM FIELD VEGETATION MANAGEMENT PLAN VEGETATION MANAGEMENT AREA (VMA) MAP BEDFORD MASSACHUSETTS	1 Rev.	2001 WETLAND DELINEATION ADDED Description	SGL By / 10/19/01 Date

Dufresne-Henry
Portland, Maine
Tel. (207) 775-5401 • FAX (207) 775-4434
www.dufresne-henry.com

Recent and Projected Activities Affecting the VMP: Hanscom is in the MEPA process for Runway Safety Areas improvements. No runway alteration is proposed, and there will be no shift to the Part 77 surfaces on the airport.

3.2.5 Lawrence Municipal Airport

General Description: Lawrence Airport is a 520-acre facility located in the northern portion of the Town of North Andover along the Interstate 495 corridor adjacent to the Merrimack River (Figure 3-4). Lawrence Municipal Airport can accommodate a full range of aircraft, from single and multi-engine planes to smaller jets and helicopters. The airport currently has over 200 based aircraft. The main runway, 5/23, is 5000 feet long and 150 feet wide with an Instrument Landing System available. The secondary runway, 14/32, is 3900 feet long and 100 feet wide. The control tower operates between the hours of 7:00 AM and 10:00 PM with pilot controlled lighting available at all hours.

According to NHESP, the Blanding's turtle, a Threatened species, occurred in the vicinity of the project area. Subsequent, more detailed study of this habitat area for the Blanding's turtle failed to show a local population and resulted in this area being removed from the NHESP atlas. Other environmental constraints found in the vicinity of the project area include historical and archaeological resources and steep slopes.

VMP Permitting and Initial VMP Implementation: A small portion of the needed vegetation removal was completed at Lawrence in 1997, limited to the removal of trees that were obscuring the air traffic control tower's line-of-sight of certain runways and taxiways. Due to the emergency nature of this issue, the North Andover Conservation Commission granted approval with an Emergency Certification, as allowed in the wetland regulations, with the understanding that the full VMP submission would follow. Upon full VMP review in 1999, the entire 520-acre facility was determined to contain approximately 103.5 acres of vegetation requiring to removal under the VMP program, including 24.7 acres of wetland resource areas.

Lawrence Airport originally developed its VMP in 1999, and the permitting process was initiated. The North Andover Conservation Commission originally issued an Order of Conditions for VMP activities in 2000. MAC and the Lawrence Airport appealed the Order to DEP NERO due to conflicts that would have severely limited the implementation of the necessary VMP program. DEP NERO issued a Superseding Order of Conditions in the fall of 2002, and the Town of North Andover subsequently appealed to DEP for an adjudicatory hearing. The Town's appeal was recently withdrawn (2004). Due to this lengthy process, and the change in vegetation heights between 1999 and 2005, a new obstruction analysis and VMP was developed. A new final Order of Conditions was issued in March 2006, and implementation of the VMP is scheduled to begin in August 2006.

VEGETATION MANAGEMENT AREA

AIRPORT PROPERTY BOUNDARY

BEC

TITLE: VEGETATION MANAGEMENT AREAS (VMAs) AND AIRPORT PROPERTY BOUNDARY

LAWRENCE MUNICIPAL AIRPORT
NORTH ANDOVER, MASSACHUSETTS

DIGITAL ORTHOPHOTO IMAGES PROVIDED BY MASS GIS

SCALE: 1" = 500'

3 – 4

PROJECT 04–0713

3.2.6 Mansfield Municipal Airport

General Description: Mansfield Municipal Airport is located just northeast of Interstate 495 in the Towns of Mansfield and Norton (Figure 3-5). The airfield has two runways. The primary runway, Runway 14/32 is 3498 feet long, 75 feet wide and paved. The second runway, 4/22, is a 2200 foot long turf strip and is 100 feet wide. There is a VASI on Runway 32 and pilot controlled lighting for after hour operations.

Approximately 47 of the total 252 acres within the airport footprint contain wetland resource areas. Back Bay Brook, an important tributary to the Norton Reservoir, is located near the end of the Runway in Mansfield. Delineated vegetative community types identified in the VMP include red maple swamp, scrub/shrub swamp, wet meadow, wooded upland, and open upland field. These vegetative community types were used to develop a series of VMAs with various removal techniques, forming an integrated vegetation management program utilizing mechanized, manual, and chemical controls.

In 2003, NHESP established the presence of habitat for spotted turtle, a species of special concern delisted in 2006, at the Runway 32 end in the Town of Norton, with the siting observed off airport property. In addition, NHESP established that there was habitat for eastern box turtle in the general vicinity. Investigation by the VMP consultant revealed the presence of two potential vernal pools located in areas interspersed with red maple swamp habitats to the east of Runway 32.

VMP Permitting and Initial VMP Implementation: VMP planning and permitting activities were initiated and completed in early 1999 (Table 3.8). Permits under the MA Wetlands Protection Act were issued in early 2000 (1/12/00, Mansfield; 1/11/00, Norton). The initial vegetation removal activities were completed in the year 2000 as well.

Continuing YOP Activities: The existing annual maintenance program of mowing the primary surfaces was incorporated into the integrated vegetation management plan in 2001. No other YOP work was performed in 2001 (Year 2). Vegetation management activities in YOP Year 3 (2002) included routine mowing of the primary surface areas on airport property and the application of herbicide over a 30± acre area, principally located the ends of Runways 14 and 32. Vegetation management activities in YOP Year 4 (2003) were limited to routine mowing of the primary surface areas on airport property with no herbicide treatment. Year 5 (2004) of the YOP called for maintenance mowing and herbicide treatment as necessary to limit regrowth of undesirable species and vegetative layers. No herbicide treatment was performed. The effectiveness of this VMP was reviewed in 2004, and an updated YOP was prepared and submitted for the 2005 to 2009 period. Technical revisions were made and resubmitted in early 2006 to reflect VMP work initiated in June of 2006.

VEGETATION MANAGEMENT AREA

AIRPORT PROPERTY BOUNDARY

BEC

TITLE: VEGETATION MANAGEMENT AREAS (VMAs), AIRPORT PROPERTY BOUNDARY, AND MONITORING LOCATIONS

MANSFIELD MUNICIPAL AIRPORT
MANSFIELD, MASSACHUSETTS

DIGITAL ORTHOPHOTO IMAGES PROVIDED BY MASS GIS

SCALE: 1" = 700'

3-5

PROJECT 04-0713

Table 3.8. History of Vegetation Management at Mansfield Municipal Airport			
Category	**Activity**	**Description of Activities**	**Date**
Permitting	Vegetation Management Plan	Establish Vegetation Management Areas (VMAs) and Techniques for Removal and Maintenance under Yearly Operational Plan (YOP). Noticed in Environmental Monitor.	1999
	Wetlands Protection Act, Order of Conditions for VMP	Notice of Intent submitted for VMP for work in wetlands and/or buffer zone approved for 2 towns within airport	1/12/00 (Mansfield) 1/11/00 (Norton)
	YOP Update	Update of 5 YOP and Plans submitted to Conservation Commissions	February 2005 for period 2005 to 2009
	WPA Order of Conditions	RW 14 and 32 ends reconstruction	1/12/04 (Mansfield) 2/2/04 (Norton)
Construction	VMP Implementation	Tree topping, drop and lop, logging and mow in all VMAs	Summer 2000
	RW maintenance	RW 14 and 32 ends Reconstruction	2004-2005
Maintenance	Primary surface	Maintenance mowing	Annual
	VMAs	Cutting and follow-up herbicide treatment	Fall 2002 and June 2006
Monitoring	VMAs	Baseline monitoring wetlands and wildlife habitat in VMAs	2000
	VMAs	Monitoring of regrowth, impacts and wildlife habitat in VMAs	2001 – 2004, 2006

Results of Monitoring: A summary of the results of the VMP implementation within selected wetland monitoring plots is presented in Table 3.9. The results of the year 2000 vegetation removal activity in and near wetland areas have been monitored annually since that year, to record the effects of the VMP activities on vegetation structure, composition and wildlife habitat. The results of this effort have been reported in annual monitoring reports to the local Conservation Commissions as well as in the annual MEPA Status Reports. No adverse effects on wetland resources have been noted and the continuing presence of viable wetlands wildlife habitat has been documented.

Table 3.9. Summary of Mansfield Airport VMP Monitoring			
Plot	**Plant Community**	**Treatment**	**Current Conditions**
Plot 1	Scrub/Shrub Wetland	Heavy Mowing/Feller-Buncher	Shrub/Herbaceous Wetland
Plot 2	Open Upland Field/ Scrub/Shrub Wetland	Heavy Mowing/Feller-Buncher	Shrub/Herbaceous Upland & Wetland
Plot 3	Open Upland Field/ Scrub/Shrub Wetland/ Wet Meadow	Heavy Mowing	Shrub/ Herbaceous Upland & Wetland
Plot 4	Scrub/Shrub Wetland	Heavy Mowing	Shrub/Herbaceous Wetland
Plot 5	Red Maple Wetland	Drop and Lop	Shrub/Herbaceous Wetland

Prior to VMP implementation, plots were colonized with a diverse mix of species in the shrub and groundstory strata, including red maple, gray birch, black cherry, white pine, ironwood, speckled alder, highbush blueberry, sweet pepperbush, dewberry, blackberry, steeplebush, meadowsweet, sensitive fern, goldenrod, jewelweed, skunk cabbage, tussock sedge, soft rush, little bluestem, cattails, and manna grass. Fixed monitoring plots were established prior to VMP implementation in the summer of 2000, collecting baseline monitoring data at that time. These same areas were re-analyzed annually from 2001 to 2004, using the standardized methodology established for the statewide VMP program. Vegetative communities in the VMAs have all reached 100 percent vegetative cover, and there has been no discernable change to the limits of jurisdictional wetlands. As the process of forest succession continues to occur in impacted wetland areas, these communities will likely succeed into a scrub/shrub wetlands.

Vegetative regrowth at a Mansfield Airport monitoring plot in 2004.

Recent and Projected Activities Affecting the VMP: New activities in 2004 have included the initiation of the reconstruction of the Runway 14 and 32 ends, with the shift of the runway 100 ft to the south along the existing axis. In addition, the reconstruction included modification of the runway safety areas. The project also included the construction of new T-hangars and other facilities. This activity may have some minor

effect on the Part 77 surfaces and require minor modification of the vegetation management areas. Any such changes as part of the maintenance activities to be conducted in 2006, and adjustments made as required, including additional permitting and MEPA coordination, if necessary.

3.2.7 Marshfield Municipal Airport

General Description: Marshfield Municipal Airport is located in the eastern part of Massachusetts off Route 3 in the southeastern portion of Marshfield, adjacent to the coastline (Figure 3-6). The airport has a single Runway 6-24, which is 2999 feet long and 75 feet wide. The runway is paved and has pilot controlled lighting. Runway End Identifier Lights and a Precision Approach Path Indicator are located on the Runway 6 end.

This 168-acre airport contains 74.5 acres of wetland resource area within vegetation management area. The airport is constructed on upland, entirely with the limits of the 100-year floodplain. The airport is surrounded by an area that was once a tidally influenced salt marsh associated with the Bass Creek and the Green Harbor River. Delineated vegetative community types identified in the VMP included red maple swamp, scrub/shrub swamp, wet meadow, wooded upland, and open upland field. According to the NHESP and the USFWS there are no records of Federally or State listed rare species occurring on-site. However, four species of Special Concern are reported to occur in this general vicinity by NHESP (Table 3.10). None of these species have been observed during VMP monitoring events over the past five years. However, an additional protected species (eastern box turtle, species of special concern) was observed (see photo).

Table 3.10 Documented State-listed Species in Vicinity of Marshfield Airport

Common Name	Scientific Name	Current Massachusetts Status
Sharp-shinned Hawk	*Accipiter striatus*	Special Concern (SC)
Least Bittern	*Ixobrychus exilis*	Endangered (E)
Common Moorhen	*Gallinula chloropus*	Special Concern (SC)
Upland Sandpiper	*Bartramia longicauda*	Endangered (E)
Eastern Box Turtle	*Terrapene carolina*	Special Concern (SC)

VEGETATION MANAGEMENT AREA

AIRPORT PROPERTY BOUNDARY

BEC

TITLE: VEGETATION MANAGEMENT AREAS (VMAs), AIRPORT PROPERTY BOUNDARY, AND MONITORING LOCATIONS

MARSHFIELD MUNICIPAL AIRPORT
MARSHFIELD, MASSACHUSETTS

DIGITAL ORTHOPHOTO IMAGES PROVIDED BY MASS GIS

SCALE: 1" = 700'

3-6

PROJECT 04-0713

VMP Permitting and Initial VMP Implementation: VMP planning and permitting activities were completed in 1996 (Table 3.11). Monitoring of the airport's VMAs was initiated in 1997 with the collection of baseline information prior to vegetation removal. Initial vegetation removal activities occurred in 1997 and the existing annual maintenance program of mowing the primary surfaces was incorporated into the integrated vegetation management plan in 1997.

Table 3.11 History of VMP-Related Activities at Marshfield Municipal Airport

Category	Activity	Description of Activities	Date
Permitting	Vegetation Management Plan	Establish Vegetation Management Areas (VMAs) and Techniques for Removal and Maintenance under Yearly Operational Plan (YOP). Noticed in Environmental Monitor.	11/1996
	Wetlands Protection Act, Order of Conditions for VMP	Notice of Intent submitted for VMP for work in wetlands and/or buffer zone approved	12/31/96
	Request to Conservation Commission	Requested and was granted permission for selective herbicide treatment	2000
	YOP Update	Update of 5 Yearly Operational Plans submitted to Conservation Commission	9/16/03 for 2003-2007
Construction	VMP Implementation	Rough cut, cut and chip, drop and lop and mow in all VMAs	Winter 1997
Maintenance	Primary surface	Maintenance mowing	Annual
	VMAs	Selective herbicide treatment of potential penetrations and invasive species	2001 -02003
	VMAs	Mowing in frozen conditions	Winter 2002/3
	VMAs	Mowing in frozen conditions	Winter 2003/4
Monitoring	VMAs	Monitoring of regrowth, impacts and wildlife habitat in VMAs	2000 - 2004

Continuing YOP Activities: As per the VMP-YOP, maintenance and monitoring activities have been conducted at the airport since vegetation removal in the winter of 1997. No herbicide spraying was requested nor permitted under the original Orders of Conditions issued in December 1996. In 2000, the VMP consultant obtained permission to perform herbicide treatments on incompatible vegetation regrowth, but no herbicide treatments were performed during that year. The YOP for Year 5, in 2001, called for follow-up monitoring for the identification of problem areas, and selective foliar treatment by herbicides was implemented in September 2001. Based upon additional site review in 2002 and 2003, additional selective foliar treatment was performed. All herbicide application was conducted by a licensed herbicide applicator targeting invasive species and woody stem species that pose a potential threat to the airport's Part 77 surfaces in future years. Areas of treatment during September 2002 included approximately 20 acres located principally at the Runway 9 and 24 ends, as well as perimeter areas along the fence line. In

the fall of 2003, 8± acres, in the approach to RW 6 and along the northern fence line, were also subject to herbicide treatment.

Subsequently, annual VMA monitoring has been conducted since 2000 to record the effects of the VMP activities on vegetation structure, composition and wildlife habitat. The effectiveness of this VMP was reviewed in 2003, and an updated YOP was submitted to the Conservation Commission in September, 2003 to ensure that long-term VMP goals are met. The updated YOP directs management activities at Marshfield for the period 2003-2007. The continued long-term maintenance activities for the various Maintenance Areas involve the use of alternating mechanical mowing, hand cutting and foliar herbicide treatments. It is hoped that herbicide treatments will decrease the levels of invasive and incompatible species found on-site, and the use of herbicide can be reduced.

Results of Monitoring: A summary of the results of the VMP implementation within selected wetland monitoring plots is presented in Table 3.12. The results of the 1997 vegetation removal activity in and near wetland areas have been monitored annually since 2000, to record the effects of the VMP activities on vegetation structure, composition and wildlife habitat. The results of this effort have been reported in annual monitoring reports to the local Conservation Commissions as well as in the annual MEPA Status Reports. No adverse effects on wetland resources have been noted and the continuing presence of viable wetlands wildlife habitat has been documented.

Herbaceous wetland at Marshfield Airport (2004)

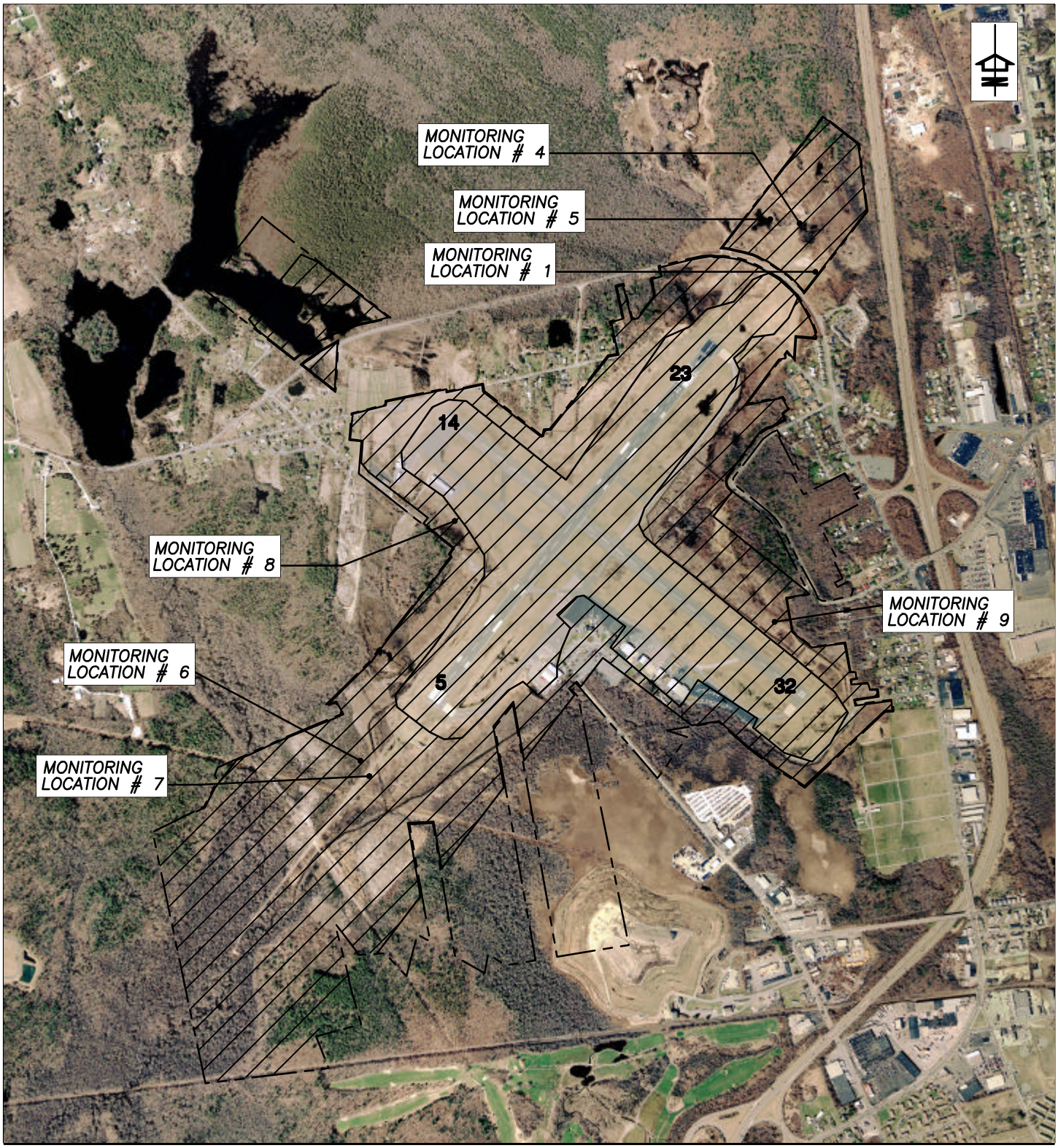
Table 3.12 Summary of Marshfield Airport VMP Monitoring			
Plot	**Plant Community**	**Treatment**	**Current Conditions**
Quadrat 2A	Wooded Uplands/Red Maple Wetland	Heavy Mowing	Re-establishment of trailing vines, shrubs, saplings and groundcover species.
Quadrat 2B	Red Maple Wetland	No Treatment	Red Maple Wetland
Quadrat 13A	Open Upland Field/Wooded Upland	Heavy Mowing	Re-establishment of numerous stump sprouts and trailing vines growing through woodchips.
Quadrat 13B	Red Maple Wetland	Cut & Chip	Continues to flourish due to increase light regime.
Quadrat 15A	Wooded Uplands	Heavy Mowing	Continued increase in vegetative cover.
Quadrat 15B	Red Maple Wetland	Heavy Mowing	Densely vegetated with canopy, shrub, and groundcover species.
Quadrat 18A	Upland Field/Wet Meadow	Heavy Mowing	Vegetative re-establishment of reeds, grasses, and shrubs to pre-treatment conditions.
Quadrat 18B	Red Maple Wetland	Heavy Mowing	Slight increase in size of birches and rapid re-establishment of groundcover.
Quadrat 19A	Scrub/Shrub Wetland	Heavy Mowing	Small increase in tree growth to 10' and re-establishment of shrub layer.
Quadrat 19B	Wet Meadow	Heavy Mowing	Revegetation with typical wet meadow grasses, rushes, and weeds.

Recent and Projected Activities Affecting the VMP: Marshfield Municipal Airport is currently undergoing the development of an Airport Master Plan Update. Included within this AMPU are several projects that may have some effect on the VMP. The development of FAA standard Runway Safety Areas (RSAs) will likely require a slight shift of the runway if the relocation of a brook is to be avoided. The shift of the runway may alter the Part 77 surfaces sufficiently to affect the approved VMP. Any such changes will be evaluated in 2006 and 2007, and adjustments made as required, including additional permitting and MEPA coordination, if necessary.

3.2.8 New Bedford Regional Airport

General Description: The New Bedford Regional Airport is located in the City of New Bedford just off Interstate 195 and Route 140 in the Buzzards Bay area of Massachusetts (Figure 3-7). The airport has two paved runways, 5/23 and 14/32. The primary runway, 5/23, is 4998 feet long and 150 feet wide with a full precision approach. The crosswind runway, 14/32, is 5000 feet long and 150 feet wide. Air Traffic Control operates from 7:00 AM until 10:00 PM, seven days a week, and a pilot activated lighting system is available for after hour operations.

The airport occupies approximately 872 acres within the Paskamanset River Watershed, a large portion of which contains wetland resource areas (177.5± wetland acres within vegetation management areas). Delineated vegetative community types identified in the VMP include forested wetlands, scrub/shrub wetlands, emergent wetlands, upland lawn and field habitat, and upland forest habitat.



VEGETATION MANAGEMENT AREA

AIRPORT PROPERTY BOUNDARY

BEC

TITLE: VEGETATION MANAGEMENT AREAS (VMAs), AIRPORT PROPERTY BOUNDARY, AND MONITORING LOCATIONS

NEW BEDFORD MUNICIPAL AIRPORT
NEW BEDFORD, MASSACHUSETTS

DIGITAL ORTHOPHOTO IMAGES PROVIDED BY MASS GIS

SCALE: 1" = 1500'

3-7

PROJECT 04-0713

According to NHESP, seven State-listed species have been documented in the Acushnet Cedar Swamp, the Apponagansett Swamp, and in other habitats in the vicinity of New Bedford Airport (Table 3.13). Of greatest concern to NHESP were the spotted turtle (delisted in 2006), swamp oats, the Mystic Valley amphipod, and the potential presence of vernal pools on airport property. Survey results included documentation of a population of spotted turtles and numerous amphibian-breeding sites. No rare plants were identified on-site.

Table 3.13 Documented State-listed Species at New Bedford Airport

Common Name	Scientific Name	Current Massachusetts Status
Acushnet Cedar Swamp		
Mystic Valley Amphipod	*Crangonyx aberrans*	Special Concern (SC)
Attenuated Bluet	*Enallagma daeckii*	Special Concern (SC)
Massachusetts Clam Shrimp	*Limnadia lenticularis*	Special Concern (SC)
Pale Green Pinion Moth	*Lithophane viridipallens*	Special Concern (SC)
Eastern Box Turtle	*Terrapene carolina*	Special Concern (SC)
Apponagansett Swamp		
Spotted Turtle	*Clemmys guttata*	Special Concern (SC) (delisted in 2006)
Swamp Oats	*Sphenopholis pensylvania*	Threatened (T)

Other environmental constraints noted in the general vicinity include water supply wells for the Town of Dartmouth. These wells are located approximately 3 miles to the south along the Paskamanset River and the entire airport is considered to potentially contribute to the aquifer recharge.

VMP Permitting and Initial VMP Implementation: VMP planning and permitting was completed in 1998 (Table 3.14). Development of the initial VMP was slowed by the extensive public participation in the process substantial wetland areas on the property that required documentation, and the presence protected species that required lengthy review by the NHESP. Permitting was also somewhat further complicated as the airport lies in both New Bedford and Dartmouth, and because some stakeholders had the mistaken belief that the VMP was connected to a proposed runway extension plan. Phase 1 of the initial vegetation management activities began in the spring of 1998, but was stalled by warm, wet conditions and by reptile/amphibian breeding activity. These activities were resumed and completed in the fall of 1998. Phase 2 was completed in 1999. Telemetry of spotted turtles was utilized to locate known individuals during tree cutting operations to avoid injuries to turtle populations in cut areas.

Vernal pool at New Bedford Airport (2003)

Table 3.14 History of VMP-Related Activities at New Bedford Regional Airport			
Category	**Activity**	**Description of Activities**	**Date**
Permitting	Vegetation Management Plan	Establish Vegetation Management Areas (VMAs) and Techniques for Removal and Maintenance under Yearly Operational Plan (YOP). Noticed in Environmental Monitor.	2/1998
	Wetlands Protection Act, Order of Conditions for VMP	Notice of Intent submitted for VMP for work in wetlands and/or buffer zone approved for 2 towns within airport	5/14/97 (New Bedford) 4/30/97 (Dartmouth)
	YOP Update	Update of 5 Yearly Operational Plans submitted to Conservation Commission	9/16/03 for 2003-2007
Construction	VMP Implementation	Rough cut, cut and chip, drop and lop and mow in all VMAs	March –Sept. 1999
Maintenance	Primary surface	Maintenance mowing	Annual
	VMAs	Cutting follow-up herbicide treatment	1999
	VMAs	Selective herbicide treatment of potential penetrations and invasive species	2001 - 2003
Monitoring	VMAs	Monitoring of regrowth, impacts and wildlife habitat in VMAs	2000
	VMAs	Monitoring of regrowth, impacts and wildlife habitat in VMAs	2001 - 2004

Continuing YOP Activities: The existing annual maintenance program of mowing the primary surfaces was incorporated into the integrated vegetation management plan in 1999. Annual monitoring of the airport's VMAs was initiated in 2000, to record the effects of the VMP activities on vegetation structure, composition, and wildlife habitat. In addition to routine mowing, VMP activities have included herbicide treatment in 2001, 2002, and 2003, with approximately 41± acres treated in fall 2003. In all cases, herbicide treatment was applied by a licensed herbicide applicator and targeted woody stem species that pose a future penetration threat to the Part 77 surfaces of the airport.

The last year of the YOP under the original VMP was 2002; therefore, the effectiveness of the VMP was reviewed. An updated YOP was submitted to the local Conservation Commissions on September 16, 2003 to ensure that long-term VMP goals are met. The updated YOP directs management activities at New Bedford Airport for the period 2003-2007. YOP Update activities include herbicide treatment of all areas previously cut under the VMP program (Year 2, Runway 5-23 and Runway 14-32 approaches and runway primary and transitional Part 77 surfaces) and off-airport cutting in avigation easements (Year 3). The update also consolidated the VMAs into 5 overall maintenance areas where the maintenance treatment was expected to be relatively uniform.

Results of Monitoring: A summary of the results of the VMP implementation within selected wetland monitoring plots is presented in Table 3.15. The results of the 1999 vegetation removal activity in and near wetland areas have been monitored annually since 2000, to record the effects of the VMP activities on vegetation structure, composition and wildlife habitat. The results of this effort have been reported in annual monitoring reports to the local Conservation Commissions as well as in the annual MEPA Status Reports. No adverse effects on wetland resources have been noted and the continuing presence of viable wetlands wildlife habitat has been documented.

Table 3.15 Summary of New Bedford Airport VMP Monitoring

Monitoring Plot	Plant Community	Treatment	Current Conditions
Plot 1	Scrub/Shrub Wetland/ Upland	Heavy Mowing	Re-establishment with low levels of shrub and groundcover species.
Plot 2	Forested Wetland/Upland	No Treatment	Forested with well-developed canopy, sub-canopy, shrub, and groundcover strata.
Plot 3	Replication Wetland	Wetland Replication Area	Early successional wetland community.
Plot 4	Scrub/Shrub Wetland	Selective Cutting	Re-establishment with high levels of shrub species and moderate regrowth of saplings.
Plot 5	Freshwater Pond/ Scrub/Shrub Wetland	Selective Cutting	Re-establishment with high levels of shrub species and moderate regrowth of saplings.
Plot 6	Scrub/Shrub Wetland	Selective Mowing	Re-establishment with high levels of herbaceous species and moderate regrowth of shrub layer.
Plot 7	Scrub/Shrub Wetland	Selective Mowing	Re-establishment with moderate regrowth of shrubs, vines, and herbs.
Plot 8	Forested/Scrub/Shrub Wetland	Heavy Mowing	Re-establishment of high levels of herbaceous species and moderate regrowth of shrub species.
Plot 9	Forested Wetland	Heavy Mowing	Re-establishment with high levels of shrub species and moderate regrowth of herbs.
Plot 10	Forested Wetland	No Treatment	Forested wetland with well-developed canopy, sub-canopy, shrub, and groundcover strata.
Meander Surveys	Multiple Communities	Multiple Treatments	No significant adverse impacts to rare species observed.

As per the Order of Conditions and the YOPs of the VMP, maintenance and monitoring activities have been conducted since the initial vegetation removal. Fixed monitoring plots were established prior to VMP completion in September 1999, and VMP monitoring has been conducted since this time. Monitoring areas have been inventoried annually for vegetative species composition and relative abundance as well as for signs of wildlife. Meander surveys have been conducted for spotted turtles and vernal pool species in appropriate habitat areas. Because three of the monitoring plots did not receive treatment under the VMP program, they were eliminated from further monitoring.

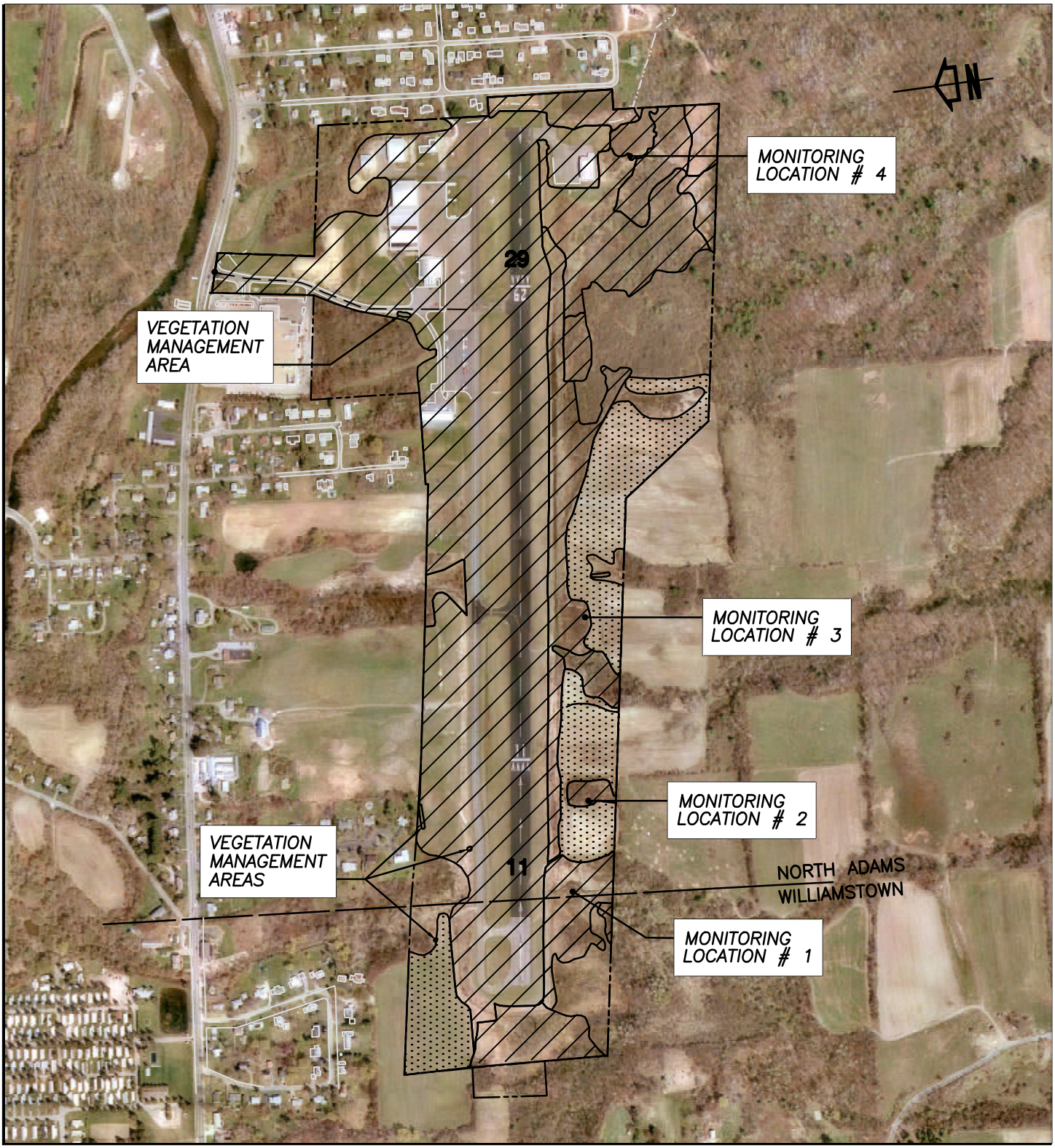
In general, vegetative communities within monitoring plots at New Bedford Airport have re-established as herbaceous and shrub/scrub communities. The removal of saplings and canopy stratum trees has resulted in the release of groundcover and shrub species. Most clearing occurred within forested wetland and scrub/shrub wetland areas, which typically were lushly vegetated, with species occurring in percent cover approaches 100 percent. Most plots are currently vegetated with a mixture of shrub and groundcover species with limited contributions from saplings, trees, and vines. There is abundant standing dead woody growth from recent herbicide treatment of undesirable species that are invasive or pose a threat for future penetrations into protected airspace.

Meadowsweet blooming at New Bedford Airport

Recent and Projected Activities Affecting the VMP: New Bedford Airport underwent a significant study to consider the extension of the runway. At present, such plans are on hold. However, any future changes to the runway orientation or extent will have an effect on the existing approved VMP, altering the location of the Part 77 surfaces, and therefore altering the vegetation management areas. Any extension of the runway will need to be evaluated relative to the need to modify the approved VMP. A new VMP would be reviewed as part of the permitting process for the runway extension.

3.2.9 North Adams, Harriman & West Municipal Airport

General Description: Harriman & West Municipal Airport (a.k.a. North Adams Airport) is located in the communities of Williamstown and North Adams in the northwestern corner of Massachusetts (Figure 3-8). The airport has a single 4300 foot long runway (Runway 11-29). This 130-acre airport contains approximately 36 acres of wetland resource area, of which 14 acres were directly affected by vegetation removal. Delineated vegetative community types identified in the VMP include open field, landscaped



VEGETATION MANAGEMENT AREA

AIRPORT PROPERTY BOUNDARY

AGRICULTURAL AREA

BEC

TITLE: VEGETATION MANAGEMENT AREAS (VMAs), AIRPORT PROPERTY BOUNDARY, AND MONITORING LOCATIONS

HARRIMAN AND WEST AIRPORT
NORTH ADAMS, MASSACHUSETTS

DIGITAL ORTHOPHOTO IMAGES PROVIDED BY MASS GIS

SCALE: 1" = 700'

3-8

PROJECT 04-0713

residential, upland forest, scrub/shrub upland, vegetated fringe wetland, scrub/shrub wetland, forested wetland, and riparian buffer strip. According to NHESP and the U.S. FWS, until 2006 there was one State listed species known to occur in the vicinity of North Adams Airport. The Appalachian Brook Crayfish (*Cambarus bartonii*), a Species of Special Concern delisted in 2006, is known to occur in the Paull Brook, which is culverted under the airport. A portion of the airport is considered within an aquifer recharge area.

VMP Permitting and Initial VMP Implementation: Permits for VMP activities at North Adams were issued in early 1998 (Table 3.16). Permitting took approximately 2 months and was complicated by the fact that the airport lies in two communities (North Adams and Williamstown). Although initial vegetation removal activities were somewhat delayed after the permits were issued due to wet conditions and beaver activity on the site, they were completed in 1998 for all on-airport vegetation management areas. Tree removal techniques utilized in VMAs include selective logging, drop & lop, drop & mow, cut & chip, and mowing. An off-airport avigation easement area was not included within the initial clearing work due to controversies as to the terms of the easement. An extension of the original Order of Conditions from the Williamstown was requested and granted to allow completion of work, which was conducted in 2003 and finalized in 2004.

Continuing YOP Activities: As per the Orders of Conditions and YOPs outlined in the VMP, monitoring and maintenance of VMP areas has been conducted since vegetation removal in January 1998. The VMP-YOP for the airport consists of both a vegetation maintenance program and the acquisition of additional off-airport avigation easements for vegetation management. Annual maintenance activities began in 1999 under the YOP including incorporation of the annual mowing of the primary surfaces into the IVM and occasional heavy mowing of other vegetation management areas. Spot herbicide treatment of stump sprouts and invasive species was conducted in 2002 to approximately 10 acres. A licensed herbicide applicator treated a rectangular area south of RW-29 and marginal areas bordering the primary surface. This herbicide treatment targeted woody stem species that pose a threat to the Part 77 surfaces of the airport.

Off-airport areas in North Adams were evaluated and additional avigation easements were acquired, primarily within residential areas. Wetlands were reviewed in this area and it was determined that no new additional permitting was required. The cutting of trees in the

new avigation easements was performed in 2002. Additional existing avigation easement areas were cut in 2005 in Williamstown.

The effectiveness of this VMP was reviewed in 2003, and the maintenance program updated to ensure that long-term VMP goals are met. An updated 5-Year YOP was submitted for 2003 to 2007 period to both Williamstown and North Adams Conservation Commissions. The VMAs to be maintained under this YOP were consolidated into 5 overall maintenance areas and the off-airport existing avigation easements. The potential need for avigation easements in Williamstown is anticipated to be reviewed within the next few years.

Table 3.16 History of VMP-Related Activities at North Adams

Category	Activity	Description of Activities	Date
Permitting	Vegetation Management Plan	Establish Vegetation Management Areas (VMAs) and Techniques for Removal and Maintenance under Yearly Operational Plan (YOP). Noticed in Environmental Monitor.	2/1998
	Wetlands Protection Act, Order of Conditions for VMP	Notice of Intent submitted for VMP for work in wetlands and/or buffer zone approved for 2 towns within airport	1/8/98 (North Adams) 1/15/98 (Williamstown)
	WPA OC 3-year Extension	Extension for VMP Clearing	1/2001 North Adams and Williamstown
	YOP Update	Update of 5 Yearly Operational Plans submitted to Conservation Commission	9/16/03 for 2003-2007
Construction	VMP Implementation	Rough cut, cut and chip, drop and mow, drop and lop, selective logging, cut stump herbicide treatment (On-airport VMAs)	Spring 1998
	VMP Implementation in Avigation Easements	Drop and lop, logging	Winter 2003/4
Maintenance	Primary surface	Maintenance mowing	Annual
	VMAs	Agricultural use – cornfield south of runway	Annual
	VMAs	Selective herbicide treatment of potential penetrations and invasive species	2002
Monitoring	VMAs	Monitoring of regrowth, impacts and wildlife habitat in VMAs	1998 - 2004

Results of Monitoring: A summary of the results of the VMP implementation within selected wetland monitoring plots is presented in Table 3.17. The results of the 1998 vegetation removal activity in and near wetland areas have been monitored annually since 1999 to record the effects of the VMP activities on vegetation structure, composition and

wildlife habitat. The results of this effort have been reported in annual monitoring reports to the local Conservation Commissions as well as in the annual MEPA Status Reports. No adverse effects on wetland resources have been noted and the continuing presence of viable wetlands wildlife habitat has been documented.

Table 3.17 Summary of North Adams Airport VMP Monitoring			
Plot	**Plant Community**	**Treatment**	**Current Conditions**
Plot 1	Forested/Scrub/ Shrub Wetland	Drop & Lop	Scrub/Shrub wetland with an abundant and diverse species assemblage.
Plot 2	Forested/Scrub/ Shrub Wetland	Logging	Scrub/Shrub wetland with an abundant and diverse species assemblage.
Plot 3	Forested/Scrub/ Shrub Wetland	Drop & Mow/Mow	Scrub/Shrub wetland with an abundant and diverse species assemblage.
Plot 4	Scrub/Shrub Wetland	Drop & Lop/Drop & Mow/Cut & Chip	Scrub/Shrub wetland with an abundant and diverse species assemblage.
SE Access Road	Scrub Shrub Upland	Drop & Lop/Drop & Mow/Cut & Chip	Nearly 100% re-establishment of groundcover.

In general, vegetation removal at North Adams Airport has not resulted in any observed modification of the limits of the jurisdictional wetlands. Vegetative species abundance and diversity have increased dramatically since VMP implementation. This growth has resulted in the re-establishment of scrub/shrub wetland and upland communities, which are similar to the communities found prior to vegetation removal, albeit at a younger stage of vegetative succession. The regrowth of these communities has resulted in increased habitat for early successional community dependent wildlife populations. Field surveys continue to indicate that most vegetative regrowth continues to consist of shrubs/saplings and herbaceous species, which have growth habits that are compatible with FAA safety regulations. Shrub and sapling species are beginning to repress growth of the groundcover species. These species include red-

Regenerating shrub and sapling community at North Adams Airport

osier dogwood, jewelweed, goldenrod, horsetail, rough bedstraw, reed canary grass, summer grape, virgin's bower, sensitive fern, golden Alexanders, white avens, common dandelion, wood nettle, common buttercup, common violet, wood sorrel, asters, wild parsnip, cow vetch, common cinquefoil, and various species of grasses. Additionally, numerous species of canopy tree regeneration including black willow, box elder, white ash and quaking aspen are rapidly developing in the shrub layers. Vegetation maintenance of this taller vegetation will likely be required in future years. Further assessment of the vegetation in the vicinity of the southeastern access road indicated that successful re-establishment of this area with 100 percent cover. Invasive species including Russian olive, glossy buckthorn, and multiflora rose continue to be present in the monitoring plots. Purple loosestrife is present along the perimeter of the airfield in wet meadow areas.

Recent and Projected Activities Affecting the VMP: Since 1999, the airport has been working towards the reconstruction of the runway. The necessity to meet FAA safety standards has required slight translocation of the runway in a westerly direction towards Williamstown. The shift of the runway may alter the Part 77 surfaces sufficiently to affect the approved VMP. Any such changes will be evaluated in 2005 and 2006, and adjustments made as required, including additional permitting and MEPA coordination, if necessary. Detailed permitting for the VMA areas in Williamstown is underway in 2006 for Williamstown properties where avigation need to be obtained.

3.2.10 Norwood Memorial Airport

General Description: Norwood Memorial Airport is located in the northeastern corner of the Town of Norwood, approximately 14 miles southwest of Boston, between the U.S. Route 1 and Interstate 95 corridors (Figure 3-9). Norwood Airport has two runways. The main runway, 17/35, is a paved strip, 4007 feet long and 150 feet wide. The second runway, 10/28, is 4001 feet long and 75 feet wide. Norwood Airport has an operating control tower. There are also automatic weather and pilot activated lighting available on a twenty-four hour basis.

This 438-acre airport contains 310 acres of wetland resource area, of which approximately 100 acres fall within the project area. An additional 250 acres of mostly wetland acreage was recently purchased along the Neponset River. The northern extreme of the Fowl-Meadow-Ponkapoag Bog, a State regulated Area of Critical Environmental Concern (ACEC), is located on airport property. According to NHESP, the wetland areas surrounding Norwood Airport constitutes Estimated Habitat for a variety of State-listed species (Table 3.18). Long's Bulrush (a listed species) was documented in 2002 to exist south of the RW 17-35 RW expansion area. Numerous potentially suitable habitat areas for the rare species rare species have been observed on the airport property. No certified vernal pools occur in the study area. However, wood frogs and wood frog egg masses were found in previously disturbed wetlands on airport property.

VEGETATION MANAGEMENT AREA

AIRPORT PROPERTY BOUNDARY

BEC

TITLE: VEGETATION MANAGEMENT AREAS (VMAs), AIRPORT PROPERTY BOUNDARY, AND MONITORING LOCATIONS

NORWOOD MEMORIAL AIRPORT
NORWOOD, MASSACHUSETTS

DIGITAL ORTHOPHOTO IMAGES PROVIDED BY MASS GIS

SCALE: 1" = 500'

3 – 9

PROJECT 04–0713

Table 3.18 Documented State-listed Species at Norwood Memorial Airport		
Common Name	**Scientific Name**	**Current Massachusetts Status**
Least Bittern	*Ixobrychus exilis*	Endangered (E)
Spotted Turtle	*Clemmys guttata*	Special Concern (SC) (delisted 2006)
Blanding's Turtle	*Emydoidea blandingii*	Threatened (T)
Long's Bulrush	*Scirpus longii*	Endangered (E)

Other sensitive resource areas located in the vicinity of the airport include groundwater resources, Zone II and Interim Wellhead Protection Area (IWPA) delineations, and floodplain areas. Delineated vegetative community types identified in the VMP include forested wetland, scrub/shrub wetland, wet meadow, emergent wetland and upland areas.

VMP Permitting and Initial VMP Implementation: Work on the VMP for Norwood Memorial Airport was initiated in 1997 (Table 3.19). However, before the completion of the VMP, an Emergency Certificate was sought from and granted by the Conservation Commission in May 1997, to allow the immediate clearing of vegetation that was blocking a line-of-sight from the Air Traffic Control Tower. Permitting of the VMP continued and was completed in January of 1998. The environmental permitting was somewhat complicated by the airport's location in an Area of Critical Environmental Concern (ACEC), and the presence endangered species nearby. As part of the permitting process, a waiver was requested from and granted by the FAA to minimize the cutting some areas of trees in the transition surfaces. This waiver was based on both environmental and financial grounds, the latter justification associated with the excessive costs of removal within difficult to access portions of the airport perimeter.

Vegetative management zones at Norwood radiate outward in concentric perimeters from individual runways and consist of grass/herbaceous, small shrub, tall shrub, small tree, and tall tree zones. Implementation of the permitted vegetation removal activities was delayed several times due to flooding conditions. Norwood Memorial Airport lies in a large floodplain that experiences frequent flooding, but dries out dramatically in the dry season.

Table 3.19 History of VMP-Related Activities at Norwood Municipal Airport			
Category	**Activity**	**Description of Activities**	**Date**
Permitting	Vegetation Management Plan	Establish Vegetation Management Areas (VMAs) and Techniques for Removal and Maintenance under Yearly Operational Plan (YOP). Noticed in Environmental Monitor.	1/1998
	Wetlands Protection Act, Order of Conditions for VMP	Notice of Intent submitted for VMP for work in wetlands and/or buffer zone approved	12/3/97
	Amended VMP	Amend VMAs for updated Part 77 surfaces due to RW 17-35 shift.	2/2002
	Wetlands Protection Act, Order of Conditions for Amended VMP	Notice of Intent submitted for Amended VMP for additional work in wetlands and/or buffer zone approved	Submitted 3/2002
	YOP Update	Update of 5 Yearly Operational Plans submitted to Conservation Commission	9/16/03 for 2003-2007
Permitting	Vegetation Management Plan	Establish Vegetation Management Areas (VMAs) and Techniques for Removal and Maintenance under Yearly Operational Plan (YOP). Noticed in Environmental Monitor.	1/1998
	Wetlands Protection Act, Order of Conditions for VMP	Notice of Intent submitted for VMP for work in wetlands and/or buffer zone approved	12/3/97
	YOP Update	Update of 5 Yearly Operational Plans submitted to Conservation Commission	9/16/03 for 2003-2007
Construction	VMP Implementation	Hand cutting, flail mowing, aerial removal in frozen conditions, and mow all VMAs	January 1998
Maintenance	Primary surface	Maintenance mowing	Annual
	VMAs	Selective herbicide treatment of potential penetrations and invasive species (buckthorn and purple loosestrife)	2000 - 2003
	VMAs	Heavy mowing or hand cut during frozen conditions	2001-2003
Monitoring	VMAs	Monitoring of regrowth, impacts and wildlife habitat in VMAs	1998 - 2004

Due to the presence of peat soils, which limit the support of heavy equipment, strategies were developed to react to the environmental conditions. By late spring 1998, the airport had dried out, and an experimental mowing project was performed to determine the impacts of using heavy mowing equipment. This experiment was successful and showed minimal impact on soils. Temporary bridges were used to access areas across two streams

and helicopter removal was used to remove some cut vegetation. Also, a winter work period was utilized to facilitate the use of some heavy equipment in wetlands. Removal methods and equipment utilized during the removal process for the 1998 VMP included the use of hand cutting, various types of mechanized equipment, and even limited helicopter removal.

In February 2002, an Amended VMP was developed in response to a shift in RW 17-35 to create Runway Safety Areas. The runway shift caused a shift in the Part 77 surfaces and some additional cutting was required. All cutting was reviewed and permitted under a NOI submitted in March 2002. Management methodologies utilized were those shown to have low impact in the initial cutting.

Continuing YOP Activities: As per the Order of Conditions and the YOPs outlined in the VMP, maintenance and monitoring of vegetation removal areas has been conducted since VMP implementation in January 1998. Vegetation management activities have included the routine mowing of the primary surface areas on airport property, herbicide treatments of targeted species, and areas of heavy mowing, especially in the approach to RW-17. Additionally, contractors completed construction of an airport perimeter security fence, which required vegetation management in immediate proximity to the fence. Herbicide treatments included over approximately 43 acres by a licensed applicator at the end of RW-28, RW-17 and RW-35 as well as in marginal areas around the primary surface in 2002 and 1± acre east of RW-35 in 2003.

The original Five-Year YOP for continued maintenance of the VMAs ended in 2002 and a new YOP was developed and submitted to the Norwood Conservation Commission. The VMAs were consolidated into five overall Maintenance Areas.

Results of Monitoring: A summary of the results of the VMP implementation within selected wetland monitoring plots is presented in Table 3.20. Monitoring of the airport's VMAs was initiated in 1998 with the collection of baseline information prior to vegetation removal. Subsequently, annual VMA monitoring has been conducted to record the effects of the VMP activities on vegetation structure, composition and wildlife habitat. Prior to VMP implementation, six fixed monitoring transects were established with multiple fixed plots each to monitor regrowth in cutting zones, which have been monitored annually since that time. The results of this effort have been reported in annual monitoring reports to the local Conservation Commission as well as in the annual MEPA Status Reports. Vegetation removal has resulted in the alteration of the vegetative communities within the wetland areas at Norwood Airport. However, no jurisdictional changes to wetland resources have resulted. In general, plant species diversity and percent coverages have increased in the monitoring transects and plots, with species diversity mostly increasing in the groundstory stratum. In 1998, monitoring revealed that only six species of woody stem growth were identified on site. By 2002, this number doubled to 15 species of woody stem growth, which is unchanged in 2003. Meadowsweet continues to be the dominant woody species in several of the plots. No adverse effects on wetland resources have been noted and the continuing presence of viable wetlands wildlife habitat has been documented.

Table 3.20 Summary of Norwood Airport VMP Monitoring			
Transect	**Plant Community**	**Treatment**	**Current Conditions**
Transect 1	Scrub/Shrub Wetland	Heavy Mowing	Re-establishment of herbaceous and Scrub/Shrub Wetland
Transect 2* (Monitoring Zone South)	Scrub/Shrub with Scattered Trees	Heavy Mowing/Hand Cut	Re-establishment of Herbaceous/Scrub/Shrub Wetland
Transect 3	Scrub/Shrub with Scattered Trees	Heavy Mowing	Re-establishment of Scrub/shrub Wetland
Transect 4	Scrub/Shrub/ Forested Wetland	Hand Cut	Re-establishment of Scrub/Shrub Wetland
Transect 5 (Monitoring Zone North)	Scrub/Shrub/ Forested Wetland	Hand Cut with Helicopter Removal	Re-establishment of Herbaceous/ Scrub/Shrub Wetland
Transect 6	Scrub/Shrub/ Emergent Wetland	Heavy Mowing/Hand Cut	Re-establishment of Herbaceous/ Scrub/Shrub Wetland

Purple loosestrife at Norwood Airport

The quality of the vegetative regrowth has been threatened in certain areas due to the re-establishment of several invasive species including glossy buckthorn and purple loosestrife. Herbicide treatments between 2000 and 2002 effected significant reduction of the buckthorn, with additional minor treatment in 2003. Nevertheless, the endemic nature of these cosmopolitan species suggests that the airport program alone will not provide adequate control for these species, since they have been well established at the airport and large contiguous wetlands for many years. The goal for the vegetative community at Norwood Airport is focused towards shrub species such as dogwood, arrowwood, and meadowsweet, which will likely require continued active vegetative management in order to achieve this more stable, natural community.

Recent and Projected Activities Affecting the VMP: Norwood Memorial Airport is currently considering several improvements to the facilities, several projects or which may have some effect on the VMP. Any such changes will need to be evaluated as the conceptual plans develop, and the need to adjust the VMP fully evaluated relative to the potential for additional permitting and MEPA coordination.

3.2.11 Orange Municipal Airport

General Description: Orange Municipal Airport is located in the southeastern corner of the Town of Orange in the Route 2/2A corridor in central Massachusetts (Figure 3-10). The airport has two active paved runways: Runway 14/32 is 4999 feet long and 150 feet wide with pilot controlled lighting; and Runway 1/19 is 5000 feet long and 75 feet wide. Navigation is assisted by a VOR and NDB. The airport provides minor aircraft maintenance services as well as aviation fuels. The airport is quite active supporting annual fly-ins and other event, including aerobatics competition.

The 480-acre facility contains approximately 20 acres of wetland resource area. The dominant wetland type on-site prior to implementation of the VMP was red maple swamp. These wetland areas bordered on three separate stream or drainage systems including Shingle Swamp Brook and Red Brook, including areas of beaver impoundment.

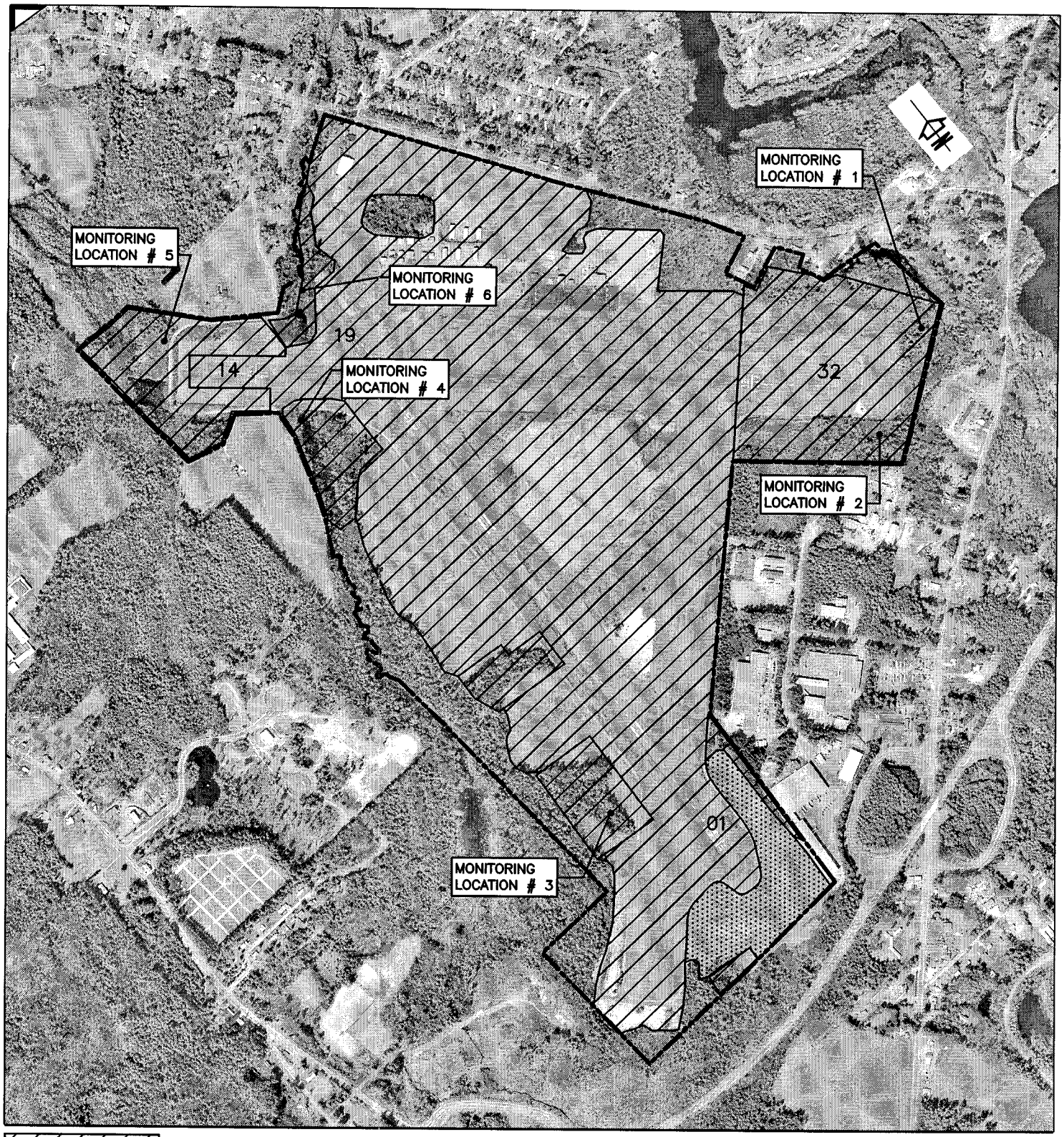
According to NHESP and USFWS, three State-listed species are known to occur in the vicinity of Orange Airport (Table 3.21). Other local sensitive resources include groundwater supplies for the Town of Orange and private wells in the vicinity of Orange Airport.

Table 3.21 Documented State-listed Species at Orange Airport

Common Name	Scientific Name	Current Massachusetts Status
Vesper Sparrow	*Pooecetes gramineus*	Threatened (T)
Grasshopper Sparrow	*Ammodramus savannarum*	Threatened (T)
Four-toed Salamander	*Hemidactylium scutatum*	Special Concern (SC)

VMP Permitting and Initial VMP Implementation: The VMP was developed in 1999 and 2000 and the wetland permitting was completed in early 2001 (Table 3.22). Vegetation removal activities were initiated in late summer and completed in the fall of 2001, Year 1 of the YOP. Vegetation removal activities included the clearing of vegetation from the approach and transition surfaces of Runway 1-19, Runway 14-32, and within current avigation easements. Limited stump application of herbicide was also performed in selected locations. Under the VMP, about 50 acres of land was included for vegetation management, including 17.1 acres of wetlands, on-airport and in existing avigation easements off-airport property.

Continuing YOP Activities: The existing annual maintenance program of mowing the primary surfaces was incorporated into the integrated vegetation management plan in 2002. Vegetation management activities that have occurred since the initial implementation have been limited to this routine mowing and follow up herbicide treatment of VMP areas. Herbicide was applied to stump sprouts by a licensed applicator in 2003 (Year 3 of the



VEGETATION MANAGEMENT AREA
AIRPORT PROPERTY BOUNDARY

AGRICULTURAL AREA

BEC

TITLE: VEGETATION MANAGEMENT AREAS (VMAs) AND AIRPORT PROPERTY BOUNDARY

ORANGE MUNICIPAL AIRPORT
ORANGE, MASSACHUSETTS

DIGITAL ORTHOPHOTO IMAGES PROVIDED BY MASS GIS

SCALE: 1"=1000'

3-10

PROJECT 00-1001

YOP) after the July monitoring. The owner of a private well in the vicinity requested tests on the water quality to ensure that the well was not contaminated by the herbicide treatment. Samples were taken at the two wells on the property in October 2003. The samples all tested negative for the presence of herbicide residues. Future YOP activities include spot clearing of areas cleared in Year 1 with herbicide treatment as necessary in 2004 (Year 4); and in 2005 (Year 5) spot clearing of Year 1 areas, mowing of Year 2 areas, and herbicide treatment, as necessary.

Table 3.22 History of VMP-Related Activities at Orange Municipal Airport

Category	Activity	Description of Activities	Date
Permitting	Vegetation Management Plan	Establish Vegetation Management Areas (VMAs) and Techniques for Removal and Maintenance under Yearly Operational Plan (YOP). Noticed in Environmental Monitor.	8/2001
	Wetlands Protection Act, Order of Conditions for VMP	Notice of Intent submitted for VMP for work in wetlands and/or buffer zone approved	2/2001
	YOP Update	Update of 5 YOP and Plans submitted to Conservation Commissions	February 2005 for period 2005 to 2009
Construction	VMP Implementation	Drop and lop, selective logging and heavy mowing in all VMAs	Fall 2001
Maintenance	Primary surface	Maintenance mowing	Annual
	VMAs	Selective herbicide treatment of potential penetrations	2003
Monitoring	VMAs	Baseline monitoring wetlands and wildlife habitat in VMAs	2001
	VMAs	Monitoring of regrowth, impacts and wildlife habitat in VMAs	2002 - 2004

Results of Monitoring: A summary of the results of the VMP implementation within selected wetland monitoring plots is presented in Table 3.23. Monitoring of the airport's VMAs was initiated in 2001 with the collection of baseline information prior to vegetation removal. Subsequently, annual VMA monitoring has been conducted to record the effects of the VMP activities on vegetation structure, composition and wildlife habitat. Prior to VMP implementation, six fixed monitoring locations were established in representative vegetative communities within the airport vegetation management areas. Annual data on plant species composition and relative abundance has been collected for these plots. The results of this effort have been reported in annual monitoring reports to the local Conservation Commissions as well as in the annual MEPA Status Reports. No adverse effects on wetland resources have been noted and the continuing presence of viable wetlands wildlife habitat has been documented.

The effectiveness of this VMP was reviewed in 2004, and an updated YOP has been prepared and submitted to the Conservation Commission in 2005 to ensure that long-term VMP goals are met. The updated YOP will direct management activities at Orange for the period 2005-2009.

Table 3.23 Summary of Orange Airport VMP Monitoring

Location	Plant Community	Treatment	Current Conditions
Plot 1	Forested Wetland bordering on intermittent stream	Drop and Lop	Re-establishment of Scrub/Shrub Wetland
Plot 2	Forested Wetland bordering on intermittent stream	Logging	Re-establishment of Scrub/Shrub Wetland
Plot 3	Forested Wetland bordering on intermittent stream	Logging	Re-establishment of Scrub/shrub Wetland
Plot 4	Forested Wetland bordering on Shingle Swamp Brook	Drop and Lop	Re-establishment of Scrub/Shrub Wetland
Plot 5	Forested/Scrub-Shrub Wetland bordering on Red Brook	Logging	Re-establishment of Scrub/Shrub Wetland
Plot 6	Forested Wetland bordering on Shingle Swamp Brook	Logging	Re-establishment of Scrub/Shrub Wetland

Recent and Projected Activities Affecting the VMP: Orange Airport constructed a new taxiway in 2002 but there was no alteration required of the vegetation management areas. The airport is not currently considering any improvements to the facilities that would affect the VMP. Should any changes be considered in the future, they will need to be evaluated as the conceptual plans develop, and the need to adjust the VMP fully evaluated relative to the potential for additional permitting and MEPA coordination.

Healthy regrowth at a monitoring plot at Orange Airport (2004)

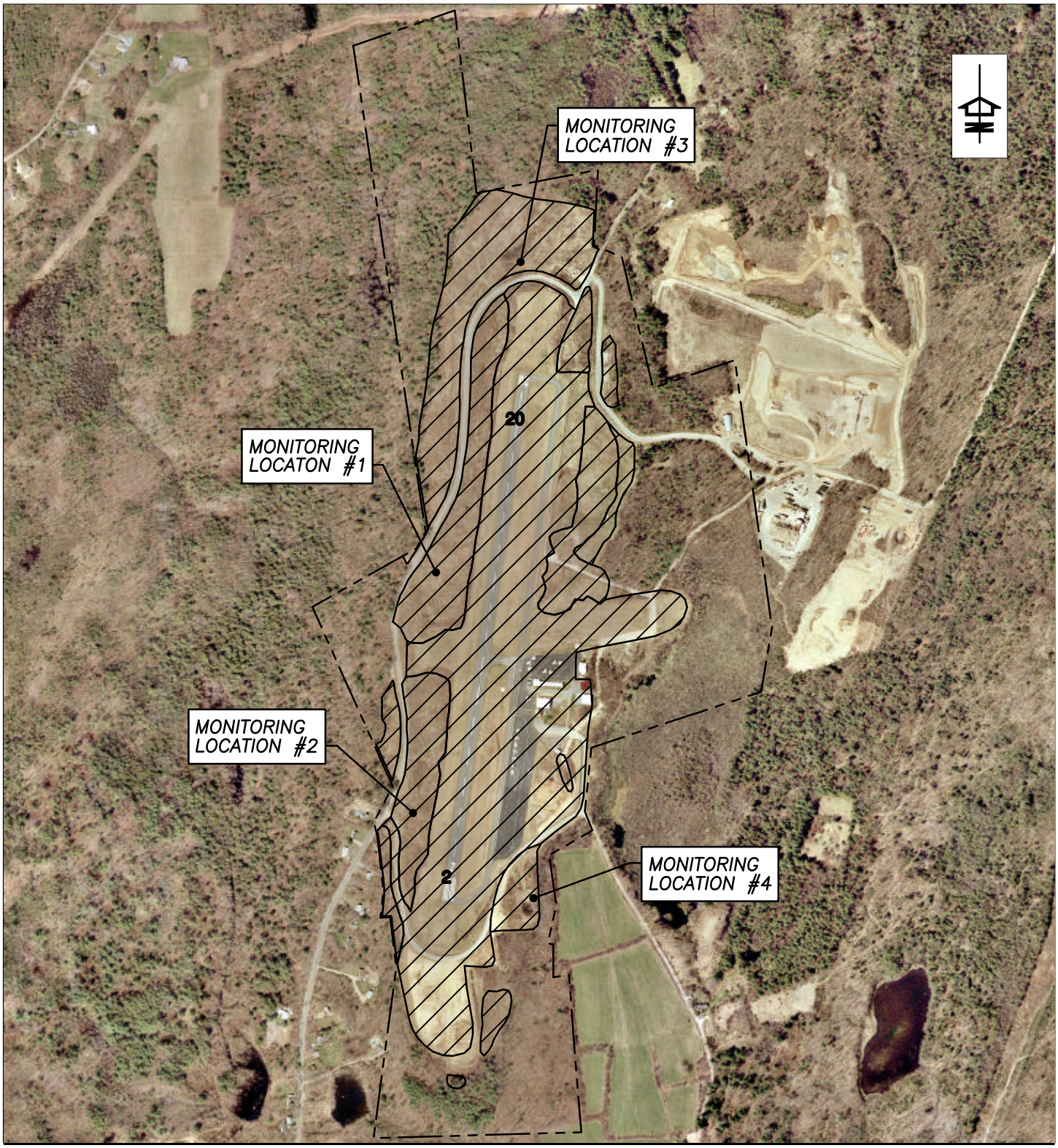
3.2.12 Southbridge Municipal Airport

General Description: Southbridge Airport is a 257-acre facility located in the northwestern corner of the City of Southbridge, north of State Highway 131 and to the southeast of the Massachusetts Turnpike and Interstate 84 corridors (Figure 3-1). The airport has two runways. The primary runway, 2- 20, is paved, 3500 feet long and 75 feet wide. The secondary runway, 10-28 is not currently operational. REILs and VASIs are both available on Runway 2 as well as Pilot Controlled Lighting.

Vegetative communities identified in the VMP included red maple swamp, floodplain forest, mixed wood/shrub swamp, freshwater marsh, mature upland forest, upland sapling forest, scrub/shrub upland, upland field, and wet meadow communities. In addition to wetlands, environmental constraints identified in the vicinity of Southbridge Airport included agricultural lands, historical and archaeological resources, and water supply.

VMP Permitting and Initial VMP Implementation: The development of the VMP was initiated for Southbridge Airport in 1996 and permits were received in mid-1997 (Table 3.24). This 257-acre facility contained approximately 56 acres of clearing identified in the VMP with 4.7 acres of clearing located in wetland resource areas. These vegetative community types were used to develop a series of VMAs. Removal techniques utilized in vegetation clearing included cut and chip, mowing, and selective logging/cordwood harvest. The VMP was implemented in the summer of 1997, making this airport the first to implement a VMP under the Statewide VMP program.

Regenerating early successional growth at Southbridge Airport (2004).



VEGETATION MANAGEMENT AREA

AIRPORT PROPERTY BOUNDARY

BEC

TITLE: VEGETATION MONITORING PLOT LOCATIONS AND AIRPORT PROPERTY BOUNDARY

SOUTHBRIDGE MUNICIPAL AIRPORT
SOUTHBRIDGE, MASSACHUSETTS

DIGITAL ORTHOPHOTO IMAGES PROVIDED BY MASS GIS
VEGETATION PLOTS ESTABLISHED BY BEC 9/12/01

SCALE: 1" = 900'

3 – 11

PROJECT 04–0713

Table 3.24 History of VMP-Related Activities at Southbridge Municipal Airport			
Category	**Activity**	**Description of Activities**	**Date**
Permitting	Vegetation Management Plan	Establish Vegetation Management Areas (VMAs) and Techniques for Removal and Maintenance under Yearly Operational Plan (YOP). Noticed in Environmental Monitor.	5/1997
	Wetlands Protection Act, Order of Conditions for VMP	Notice of Intent submitted for VMP for work in wetlands and/or buffer zone approved	6/6/97
	YOP Update	Update of 5 Yearly Operational Plans submitted to Conservation Commission	9/16/03 for 2003-2007
Construction	VMP Implementation	Cut and chip/mow, selective logging in all VMAs	Summer 1997
Maintenance	Primary surface	Maintenance mowing	annual
	VMAs	Selective herbicide treatment of penetrations	1998
	VMAs	Selective herbicide treatment of penetrations	2003
Monitoring	VMAs	Baseline monitoring wetlands and wildlife habitat in VMAs	2001
	VMAs	Monitoring of regrowth, impacts and wildlife habitat in VMAs	2002 - 2004

Continuing YOP Activities: Following completion of the initial vegetation removal activities, an annual maintenance program of mowing the primary surfaces in was initiated in 1998. Spot herbicide treatments of stump sprouts and potential penetrations were conducted in 1998 and 2003. Areas of treatment in 2003 included approximately 29± acres located in the approach and transitional surface to RW 20, and a transitional surface east of RW 2. Other VMP work has primarily been limited to mowing the herbaceous margins and in-fields of the runways. Additionally, tree regrowth penetrations were cut northwest of the runway, between the road and the RSA in late 2004.

A new Five-Year YOP for continued maintenance of the VMAs was developed and submitted to the Southbridge Conservation Commission in 2003 for the period of 2003-2007 to ensure that long-term VMP goals are met. The VMAs to be maintained under this YOP were consolidated into four overall maintenance areas where the vegetative communities require relatively uniform maintenance treatment. The continued long-term maintenance activities for the various Work Areas involve the use of alternating mechanical cutting and foliar herbicide treatments.

Results of Monitoring: A summary of the results of the VMP implementation within selected wetland monitoring plots is presented in Table 3.25. While the Order of

Conditions issued by the Southbridge Conservation Commission did not stipulate a follow-up monitoring requirement and no baseline or annual monitoring data was collected, the results of the 1997 vegetation removal activity in and near wetland areas have been monitored annually since 2001, to record the effects of the VMP activities on vegetation structure, composition and wildlife habitat. The results of this effort have been reported in annual monitoring reports to the local Conservation Commission as well as in the annual MEPA Status Reports. No adverse effects on wetland resources have been noted and the continuing presence of viable wetlands wildlife habitat has been documented. Table 3.25 summarizes the vegetation communities existing prior to the VMP work and their current condition. Since the initial selective foliar and physical removal methods under the VMP at Southbridge Municipal Airport, the wetland areas have been in a state of early vegetative succession, and will presumably be held at this state via routine vegetative maintenance. Therefore, the vegetation tends to be dominated by herbaceous and shrub species with some young tree saplings.

Shrub and sapling regrowth at Southbridge (2004)

Table 3.25 Summary of Southbridge Municipal Airport VMP Monitoring

Location	Pre VMP Plant Community	Current Wetland Type
Plot 1	Forested Wetland	Shrub wetland
Plot 2	Shrub/Sapling Wetland	Herbaceous/shrub wetland
Plot 3	Disturbed Site - Shrub/Meadow with few Canopy Trees	Wet meadow/shrub wetland
Plot 4	Forested Wetland	Shrub/immature woodland wetland

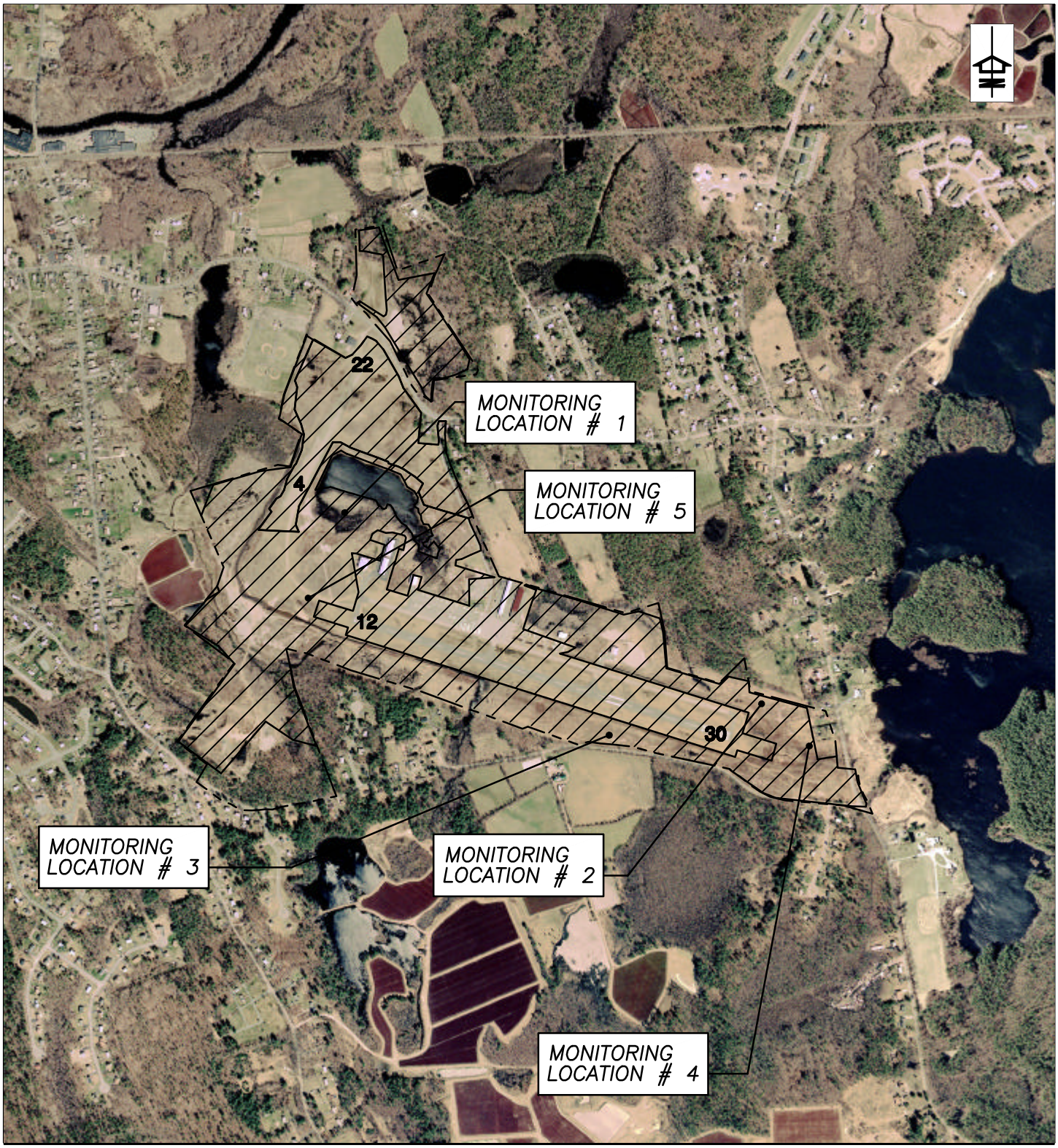
Recent and Projected Activities Affecting the VMP: Southbridge Airport is unchanged since the development of the original VMP and the airport is not currently considering any improvements to the facilities that would affect the VMP. Should any changes be considered in the future, they will need to be evaluated as the conceptual plans develop, and the need to adjust the VMP fully evaluated relative to the potential for additional permitting and MEPA coordination.

3.2.13 Taunton Municipal Airport

General Description: Taunton Airport is located in Taunton in southeastern Massachusetts between the Interstate 495 and Route 24 corridors (Figure 3-12). The airfield contains two runways to accommodate variable wind and weather. The primary runway, 12-30, a paved 3500 foot long strip, and Runway 4-22 is a 1900 foot long turf strip. The airport provides Navaids and pilot controlled lighting systems on a twenty-four hour basis.

This 241-acre airport contains approximately 58 acres of wetlands within the Taunton River Watershed. Delineated vegetative community types identified in the VMP include pine-oak woodlands, forested wetlands, scrub-shrub wetlands, herbaceous wetlands, and maintained grassland communities. Since the initiation of the studies for the VMP, field surveys have documented the presence of spotted turtles (previously a Species of Special Concern delisted in 2006 – shown at right) and evidence of wood turtle (shell fragments; Species of Special Concern). The area contains one vernal pool. Other environmentally sensitive areas located in the general vicinity of the airport include floodplains, groundwater resources, and historical and archaeological sites.

VMP Permitting and Initial VMP Implementation: Planning and permitting for VMP activities at Taunton were initiated in 1997 and completed in early 1998 (Table 3.26). Approximately 35 of the 58 acres of wetlands within the airport property limits were included with the proposed areas of vegetation management (VMAs). VMAs were established in five concentric zones, including (1) grass/herb, (2) small shrub, (3) tall shrub, (4) small tree, and (5) tall tree zones, which radiate outward from the runway surfaces. In addition, a special residential management zone was established for areas where airspace obstructions existed on privately held residential land. These zones were established for both airport controlled land (airport property and easements) and non-airport controlled land (private property, no easements). Removal methods utilized integrated vegetation management techniques such as mechanical and chemical controls. Mechanical controls used during the initial phases of vegetation removal (YOP 1) included hand cutting, mowing, and aerial removal. Some delays were encountered during initial vegetation removal activities due to wet conditions. The use of timber mats to minimize the impacts of heavy mowing was very successful. With this technique, track-mounted mowers were able to access very wet areas with no soil disturbance.



VEGETATION MANAGEMENT AREA

AIRPORT PROPERTY BOUNDARY

BEC

TITLE: VEGETATION MANAGEMENT AREAS (VMAs), AIRPORT PROPERTY BOUNDARY, AND MONITORING LOCATIONS

TAUNTON MUNICIPAL AIRPORT
TAUNTON, MASSACHUSETTS

DIGITAL ORTHOPHOTO IMAGES PROVIDED BY MASS GIS

SCALE: 1" = 1200'

3-12

PROJECT 04-0713

Table 3.26 History of VMP-Related Activities at Taunton Municipal Airport			
Category	**Activity**	**Description of Activities**	**Date**
Permitting	Vegetation Management Plan	Establish Vegetation Management Areas (VMAs) and Techniques for Removal and Maintenance under Yearly Operational Plan (YOP). Noticed in Environmental Monitor.	2/1998
	Wetlands Protection Act, Order of Conditions for VMP	Notice of Intent submitted for VMP for work in wetlands and/or buffer zone approved	12/15/97
	YOP Update	Update of 5 Yearly Operational Plans submitted to Conservation Commission	9/16/03 for 2003-2007
Construction	VMP Implementation	Heavy mowing and hand cutting in all VMAs	Winter 1998
Maintenance	Primary surface	Maintenance mowing	annual
	VMAs	Selective herbicide treatment of penetrations	2000 - 2003
Monitoring	VMAs	Monitoring of regrowth, impacts and wildlife habitat in VMAs	1998 - 2004

Continuing YOP Activities: As per the Order of Conditions and the Yearly Operational Plans outlined in the VMP, monitoring and maintenance activities have been conducted in VMAs since VMP implementation in the winter of 1998. The primary techniques employed under the YOP include annual maintenance mowing of the primary surfaces, rough mowing of other surfaces and herbicide treatment. Spot herbicide treatments of targeted woody stem species that pose a future penetration threat to the Part 77 surfaces of the airport were conducted in 2000, 2002 and 2003. In 2002, herbicide was applied to 86± acres located primarily around the perimeter of most of the airfield, followed by application to 42± acres in 2003.

A new 5-Year YOP was developed and submitted to the Taunton Conservation Commission in 2003 to ensure that long-term VMP goals are met for the period 2003-2007. The VMAs to be maintained under this YOP have been consolidated into 5 overall maintenance areas where the maintenance treatment is expected to be relatively uniform. The continued long-term maintenance activities for the various Maintenance Areas involve the use of alternating mechanical mowing, hand cutting and foliar herbicide treatments. Mechanical mowing will be used to control plant community height in previously cut VMAs. Low-volume foliar herbicide treatments will be conducted on target species, which consist of both invasive and species with growth habits that are incompatible with safe airspace regulations.

Results of Monitoring: A summary of the results of the VMP implementation within selected wetland monitoring plots is presented in Table 3.27. Monitoring of the airport's

VMAs was initiated in 1998 with the collection of baseline information prior to vegetation removal. Subsequently, annual VMA monitoring has been conducted to record the effects of the VMP activities on vegetation structure, composition and wildlife habitat. Five fixed monitoring plots were established prior to VMP implementation in representative vegetative community types, collecting data on plant species composition, percent cover, and relative abundance and wildlife, including a meander survey for spotted turtle. The results of this effort have been reported in annual monitoring reports to the local Conservation Commissions as well as in the annual MEPA Status Reports. No adverse effects on wetland resources have been noted and the continuing presence of viable wetlands wildlife habitat has been documented.

Table 3.27 Summary of Taunton Airport VMP Monitoring

Plot	Plant Community	Treatment	Current Condition
Plot 1	Forested Wetland	Hand Cutting	Scrub/Shrub/Herbaceous Wetland
Plot 2	Forested/Scrub/Shrub Wetland	Hand Cutting	Scrub/Shrub/Herbaceous Wetland
Plot 3	Forested/Scrub/Shrub Wetland	Hand Cutting	Scrub/Shrub/Herbaceous Wetland
Plot 4	Scrub/Shrub Wetland	Mowing	Scrub/Shrub Wetland
Plot 5	Scrub/Shrub Wetland	Mowing	Scrub/Shrub/Herbaceous Wetland
Spotted Turtle Meander Survey	Intermittent Stream Channel, Sedge, Scrub/ Shrub Wetland	No Treatment	Intermittent Stream Channel, Sedge, Scrub/Shrub Wetland

In general, plots in vegetation removal areas showed re-establishment of the groundcover and shrub vegetative strata, due to increases in available growing space caused by canopy removal with 100 percent vegetation coverage. Areas of slash and wood chips were less quick to re-establish, but did so after decomposition of the chips. Canopy removal resulted in substantial increases in species diversity in the shrub and herbaceous layers.

Flowering spirea at a Taunton Airport monitoring plot (2004)

Recent and Projected Activities Affecting the VMP: Taunton Airport is unchanged since the development of the original VMP and the airport is not currently considering any improvements to the facilities that would affect the VMP. Should any changes be considered in the future, they will need to be evaluated as the conceptual plans develop, and the need to adjust the VMP fully evaluated relative to the potential for additional permitting and MEPA coordination.

3.3 STATUS OF EMERGING VMPS AT INDIVIDUAL AIRPORTS

3.3.1 Overview

Vegetation Management Plans are currently in various stages of development for several MAC airports, which include:

1. Pittsfield
2. Stow-Minute Man
3. Westfield-Barnes

The ongoing VMP efforts at each of these airports are presented and summarized below relative to:

- the general airport activities affecting the VMP,
- a summary of the current status of the developing VMP, and
- permitting issues or other unique or unusual circumstances affect the development or implementation of the VMP.

3.3.2 Stow Minute Man Air Field

General Description: Stow Airfield is located in the community of Stow and Boxborough, in Eastern Massachusetts between Interstate 495 and Interstate 95/Route 128 highways. The airfield has two runways: Runway 12-30 is gravel, 1600 feet long and 50 feet wide; and Runway 3-21 is paved, 2743 feet long and 50 feet wide with pilot controlled lighting. The airport provides major airframe and power plant maintenance to its visitors as well as aviation fuels.

VMP Permitting and History: Minute Man Air Field in Stow, Massachusetts has prepared a Draft Vegetation Management Plan to address 119 acres of vegetative obstructions on the airfield property. The airfield is located within the Town of Stow, but penetrations occur in the Town of Boxborough as well. The Draft VMP has been reviewed, and an Order of Conditions was issued on April 4, 2006 for the Town of Stow. However, the Boxborough Order of Conditions is on appeal to DEP. The timing of the initial clearing will depend on the outcome of the permitting efforts in Boxborough, and is not anticipated to occur in 2006. The 119 acres of management includes the use of logging, clear/grub, drop and lop, flail mowing, cut and chip, and a combination logging / flail mowing technique. If permitted in its present form, the initial clearing phase would include 67 acres of bordering vegetated wetland, 47 acres of riverfront area, and 104 acres of land subject to flooding (there is some overlap between these state-defined wetland resource areas). Maintenance techniques may include the use of herbicides and selective thinning over several of the vegetation management areas.

3.3.3 Pittsfield Municipal Airport

General Description: Pittsfield Municipal Airport is located in the southwest corner of the City of Pittsfield. It is a general aviation airport consisting of two runways; R/W 8-26 is the primary runway and 5,000 ft long and 100 ft wide with pilot controlled lighting. R/W 14-32 is the cross-wind runway and is 3,500 ft long and 100 ft wide. The airport provides major airframe and engine maintenance to its visitors as well as aviation fuels.

VMP Permitting and History: The airport is currently in the permitting phase of an extensive improvements program that will extend the primary runway, improve the runway safety areas, address airspace obstructions, and expand the terminal area. This improvements program has recently received approval of the Final Environmental Impact Report from the MA Executive Office of Environmental Affairs. The Environmental Assessment was issued a Finding of No Significant Impact by the FAA in 2005.

The FEIR included the Vegetation Management Plan as an appendix. The VMP will address obstructions in the proposed airport condition, which is contrary to the limited project provisions of the Massachusetts Wetlands Protection Act (MWPA) Regulations. Thus, the VMP will be included in the project variance request to the MDEP under the MWPA. Project timing depends on the outcome of the permitting process, however removal may occur in 2007/08.

The VMP will address 80.94 acres of obstructions. Of this total, 9.23 will occur in bordering vegetated wetland, and 7.58 acres in riverfront area. Obstruction lighting was used extensively to reduce the vegetation management impact on rare species and conservation area.

3.3.4 Westfield-Barnes Municipal Airport

General Description: Westfield-Barnes Airport is located on Routes 10 and 202 in the northern limits of the City of Westfield, immediately to the north of Interstate 90. The airport has two runways with the ability to accommodate small single engine planes to larger jet aircraft. Runway 2-20 is paved, 9000 feet long by 150 feet wide, and has a precision approach on Runway 20. The second runway is 15-33 which is 5000 feet long and 100 feet wide paved. There is a PAPI on Runway 33 to aid in approaches to the airport. The Westfield Air Traffic Control Tower is manned from 7:00 AM until 10:00 PM, with pilot activated approach lighting system for after hour operations. Barnes Airport offers a full range of services to accommodate its users. Businesses associated with the airport include aircraft maintenance and flight training.

VMP Process: A new VMP is currently under development to address obstructions to current airport surfaces at Barnes Airport. The VMP will be reviewed and permitted according to the established protocols.

4.0 DISCUSSION OF VMP ISSUES & 2000 GENF CERTIFICATE

4.1 SUMMARY OF VMP & 2000 GENF CERTIFICATE ISSUES

The Certificate of the Secretary of Environmental Affairs relative to the 1999 Update to the GEIR (issued January 14, 2000) identified several issues of continuing concern, which formed part of the rationale for continuing mandatory reporting to MEPA via the filing of Annual Status Reports and an additional update to the GEIR to be filed with MEPA in 2005. Additionally, MEPA concurred with the MAC/Massport offer to develop of an interagency (MAC, Massport, FAA, & DEP) Guidance Document for Conservation Commissions on the VMP process. Beyond providing an updated summary of the current status of the Statewide VMP activities at MAC and Massport, the 2005 Update to the GEIR was specifically required to address:

- the regrowth of wetlands affected by the implementation of the VMP;
- invasive species of vegetation for new and existing VMPs;
- the evaluation of wildlife habitat at airports relative to new and existing VMPs;
- the use of an Integrated Vegetation Management (IVM) approach for the development of new VMPs, including the extension of IVM into upland areas; and
- the encouragement of compatible land use practices such as agriculture.

Additionally, the issue of potential alterations to local hydrology due to the cutting of wooded canopy under VMPs has been raised at various public hearings as an issue of concern. Each of these topic areas is addressed in the following sections.

4.2 STATUS REPORTS & GUIDANCE DOCUMENT

As discussed elsewhere in this document, MAC and Massport have produced numerous documents in compliance with the requests of the Secretary of Environmental Affairs under the 2000 MEPA Certificate on the 1999 GENF Update to the GEIR (Table 4.1; see also Bibliography). As a continuation of the annual monitoring of the VMPs at the approved airports, annual monitoring reports were produced for each airport, which were submitted to the local Conservation Commissions for the relevant airports. The data in each of these reports, as well as other relevant information, was summarized in annual "Status Reports" on the airport VMP program, which were submitted to MEPA and posted in the Environmental Monitor.

MAC and Massport originally conceived of the idea to work with DEP to develop an interagency guidance document for Conservation Commissions. The purpose of the guidance document was to describe the VMP process in plain language to the Commission, and address some of the complex and confusing issues which seemed to re-emerge frequently during the local permitting process. As part of its 2000 Certificate on the 1999 GENF/GEIR Update, MEPA required that the Guidance Document be developed jointly with DEP.

Table 4.1 List of Required VMP Documents Under 2000 MEPA Certificate	
Document	**Date Prepared/Submitted**
Annual Monitoring Reports at Each of 11 Airports	Submitted to Local Conservation Commissions Annually 2000 to 2004
Annual Status Reports Submitted to MEPA	March 2001 February 2002 March 2003 February 2004 March 2005
Guidance Document to Conservation Commissions	March, 2004

Beginning in 2000, MAC hired an outside consultant to facilitate the process of developing a Guidance Document on VMPs for Conservation Commissions. MAC, Massport, FAA and DEP began meeting on the Guidance Document during late 2001, and multiple draft documents were reviewed and discussed during four (4) interagency meetings held during 2001 and 2002.

The final Guidance Document was approved for distribution by all of the agencies in March of 2004, and it was released and distributed that year (Appendix E). Copies were distributed broadly throughout the government, including each branch office of DEP, all Conservation Commissions with airports within their communities, and to several public interest groups. The document was noticed in the environmental monitor and continues to be posted on the MAC website (www.massaeronautics.org).

4.3 REGROWTH IN VEGETATION MANAGEMENT AREAS

Since the original estimation of potential impacts to wetland resources considered by the original GEIR for vegetation management in wetland areas at airports, there has been nearly 10 years of observations associated with the implementation of the Statewide Vegetation Management Program at MAC and Massport airports (37 aggregate years of monitoring for all airports). In general, the conclusions of the GEIR have been largely confirmed. As stated in the Secretary's Certificate to the Draft GEIR:

> *"If the [VMP] is designed according to the guidelines and recommendations presented in the GEIR and the NOI is properly prepared, the long-term impacts to the wetlands functions and values are not expected to be significant."*

The most dramatic and basic change occurring under the typical VMP is plainly evident, with the transformation of mature or immature woodlands to herbaceous and shrub dominated systems. In general, monitoring between the late 1990's and 2004 of vegetation

removal areas continues to demonstrate several consistent trends identified in earlier reports. With this removal of the wooded canopy, the vegetative and wildlife community is transformed, and the shrubs and herbaceous species already present in the wooded areas but repressed due to shading, rapidly begin to grow in dominance as other species begin to fill the vacant niche. Rapid regrowth also occurs from the suckers emerging from the tree stumps, which are typically left in place (see photo). However, this particular rapid regrowth of the former canopy species, which can be at a rate of several feet per year due to large supporting root system of the stumps, is not desirable in maintaining the VMP areas, since they would create future vegetative penetrations of protected airspace. Therefore, following the initial physical removal of the tree canopy, the upland and wetland areas are actively kept in a state of early vegetative succession of shrubs, saplings, and herbaceous growth via routine maintenance under the Yearly Operational Plans approved in the VMPs. Such early typical follow-up vegetation management quickly focuses on the elimination of the stump regrowth, often via herbicide treatment of the sucker growth.

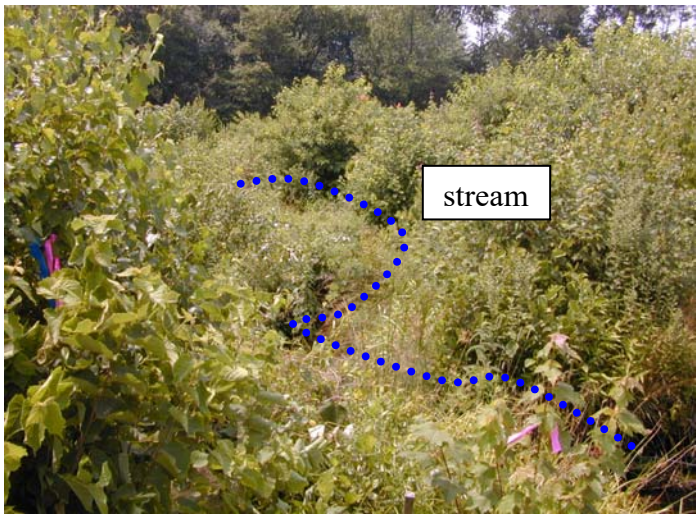
The monitoring experiences over the past decade have shown that the shorter growing tree species, shrubs and grassland species can provide equal levels of soil stabilization and water quality protection, since monitoring has not recorded any incidents of erosion or sedimentation from vegetation management areas once the disturbance of the initial cutting has been completed. The monitoring performed at the 10 different MAC VMP airports and at Hanscom Field has been performed annually at multiple wetland sites at each airport, typically by the same wetlands scientist each year.

Monitoring has also not detected any discernable change to the limits of wetland resource areas or stream corridors due to vegetation removal. In no case has there been any report of a potential change in the wetland boundary location or observable change in local hydrology (see wetland photo, right). While some academic literature indicates potential differences in evapotranspiration rates between forested canopy and shrub or herbaceous dominated systems, the practical reality to the extent experienced at airports is that any such changes do not manifest in observable

Isolated Vegetated Wetland at Fitchburg Airport

alteration of upland and wetland boundaries. Therefore, there has been no experience of a shift from predominantly wetland species to upland species. The only observable changes have been the obvious conversion of vegetative structure with the removal of canopy vegetation in wetlands and riparian zones, changing forested wetlands and forested riparian buffer zones to scrub/shrub and herbaceous dominant areas.

While there has been no apparent adverse affect on wetland boundaries or water quality due to erosion and sedimentation, the loss of forest canopy can result in a loss of the shading of streams, especially in the one to two years following the initial cutting of the canopy. Such a loss of the shade canopy can potentially affect surface water temperature, causing an increase, and decrease habitat suitability for some fish species. However, the rapid regrowth of vegetation, previously repressed due to shading, counters this short-term impact to a greater or lesser degree, depending upon site specific characteristics include stream width and orientation, and moderates temperature variability in surface water. At Orange Airport, the approved VMP specifically provided a mitigation plan, heavily planting an intermittent stream corridor with appropriate shrub species in order to more rapidly re-establish a shaded riparian corridor. Although replanting plans were not required for the unnamed streams at Norwood Airport or for Back Bay Brook at Mansfield Airport, canopy removal allowed for rapid revegetation of adjacent shrubs. Currently Back Bay Brook has a dense fringing shrub layer of alder and several other woody species providing heavy shade to the perennial stream (see photograph). Continuing maintenance of riparian vegetation in such areas needs to encourage the dense growth of shorter shrubs in order to maximize the future shading of streams segments.



4.4 INVASIVE SPECIES CONTROL

Invasive species are a continuing problem at several airports as they are throughout vegetative communities nationwide. The 1999 GENF/GEIR Update addressed the problem of invasive species. The Secretary's Certificate stated that MAC and Massport should identify

> *"the species considered to be invasives, consider the likelihood of their being present at airport vegatation control areas, and present the proposed control strategies for each species, whether wetland or upland. Each VMP should address the issue of invasive plants."*

The statewide VMP program has sought to be responsive to the problem of invasive species. An invasive species is defined as a non-native species that is capable of moving aggressively into a habitat and monopolizing resources such as light, nutrients, water, and space to the detriment of other species. Invasive species compete directly with native species and an increasing number of studies are indicating that most invasive species are not as nutritious or beneficial for local wildlife, which in part may be a source of their success.

There are no vegetative communities that have been immune to such incursions by exotic and invasive species, whether deliberately or accidentally introduced. Nationwide, invasive species are reported to have contributed to the decline of 42% of U.S. endangered and threatened species, and represent the primary cause of decline for 18% of the same species. Therefore, such problems are far from unique to airports and represent an increasing challenge statewide.

Table 4.2 Problematic Invasive Species at VMP Airports

Common Name	Scientific Name
Autumn olive	*Elaeagnus umbellata*
Common buckthorn	*Rhamnus cathartica*
Glossy buckthorn	*Rhamnus frangula*
Japanese knotweed	*Polygonum cuspidatum*
Multiflora rose	*Rosa mutiflora*
Phragmites, Reed grass	*Phragmites australis*
Purple loosestrife	*Lythrum salicaria*
Spotted knapweed	*Centaurea biebersteinii*

Based upon the years of monitoring at airports, the most commonly observed invasive species, which present more of a threat to the local landscapes include several woody shrubs and herbaceous species (Table 4.2). While there are numerous other invasive species, which may occasionally be present at the airports, their numbers generally seem to remain more in balance with the total diversity of the local environments. The presence of purple loosestrife and European buckthorn has been a concern at several airports. Both species are dominant at some portions of Norwood Airport, and Japanese knotweed has been problematic at Fitchburg Airport. Some invasive species are present at all airports, but seem to be present as sub-dominants except perhaps in restricted local areas.

As part of a VMP, the airports have a responsibility to control such species to the extent practicable because the removal of the tree canopy can possibly create conditions that favor the expansion of invasive species into the exposed unoccupied niche, especially if such species are already living in the area. It has been a stated goal of the Statewide VMP efforts of MAC to seek stable vegetative communities that do not include invasive species. Therefore, the VMP program may need to address these concerns, to prevent dominance in the vegetative regrowth by invasive species. Such dominance limits the establishment of a broader, more desirable vegetative community of diverse native species in the VMP areas.

Methods of Invasive Species Control: The control of invasive species at airports includes five basic techniques:

1. the establishment of a well vegetated community without dominant invasive species;
2. semi-annual or annual mowing of regrowth areas;
3. hand pulling of invasive species;
4. the selective use of herbicide; and/or
5. biological controls.

Revegetation: The best means to prevent potential invasive species dominance of VMP areas may be to encourage other vegetation growth. It appears that established vegetative communities with diverse natural vegetation are more resistant to invasion and dominance by invasive species. Therefore, the encouragement of a more natural community immediately following the implementation of a VMP has promise as one way to limit the incursion of invasive species.

The presence of a healthy shrub layer, even if relatively sparse, within the wooded VMP area to be cut provides an immediate source of regrowth within the area of vegetation management. Efforts are made during tree removal to leave such species viable by employing methods, which limit the areas where machinery is operated, the location of haul roads, and other sources of disturbance. Further, areas that are disturbed are restored with seeding and/or replanting to encourage regrowth.

Once invasive species emerge within an area, eradication becomes difficult, if not virtually impossible. Monitoring and early detection of new infestations is critical since invasive species are most readily controlled before they become well established with extensive root systems and seed banks in the environment.

Handpulling: Follow-up work under the VMP has included hand pulling, which has proven somewhat successful in limiting localized growth of invasive species. However, hand pulling is typically less effective for larger, more extensive infestations and viable root stock is often left with this technique. Nevertheless, localized hand pulling does have useful applications, especially for smaller and newer infestations.

Herbicides: The MAC has made numerous concerted efforts to manage invasive species along with potential vegetative penetrations via the use of herbicides. Invasive species have been specifically targeted where they have threatened to significantly compromise wetland function and wildlife habitat by extending their dominance. Similar to their use along utility Right-of-Ways, herbicides are often a vital part of the management of vegetation due to the lack of other effective means to accomplish these goals.

The use of herbicides in or near wetlands is strictly regulated by the MA Dept. of Food and Agriculture (DFA) and the airport VMPs follow the DFA guidelines and each VMP is reviewed by the DFA. All herbicides in MA must be registered and approved for a specific use by the U.S. EPA and the DFA. In addition, herbicide use in or near wetland

resource areas requires additional levels of regulatory review. In Massachusetts, the Rights of Way Management Regulations (333 CMR 11.00) apply. The Herbicide Regulations (333 CMR 11.00) dictate special procedures or limitations on the frequency of application allowed within specified distances to "sensitive areas" such as public and private drinking water supplies, standing or flowing water (10 feet), and agricultural or inhabited areas. Additional permitting would be required for use in water, but is not needed at airports to control vegetative penetrations. Experience with herbicide use at airports has proven that the controlled use of the appropriate herbicide, usually glyphosate (brand name, Roundup or Accord), is a viable method for vegetation management in PZs surrounding airports. Selective use of herbicides is cost effective and can reduce or eliminate the need for future, large-scale maintenance efforts that are more intrusive. Glyphosate is typically applied directly to stumps or leaves by hand spraying with a backpack sprayer. This practice is used both to limit the amount of herbicide used and the amount of herbicide reaching non-target vegetation. Any glyphosate that reaches the ground will stay in the soil and rapidly biodegrade. Glyphosate works by inhibiting photosynthesis. At two airports, surface water and wells were tested for glyphosate before and after herbicide use. In all cases, the herbicide was not found to be present.

Such efforts to control invasive species has shown modest success at some airports but has not solved the continuing problems at others. Significant reductions of buckthorn have been effected at Norwood Airport and there has been limited success of reducing Japanese knotweed at Fitchburg Airport. However, the future successful limitation of these species may have limitations. For example, Japanese knotweed is well established in extensive stands off airport property, immediately adjacent to the airport. Therefore, on-airport areas will be continually vulnerable to re-infestation, and continued herbicide treatment can only treat the symptoms and not the causes of the invasive species problem, providing no long-term solution. However, where invasive species can be managed effectively on-airport and are less subject to re-infestation, herbicide treatment should be continued to prevent invasive species dominance and to ensure the long-term diversity of these ecosystems.

Biological Controls: Biological controls perhaps show the greatest potential for the future. Such controls may not lead to total eradication of invasive species, but are more likely to effect longer-term and more successful control over time that does not depend upon constant and repeat human interventions and the likely use of herbicides. Typically, the biological controls are insects, which are found to exclusively (or almost exclusively) feed upon the invasive species in its natural environment. The beetle *Galerlucella* has been used experimentally in Massachusetts to control purple loosestrife, and is used as a preferred methodlogy elsewhere in the northeast. Similary, studies are ongoing at Cornell University on the use of butterfly larvae to control Japanese knotweed and other insects to control spotted knapweed. However, such efforts continue to be controversial and subject to concerns of introducing yet another exotic species to control the current exotic. Research is ongoing to address several of the common invasive species observed at airports and the initial results appear promising. However, until such methods are approved, careful design and implementation of VMPs relative to invasive species and the judicious use of herbicides likely offer the best opportunities for control.

Future Emphasis of Invasive Species Control: Invasive species are a pervasive problem throughout the northeast, and the problems witnessed at airports are not significantly different than experienced elsewhere. Solutions to such invasive species problems are elusive, and the evolving focus of the environmental community relative to invasive species is to focus upon the newer invaders, that are not currently pandemic throughout the ecosystem. This can manifest in three types of situations:

1. where the invasive species is common to New England but not currently located on the airport
2. where the invasive species is immediately proximate to the airport in large quantities and the modified habitat is appropriate for the invasive; or
3. newly emerging invasive species threats that are not prevalent in New England.

In the first case, invasive species that are not prevalent on site prior to vegetation management should be prevented from invading as a result of VMP disturbance. The second situation is the most difficult to control, and the chance of successfully preventing invasion is limited and would likely involve annual herbicide treatments. In the third, controls of new invasive species can prevent those species from achieving a foot-hold on the airport and potentially in the state. Mile-a-minute vine (*Polyganum perfoliatum*), spotted knapweed, and Japanese stilt grass (*Microstigium vimineum*) are emerging threats to the New England ecosystems, which still might be controlled by vigilent monitoring for their presence at airports and elsewhere. Therefore, the VMP program needs to address these concerns on a case-by-case basis under new proposed VMPs at airports or under the YOP Updates at existing airports. Therefore, it is recommended that the future of invasive species control focus primarily on three primary conditions:

1. re-establishing a healthy, dense vegetative community following VMP activities;
2. controlling infestations of the more typical invasive species infestations only when they are not threatened with constant re-introduction due to the presence of dense stands of the same species in uncontrolled areas adjacent to the airport; and
3. monitoring and aggressive control of the emerging invasive species that severely threaten the ecosystems of MA (e.g., Mile-a-minute vine, spotted knapweed, and Japanese stilt grass).

4.5 WILDLIFE HABITAT ANALYSIS & MITIGATION

Without question, the loss of the wooded canopy associated with a stand of mature trees alters the wildlife habitat, both in wetlands and uplands. The nature of this change was considered in the original GEIR as well as given emphasis in the Secretary's Certificate to the GENF/GEIR Update. Because such change is inevitable, the MA Wetlands Protection Act was modified to allow for the permitting of such alteration under "Limited Project Status" (310 CMR 10.53), assuming the requirements for the development of a formal VMP were met. The 2000 Certificate of the Secretary on the GENF/GEIR Update indicated that increased emphasis on wildlife habitat issues was needed and that " future VMPs should identify other habitat values that may be present such as nesting and feeding areas, unidentified vernal pools, and fisheries, as well as potential rare endangered, and

state significant species habitat." Mitigation strategies for wildlife habitat were also to be considered within the VMP programs. Future VMP applications or modifications of existing applications will identify and evaluate wildlife habitat in accordance with the *Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands* (DEP March 2006).

The cutting of trees in and near wetlands is not new or unique to airports. While such activity is typically discouraged unless absolutely necessary to the public interest, trees have been cut in wetlands as part of other programs for many years. Vegetation management has also occasionally been performed as an environmental benefit. A MassWildlife (DFWELE) program converts forested lands shrub to grassland habitats as an environmental enhancement.

Since 1995, VMP projects have taken place at eleven separate airports, as permitted under the Wetlands Protection Act, with follow-up annual monitoring at each. Monitoring has typically focused upon the vegetative regrowth, especially within wetlands, and the evaluation of wildlife habitat and overall health of the wetland. The evaluation of wildlife habitat has been performed by examining the structure of the vegetative communities and food species associations, inferring the expected wildlife species present, and supplemented with information provided by generalized observations of wildlife via direct and indirect observations (ie: by sign of scat, tracks, dens, nests, auditory identification). Target species (e.g., rare species known to be present) have also been specifically looked for during monitoring.

Following the initial physical removal of the tree canopy, the wetland areas are kept in a state of early vegetative succession via routine maintenance. Therefore, the vegetation tends to be dominated by herbaceous and shrub species with some young tree saplings. Such areas present different micro-niches for wildlife species: the wildlife habitat of a forested community is obviously different than that of shrub, immature woodland or grassland communities. Wildlife expected to be present will be those species dependent on, or accepting and/or tolerant of the ecological niches present in such early

Shrub and sapling community at Taunton Airport (2001)

successional vegetative complexes, characterized by dense herbaceous and shrub-sized woody species. For example, song-birds which are typically high canopy nesters, are less likely to inhabitat the transformed area. However, many local wildlife species are habitat generalists or may utilize the new habitat for different phases of their existance. Experience at the various airports, and in similar projects, demonstrates that some of the same mammal, avian, reptiles and amphibians present prior to cutting are able to utilize the habitat after cutting. For example, raptors such as red-tailed hawk that use the trees for nesting or perching prior to cutting, may use the modified area for hunting of exposed prey. As long as sufficient nesting habitat is nearby, the modified habitat could either by an enhancement or deficit to any given species, depending upon which aspect of their critical habitats was in shortest supply. Similarly, spotted turtle and eastern box turtle have both been documented at airports in the same general areas, before and after tree removal. This does not mean that the habitat is equivalent. However, the alteration does not necessarily result in the elimination of all wildlife previously utilizing the area. Since habitat is not lost, but is alterred, there will be "winners and losers" within the wildlife community, with some species benefitting and others seeing a loss of habitat. As ongoing maintenance arrests forest succession and promotes the long-term sustainability of these shrubland and grassland communities, the species dependent upon these early successional habitats, which are a declining resource in Massachusetts, will be provided with a meta-stable habitat.

From some perspectives, the habitat value of younger (early successional) woodlands, shrublands, and grasslands can also potentially outweigh the value of mature woodlands due to increases in local vegetative and habitat diversity and the relative rarity of the shrubland and grassland habitat in the nearby and regional environment. Recent studies by the Massachusetts Audubon Society indicate that airports provide most of the last refuges for grassland species in the Northeast [www.massaudubon.org/Bird-&-Beyond/ Grassland_Birds /large.html]. This important habitat type including some wetlands and buffer zone areas, can be protected, and even enlarged, by airport vegetation management efforts. Therefore, in many cases, important wildlife diversity can benefit by vegetation management at airports under a well designed program.

Rare species are protected under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00). In the development and permitting of VMPs at airports, both the Massachusetts Natural Heritage and Endangered Species Program (NHESP) and the United States Fish and Wildlife Service (USFWS) are contacted relative to the potential adverse impacts to protected species within or adjacent to the airport. As part of this interagency coordination, NHESP has recommended additional mitigation measures that have been implemented as part of the VMP. Such measures have included restrictions on time of cutting activity for grassland bird habitat maintenance and for amphibian migration, and limitations on the number of trees cut annually in sensitive areas (e.g. vernal pools).

4.6 POTENTIAL FOR VMP ALTERATION OF LOCAL HYDROLOGY

Based upon the years of vegetative monitoring of VMPs at multiple airports, there has been no observation of changes in local hydrology as might have been evidenced by increased stream scour; erosion and sedimentation; or diminished or increased flood boundaries associated with streams or pools, including vernal pools. This lack of observable changes in hydrology was not necessarily an expected outcome in all cases, since there is a body of academic literature suggesting a potential for just such effects. Woodlands and forest canopy have different abilities to capture rainfall within the canopy and have different evapo-transpiration rates than do shrub or herbaceous dominated systems, with the tendency of woodlands to hold back more runoff than other landscapes. However, the practical reality experienced at airports is that, to the extent any such hydrological differences exist, they do not manifest in observable alterations of local stream flow or other surface water hydrology.

There are perhaps several logical reasons why such hydrologic changes have not been observed, even though some theoretical difference might be expected. It is the nature of airports that they are typically located on large, naturally flat expanses of terrain. Such geographic areas within the landscape tend to be primarily:

- sandplain-outwash areas,
- low landscape areas (including areas of filled wetlands), or
- upper terraces of floodplains.

Typically, in these settings, the airports represent the highpoint relative to much of the immediately adjoining terrain. This situation tends to create multiple sub-watersheds surrounding the airfield. Therefore, the usual pattern of airport drainage is to several different small streams, such that only a relatively small percentage of the total airport VMP affects any given sub-watershed.

Vegetation management and airport VMPs naturally tend to focus upon heavy canopy cutting in the areas closest to the perimeter of the airfield. As a result, while the typical VMP may affect between 20 to 150 acres in total, only a small portion of the managed area tends to contribute drainage and runoff to any single sub-watershed and feeder stream, where any hydrologic changes would likely be more apparent. This situation is unlike many forestry projects, which tend to occur in larger contiguous blocks of lands, and are likely more concentrated within a single sub-watershed.

One further observation is that the ecosystem tends to rapidly compensate for the loss of the canopy shortly after the heavy cutting. Following the initial physical removal of the tree canopy, the dense regrowth of the shrub layer occurs once the light is able to reach the former forest floor. This provides a dense, stem rich vegetative layer to intercept rainfall as well as dense, closely woven root structures to help stablize the soils.

Based upon the monitoring experiences at airports and a review of the literature on runoff associated with forestry practices, concern for significant hydrologic changes at airports might be greater if most or all of the following criteria for the VMP cutting area consist of:

- a mature and contiguous woodland with continuous uninterrupted canopy;
- >20 acres within in single sub-watershed;
- a relatively steep watershed (>10% slopes);
- the slopes are formed in low permeability soils (e.g., glacial till, glacio-lacustrine)
- drainage patterns primarily within small steep gradient, intermittent streams;
- the streams are formed in erodable soils (e.g., outwash, pro-glacial outwash; non-compact glacial tills, or alluvial soils); and
- most importantly, the VMP calls for total canopy removal.

4.7 INTEGRATED VEGETATION MANAGEMENT

IVM Concept: Integrated Vegetation Management (IVM) is a holistic, conceptual approach to vegetation management, which examines the full range of short-term and long-term measures necessary to efficiently manage vegetation in an environmentally sensitive manner. An IVM approach to the airport VMP affects both the wetland and upland areas, but addresses the unique sensitivities of all areas.

The concept of IVM was developed after the completion of the 1993 GEIR, although the individual components that are used to create a comprehensive vegetation management program were individually discussed within the GEIR, each with its own benefits and impacts. The GEIR was primarily developed to address the impacts of airport vegetation management within wetlands. However, an IVM approach is more comprehensive, and necessarily addresses the entirety of vegetative complexes surrounding an airport.

IVM combines various mechanical removal techniques, chemical follow-up treatments, and the encouragement of natural processes to create "meta-stable vegetative communities" surrounding the airport that are compatible with the protected airspace. In developing the VMP for each of the airports, an IVM approach naturally evolves as the unique geographic, physical, and biological aspects of the airport are considered in the context of the creating an overall plan that utilizes the various short-term and long-term VMP techniques in an appropriately integrated, complementary program that enhances long term effectiveness in vegetation control, cost effectiveness, and minimization of environmental impact.

Central to the concept of IVM, is the development of the "meta-stable vegetative zones" based upon encouraging species-groups of vegetation with growth habits compatible with the protected airspace surrounding the airfield. Generally, the further away from the runways, the taller vegetation can be permitted to grow without causing safety violations. The VMPs identify vegetation management zones or areas within which species that would grow to be penetrations are discouraged by active management such as selective cutting and herbicide use. As the remaining species which will not grow to the penetration height of protected

airspace become dominant, they competitively exclude the undesirable species, helping to maintain the zone and minimize future maintenance. By minimizing future maintenance activities, the need for future wetland intrusion and operational costs are also minimized. Zonation, by its very nature, encourages a greater diversity in the vegetative mix and, thereby enhances the opportunity for a greater diversity of wildlife habitat

Integrated Vegetation Management combines sequential use of mechanical, chemical and biological treatment. The typical approach is to mechanically remove the penetrating trees/shrubs, chemically treat fast growing re-sprouting stumps and/or invasive species, and encourage the natural development of desirable species which suppress the re-establishment of undesirable plants through shading and other biological means. Once the compatible vegetative structure is established, periodic herbicide treatment programs may be needed every two to five years to maintain the plant height zones and prevent succession to vegetative communities with taller species. The typical zones surrounding the airfield are as follows:

> **Zone 1:** This zone is located closest to the runway and may include the primary surface and in-field areas. Mown several times each year.
> **Zone 2:** Non-woody species (i.e., grasses and herbaceous plants), three feet tall or less are allowed to grow in this zone.
> **Zone 3:** This zone is located further away from the primary surface and approach surface, and is composed of low growing bushes ($\leq$ ten feet).
> **Zone 4:** This zone consists of tall growing shrubs and small trees (30 to 50 ft).
> **Zone 5:** This final zone consists of tall trees with a maximum height of ninety feet.

IVM Implementation at Airports: Since the start of the VMP program for airports in the early 1990's, over $5 million has been invested in developing and implementing the MAC and Massport statewide approach to vegetation management, with more than half of the cost to date has been related to planning, permitting, and monitoring. Because detailed planning and analysis with appropriate airport and ecological expertise is required to develop and implement a successful VMP, both MAC and Massport continue to maintain a significant degree of control over all projects at the individual airports. As this concept has evolved at MAC and Massport airports, IVM entails a multi-year program, which generally goes through the following sequence:

1. identification of the vegetative areas surrounding the airport that require management;
2. development of vegetation management zones surrounding the airport;
3. development of an appropriate plan to remove and maintain the vegetative zones;
4. short-term removal program for tree penetrations into the protected airspace surrounding the airfield;
5. long-term management of the treatment areas for the different vegetation management zones via a program which includes:
    a. grassland mowing;
    b. rough cut mowing;
    c. herbicide treatment of stump sprouts, undesirable species and invasive

species;

d. selective localized cutting to maintain management areas; and
e. annual monitoring of regrowth patterns to adjust the maintenance program as necessary.

After the planning steps 1 through 3, the initial part of the short-term VMP is implemented to remove the bulk of the vegetative tree penetrations of protected airspace. This takes the form of a multi-week forestry program within the adjacent woodlands to remove trees that have overgrown after years of no management. As part of incorporating IVM concepts within the VMP, the various methods of cutting are considered in order to best accomplish the necessary vegetative clearing while minimizing environmental impacts. The typical initial tree and woody growth removal methodology is summarize in Table 4.3.

Table 4.3 Common Tree andShrub Removal Techniques

Method	Description
Logging	Individual trees cut with chain saws or other mechanized equipment (e.g., feller buncher). Trees transported and whole logs separated, and the remaining limbs and branches are chipped.
Drop and Lop	Trees cut with chain saws. All limbs, branches and resulting slash is lopped and left in place.
Drop and Mow	Trees cut with chain saws. All limbs, branches and resulting slash is mowed with flail mower. All slash resulting from mowing is less than one foot above the ground.
Cut and Chip	Trees cut with chain saws and transported by a cable or grapple skidder to a chipper in an upland area. The entire tree is chipped.
Mowing	A heavy duty track-mounted flail mowing head or a flail mowing head attached to a rubber-tired vehicle is used to mow and chip trees. This practice is commonly used for trees having a diameter of 6 inches or less. All slash resulting from mowing is less than one foot above the ground.

Cut and chip methodology

Following the initial heavy cutting of woody vegetation, the long-term vegetation management techniques employ three major approaches:

1. Mechanical methods of woody vegetation removal tailored to the specific zones;
2. Chemical treatment of re-sprouting vegetation with herbicides to remove incompatible species; and
3. Biological methods which seek to enhance the establishment of meta-stable vegetative zones that competitively inhibit undesirable species.

The IVM approach for airport VMP programs typically combines mechanical clearing with herbicide use and the natural biological processes to aid in maintaining the desired vegetation with the goal of minimal future maintenance and disturbance of the environment.

Mechanical Methods: Vegetation is removed using a variety of methods, which are basic variants on the methods enumerated in Table 4.3. Since, however, most of the heavy cutting of woody growth has been accomplished as a short-term measure. The treatments tend to be more directed and specific as a maintenance tool. Typically, the methods include

- mowing of the grassed primary surfaces multiple times per year, principally within Zone 1 areas;
- once annual mowing of herbaceous zones and some woody stems next to the grassed primary surfaces within Zone 2 areas;
- rough cut mowing operations of mixed herbaceous and woody growth within Zone 3 areas, conducted once every 2 – 3 years;
- rough cut mowing or use of individual chain saw or other hand equipment operations of shrubby woody growth within Zone 4 areas every 3-5 years; and
- individual chain saw or other hand equipment cutting in Zone 5 areas every 5-10 years.

For the use of any short-term or long-term mechanical removal technique, it is critical to include the following elements in order to minimize the potential for environmental impacts:

- experienced construction supervision;
- experienced equipment operators;
- ensure that soils that are stable enough to support the equipment [as per 310 CMR 10.04 and 10.53(c)(2), removal of vegetation must occur during times when the ground is “frozen, dry or otherwise stable to support the equipment used”];
- minimize the turning and repeated travel by machinery over the same area except within designated and stabilized haul roads; and
- utilization of timber mats or corduroy bridges over drainage ditches or wet areas.

Controlled burning is another method of mechanical removal that has seen some limited application at MAC and Massport airports, especially where the desire is to maintain existing sandplain grassland habitat. Successful burns have been performed on a small scale at Hanscom Field, Turners Fall Airport, Nantucket Airport and Westover Airport. However, this technique is likely to remain of limited use for most VMPs due to the presence of nearby residential areas to most airports, conflicts with airport neighbors, and smoke impacts on aviation.

Controlled burn at Westover Airport (April 2002)

Chemical Treatment: The use of herbicides typically provides an important part of the management of vegetation at airports, especially in the first few years following the initial heavy cutting of woody growth. Herbicides are used to suppress rapid regrowth of suckers from stumps of cut trees, which ofter exceed 3-5 feet of new growth per year. Obviously, the rapid regrowth of these species, which were the targetted vegetative penetrations, needs to be addressed to maintain the vegetation within the treatment zone. The rapid regrowth from the stumps occurs due to the large root mass of the still viable stump which can support the growth of the suckers. By herbicide treating the stump regrowth, the entire stump can be killed, limiting the potential for future maintenance. Over time, the shrubs will tend to grow thick enough to shade out the tall tree seedlings. The herbicides are most often applied directly by hand, via treatment of the cut stumps or by direct spraying of the leafy foliage of the target plant.

Conservation Commissions frequently express concern about the use of herbicides in or near wetlands. However, such use can be performed in an environmentally sensitive manner and all such use is strictly regulated by the MA Dept. of Food and Agriculture (DFA). All airport VMPs follow the DFA guidelines and each VMP is specifically reviewed by the DFA. All herbicides in MA must be registered and approved for a specific use by the U.S. EPA and the DFA. In addition, herbicide use in or near wetland resource areas requires additional levels of regulatory review. The DFA's VMP Advisory Panel has determined that herbicides, when applied under the guidance of an Integrated Vegetative Management (IVM) program and other conditions, have less impact on wetlands than mechanical only techniques (Environmental Consultants, Inc. 1989).

In Massachusetts, the Rights of Way Management Regulations apply (333 CMR 11.00), which dictate special procedures or limitations on the frequency of application allowed within specified distances to "sensitive areas" such as public and private drinking water supplies, standing or flowing water (10 feet), and agricultural or inhabited areas.

Additional permitting would be required for use in water, but is not needed at airports to control vegetative penetrations. Other typical guidelines for herbicide application include:

- A qualified, DFA-licensed person must apply the herbicide.
- Vegetation management crews must exercise care to ensure that low-growing desirable species and other non-target organisms are not unreasonably affected by the application of herbicides.
- Herbicides must be handled and applied only in accordance with labeled instructions.
- Herbicides must not be applied during the following adverse weather conditions (high wind, dense fog, moderate to heavy rainfall, high temperatures and low humidity for volatile herbicides, deep snow preventing adequate coverage of target plants).
- At least 21 days in advance of herbicide application, the DFA, the Town/City, the Board of Health, and Conservation Commission shall be notified of the appropriate date of the application.
- No foliar application of herbicides is used to control vegetation greater than 12 feet in height except for side trimming.

Experience with herbicide use at airports has proven that the controlled use of the appropriate herbicide, usually glyphosate (brand name, Roundup or Accord), is a viable method for vegetation management in PZs surrounding airports. Glyphosate is typically applied directly to stumps or leaves by hand spraying with a backpack sprayer in order to limit the amount of herbicide used and the amount of herbicide reaching non-target vegetation. Any glyphosate that reaches the ground will stay in the soil and rapidly biodegrade. Glyphosate works by inhibiting photosynthesis. At Beverly and Orange airports, water and wells were tested for glyphosate before and after herbicide use. In all cases, the herbicide was not found to be present.

Biological Control: The basic goal of biological control is to develop meta-stable vegetative communities of desirable species that do not have the capacity to grow to be penetrations of the protected airspace. Well-developed communities of the desirable height limited species will naturally resist, but not prevent, the new growth of other non-compatible species. Competition – primarily through shading – is the most prevalent natural control method, but some plants use other biological methods to compete for resources such as sunlight, moisture, and nutrients. Therefore, the well-developed natural community, once established, will minimize the need for future maintenance by either mechanical or chemical means.

4.8 ACQUISITION OF OFF-AIRPORT PROPERTY EASEMENTS FOR VMPs

As part of the analysis of vegetation penetrations into protected airspace surrounding airports (Part 77 analysis), such penetrations are noted both within airport property as well as on private and public properties outside of airport property limits. In some cases, the

airports have previously acquired the rights to manage the vegetation on some off-airport property through the use of easements, which have been purchased from the landowners. In such cases, the VMP prepared for the airport naturally incorporates the vegetation management on these lands. Most often, the treatment methodology is unique and emphasizes mostly hand-style landscaping approach because the tree removal is occurring on private properties, often in residential or commercial use.

Where the vegetative penetrations exist on lands presently outside of the control of the airport, the VMP typically identifies these areas where future easements need to be acquired in order to achieve compliance with the requirement for the protected airspace. The 2000 Certificate of the Secretary on the GENF/GEIR Update recognized this problem, requesting that future MEPA VMP documentation

> *"discuss the issue of vegetation control necessary on private property where no agreement have been developed with the landowners."*

Control of the vegetation on the private property can be acquired through several methods, such as purchase of property interests (fee), through easements, or by donation or exchange. Unless received through donation, private property is acquired by the airport owner through payment of just compensation to the property owner. Typically, the airport enters into negotiations with the landowner in order to set an acceptable price for the easement, based upon an assessed value of the value of the trees to the property. Most often, such negotiations are successfully implemented with all parties benefiting from the transaction. However, in some cases, the landowner is reluctant to provide the necessary easements. Under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646), as amended, the airport has the ability to acquire the easements by eminent domain (condemnation) if absolutely necessary for the protection of the public safety interests associated with airport operations. In all cases, a competent, independent, property appraiser familiar with local property values is hired to appraise the property. The appraiser inspects the property and sets forth an opinion of its current fair market value in a formal appraisal report. This report is also reviewed by a review appraiser for conformance to acceptable appraisal standards and FAA requirements. After the report is approved, it is used as the basis for the airport owners written offer to purchase their property. The written offer can be for no less than the amount of the approved appraisal. The landowner has rights to question the appraisal and higher a different appraiser as part of the negotiations.

4.9 COMPATIBLE AGRICULTURAL USE

Agricultural operations adjacent to and on airport properties have been identified as a potentially airport compatible land use that can be used to augment and be incorporated into airport VMPs. The 2000 Certificate of the Secretary on the GENF/GEIR Update indicated that

"In response to the comment of the Department of Food and Agriculture, the Guidance should encourage the leasing of cleared areas around airports for agricultural purposes."

The specific comment from the Department of Food and Agriculture was as follows:

"A number of public use airports in the Commonwealth maintain their PZs partially through compatible agricultural use. We suggest that this practice may be considered during planning for upland vegetation planning for upland vegetation management….. In herbaceous, short shrub and tall shrub zones a range of crops could be considered, including hay, corn, small fruit, vegetables, nursery stock, Christmas trees, and small orchard trees."

All VMPs consider the potential synergistic use of agriculture as part of the program to manage vegetation in and around airports, and several airports do take advantage of some agricultural opportunities. Agricultural land preservation in areas surrounding municipal airports is potentially compatible with airport management. However, the primary future of agriculture relative to VMP programs is most likely to remain with the private agricultural lands near the airports. Airport security concerns emerging since 9/11/01 significantly limit non-airport related activities within airport properties. Further, working agriculture in areas immediately adjacent to active runways could present a potential safety hazard as wildlife are attracted to agricultural areas. It should also be noted that in most cases, the geologic soil conditions tend to be either nutrient poor sandy soils, or wetter, potentially hydric soils, which are often incompatible with agricultural use.

Hay field at North Adams Airport

Nevertheless, there are some notable exceptions where agricultural use on and off airports has been successfully employed to augment airport vegetation control.

- At Orange Municipal Airport, on-airport lands have been allowed to be in corn production, where the cleared airport lands are outside of the primary safety areas that must be frequently mown.

- At North Adams (Harriman-West) Airport, some on-airport and immediately adjacent off airport lands in remain in hay and corn production.

- At Taunton Airport, there is agricultural activity on immediately adjacent private lands, which is of benefit to the protection of Part 77 surfaces.

- At Northampton Airport, the upper level floodplain meadow lands of the Connecticut River, which have some of the best agricultural soils in the world, remain in agricultural production of hay, corn and other crops. As such, this airport is relatively free from any vegetative penetrations within immediate proximity to the airfield.

5.0 FUTURE SVMP ACTIVITIES AND REGULATORY COMPLIANCE

5.1 OVERVIEW

Since the inception of the Statewide VMP program at Massachusetts airports initiated cooperatively between MAC, Massport, DEP and MEPA in 1993, the process of developing and implementing environmentally sensitive VMPs has been proven at 11 different airports, with up to ten years of follow-up environmental monitoring. The process for developing the VMPs, which has ample opportunity for public input, is well defined by regulation and interagency guidance document, as well as by internal MAC and Massport policies. The program has matured with internal and external checks and balances, and with oversight processes that provide for continuing agency and public review, and provide protection for the environment of the airport. The process has been field tested, and while some lessons have been learned during the implementation that have led to improvements in the VMPs, it is clear that there has been little to no adverse effect on wetlands and other local airport ecosystems. The ongoing experience of monitoring the effectiveness of VMPs at the 10 airports has refined the process of Integrated Vegetation Management and allowed the evolution and use of BMPs to minimize environmental impacts.

The sections of this chapter of the GENF/GEIR Update will discuss the anticipated continuing program of the Statewide VMP program at MAC and Massport airports. The Statewide VMP program will consist of the following elements:

1. continuing implementation and annual maintenance of vegetation zones surrounding the airfield at airports with existing VMPs under Yearly Operational Plans (YOPs) and their Updates (Section 5.2);
2. the process for any necessary modification of existing VMPs and YOPs/YOPUs due to changes at the airport that affect the location of vegetation management zones (Section 5.3);
3. the development and implementation of new VMPs at airports currently operating without these procedures (Section 5.4); and
4. the continued public process for VMPs and future interactions with MEPA and other agencies (Section 5.5).

The continuing activities anticipated under the Statewide VMP program will occur at both airports with existing VMPs and at airports that will develop VMPs. It is the policy of MAC and Massport that all airports work towards developing VMP programs. However, financial considerations both on the state and local level as well as physical need to clear vegetative obstructions at the airport will necessarily affect the prioritization among the various airports.

5.2 UPDATES TO VMP YEARLY OPERATIONAL PLANS

At the airports with existing VMPs, the plans are implemented through an ongoing basis involving:

1. continuing the process of Integrated Vegetation Management (IVM) under the approved VMP Yearly Operational Plans and their updates (YOPs and YOPUs), thereby maintaining the approved vegetation zones surrounding the airfield; and
2. modification of the YOPUs and/or VMPs if situations change at the airport affecting the delineation of the protected airspace and the vegetation management zones.

For the first of these two conditions, the permitting process is essentially complete, and ongoing maintenance can continue under the original approvals. For the second condition (discussed in section 5.3), the modification of the VMP activities may or may not rise to a significant level, which could in some circumstances require modification of the VMPs, amendment of the wetland permits, or the submittal of new wetland permits. In all cases, the changes would be reflected in the YOPs or YOPUs.

Following the GEIR developed blueprint for VMPs and the MA Wetlands Protection Act regulations, comprehensive Vegetation Management Plans (VMPs) have been developed at 12 MAC and Massport airports with the attendant issuance of Orders of Conditions for tree removal and management within and near wetlands (see Sections 2.4 & 3.2). The maintenance of the cleared, protected airspace is of highest importance if the airports are to avoid a return of the lands to forested growth. Such regrowth would result in a return to non-compliance with FAA regulations, threatening the operational safety of the airports and future Federal funding, and requiring repeated large expenditures in order to restore the protected airspace. Further, the implementation of a routine periodic/annual maintenance has proven to be of significantly less wetland impact than witnessed by the initial more dramatic alteration of wetland habitat that occurs if a wetland is allowed to revegetate, and then requires a more extensive large-scale vegetation management action. Therefore, DEP policy allows for such continued maintenance without the need to the recreation of VMPs and re-permitting, provided that the basic underlying conditions for the initial VMP and permits have not changed significantly.

In conformance with the MA Wetlands Protection Act (MAWPA) Limited Project Provision for Vegetation Management at airports [310 CMR 10.53(3)(n)(5)(f)], the 5-yearly VMPs (termed YOPs within the VMP) are a required part of each VMP need to be updated and presented to the Conservation Commission.

> *"Notices of Intent shall propose a five-year airport vegetation management plan. The vegetation management plan shall, at minimum, contain a purpose and goals statement, identify all airport protective zones, identify proposed vegetation management areas within the protective zones, and identify and prioritize future vegetation removal projects."*

In DEP's review and comment on the 1999 GENF/GEIR Update, they issued guidance relative to future maintenance work extending beyond the permit period of the Order of Conditions.

> *"The Department [DEP] also supports the recommendation that the VMP (which is valid for 5 years) need not be rewritten for future maintenance projects unless substantial changes have taken place since the completion of the initial VMP and provided that subsequent Yearly Operating Plans (YOPs) are comparable to those approved as part of the initial VMP. When appropriate, the Certificate of Compliance issued for each project could be drafted to provide for annual maintenance, consistent with those methods approved as part of the VMP, without the need for subsequent regulatory review."*

This policy was reiterated in the interagency Guidance Document for Conservation Commissions (Appendix E) jointly developed and issued by DEP, MAC, Massport and FAA in 2004and re-affirmed in the development of this GENF Update. Consistent with the above DEP guidance, the VMP YOPs are recognized as an ongoing maintenance practice of the originally permitted disturbance to wetlands. Such ongoing maintenance does not expire with the expiration of the 3-year Order of Conditions issued by the Conservation Commissions for the initial disturbance of the wetland resources, and the issuance of a Certificate of Compliance under the MAWPA specifically allows for such potential ongoing maintenance of permitted conditions. The situation is exactly analogous to wetland vegetation control in permitted stormwater detention basins as well as ongoing maintenance provisions YOPs for utility Right-of-Way management.

The updated YOPs (YOPUs) modify only the timing and implementation of the same, previously approved IVM methodologies. It is important to note that the development of the new 5-year YOPUs remain part of an ongoing public regulatory process with the potential for any needed regulatory review, since the YOPUs are prepared and submitted to the local Conservation Commission and/or DEP (i.e., the wetland permitting authority) for their review and comment. YOPUs have now been successfully prepared and submitted for all 10 of the MAC airports with ongoing VMPs. In all cases of YOPU development and submittal, there has been no significant commentary requesting or resulting in reconsideration or modification of the maintenance activities for vegetation management zones covered by the YOPU. Ongoing and continuous maintenance is critical to ensure the success of the Vegetation Management Program at airports and therefore, MAC and Massport anticipate that the 5-year YOP Updates will continue to be routinely developed and submitted in conformance with the DEP policy for airports with existing VMPs.

5.3 MODIFICATION OF EXISTING VMPS

The MAWPA regulations recognize that conditions at airports may change, which may require modifications to the VMPs. While all such changes would necessarily be reflected in the YOPs or YOPUs, such modifications of VMP activities may or may not rise to a significant level that triggers formal changes to the VMPs, amendment of the wetland permits, and/or the submittal of new wetland permits. In DEP's commentary on the 1999 GENF/GEIR Update, DEP indicated that

> *"**the VMP** (which is valid for 5 years) **need not be rewritten*** [emphasis added] *for future maintenance projects **unless substantial changes*** [emphasis added] *have taken place since the completion of the initial VMP and provided that subsequent Yearly Operating Plans (YOPs) are comparable to those approved as part of the initial VMP."*

This policy was reaffirmed in the 2004 Guidance Document and in DEP comments for the draft revisions of this GENF update. However, for larger scale changes, the Limited Project Provision for Vegetation Management at airports [310 CMR 10.53(3)(n)(5)(f)] anticipates that new applications may need to be filed in order to reflect a significantly modified VMP, and in such cases, and updated VMP is also required.

> *"Updated vegetation management plans shall be provided for each Notice of Intent filed after the expiration period of the most recent five-year vegetation management plan period."*

However, the provision only requires that an updated VMP be filed after the expiration of the most recent 5-year VMP-YOP period.

For the MAC and Massport airports with existing VMPs, pending new activities to be conducted under the existing VMPs generally fall into three categories:

1. the acquisition of off-airport avigation easements for vegetation management creating new of modified VMAs;
2. the development of new VMAs or modification of existing VMAs, requiring only minor change to the VMP; and
3. the development of new VMAs or modification of existing VMAs, requiring major change to the VMP.

In the first instance, the VMP may or may not have identified the potential avigation easement and the VMP methods to be employed. Therefore, modification of the permits is not necessarily required in such cases. However, if such off-airport activity was not anticipated as part of the original VMP and permit, it is likely that a revised VMP and amended or new permit would be required depending upon the size of the easement and presence of new wetland impacts. For the remaining two cases, it is entirely dependent

upon the nature and extent of the modifications as to whether or the VMP needs to be formally modified and if new or amended wetland permitting is required.

As a typical example, changes to the VMAs were identified at Beverly Airport as part of some minor alternations in the runways and taxiways. A new NOI under the MAWPA was required for less than 5000 SF of wetland impact and, after conferring with MEPA, it was determined that the changes were minor enough such that the VMP did not need to be modified and re-noticed in the Environmental Monitor. However, the YOPU has been modified to reflect the minor changes.

It can be seen that all such changes are a public process requiring coordination and consultation with permitting authorities, notification of project abutters in the case of a new wetland filing, and consultation with MEPA relative to potentially noticing of a modified VMP. Therefore, the public process and review is preserved under the operational procedures of the Statewide VMP program, where modifications are required to existing VMPs.

5.4 NEW VMPS

The anticipated new VMPs are discussed previously in Sections 2.5 and 3.3 for Pittsfield, Stow-Minute Man, and Westfield-Barnes Airports. The Statewide VMP process has significantly evolved in accordance with the MEPA process, modification of MAWPA regulations, and the establishment of DEP, MAC, and Massport policies for the VMP process (see Guidance Document to Conservation Commissions, Appendix E). As presently implemented, the development of a successful VMP requires:

- significant technical evaluation of existing conditions;
- the development of detailed plans tailored to specific environments unique to each airport under a concept of Integrated Vegetation Management (IVM; see Section 4.7);
- environmental permitting under the MAWPA and in compliance with the regulations;
- detailed interagency coordination between MAC/Massport and local Conservation Commissions, DEP, DFA, NHESP, MEPA and FAA; and
- a detailed public information outreach and coordination effort.

The IVM plan is developed and presented in the VMP with a specific, but not exclusive, focus on wetland resource information, since the primary recipient is the local Conservation Commission. Prior to the approval of the VMP, the document goes through an open, public planning and review process inclusive of all interested parties including municipal officials, the local news media, abutters, and State and Federal agencies. Local review includes discussion at informal, local meetings. Newsletters are often used, developing a targetted list of local residents likely to be concerned with the VMP at the airport. Abutters typically receive direct written notification and there may be individual

meetings with abutters, if requested. Draft and Final VMPs are submitted to the several state environmental regulatory agencies in accordance with the requirements of the Limited Project provision of the state wetland regulations. A notice of availability of the VMP is published in the *Environmental Monitor* for the proposed project. Federal review includes FAA and DFA, the latter in relation to herbicide use. Under certain circumstances, additional Federal agency review could be triggered relative to federally regulated rare species or Section 404 permitting by the Army Corps of Engineers, if any wetland fill (temporary or permanent) were involved as part of the work effort. However, the ACOE has concurred that the typical forestry work, by itself is not jurisdictional.

The public review of the NOI follows the course of most typical NOIs, although the project areas are frequently quite large and the NOIs tend to be lengthy. Wetland boundaries are reviewed under the NOIs, as well as the wetland's dominant functions and values. The tree removal methodologies are reviewed by the Commission, and modifications may result from the review process. The focus of Commission review of a VMP NOI is typically targetted to the short-term and long-term measures and mechanisms that will be necessary to achieve the desired vegetative cover within the wetlands, such that any other adverse impacts to the interests presented under the WPA are minimized or avoided. The duration of the Orders is typically requested for a period of 5 years because the VMP/YOP must be developed for a 5-year period and the intended follow-up monitoring is typically performed for this same period.

The first step in implementing the approved VMP is to develop the bid documents and the contract specifications. These technical documents complement the plans approved by the Commission and detail the environmental protections, methodology, and other procedures that must be followed by the successful bidder on the contract. Typically, the contract is limited to the first year's vegetation management activity, which includes most of the major tree removal. The airport consultant and environmental personnel with appropriate expertise in forestry, wildlife, water quality, and/or erosion/ sedimentation control provide monitoring of the daily activities, to document compliance with the specifications and the Order of Conditions. Follow-up monitoring is performed by environmental personnel, and additional cutting or treatments are performed under separate bid procedures to licensed or qualified contractors. Guiding the overall progression of a VMP beyond the work covered in the first year's contract is the 5-year VMP YOP.

The primary point of the above discussion is to document that the VMP process as it has developed, been codified and implemented at multiple MAC and Massport airports, is a very detailed and public process with ample opportunity for regulatory and public review and input. MAC and Massport believe that this process provides more than adequate protection of the public and State interests in the wetlands and wildlife at the airports and forms a critical portion of the justification of the requests for reduced MEPA reporting going forward into the future under the requirements of the original parent GEIR and subsequent GENF/GEIR Updates. The Statewide VMP program has demonstrated itself to be a stable, well-defined process with built-in environmental safeguards with opportunity for agency and public input.

5.5 GENF UPDATES AND ANNUAL STATUS REPORTS

The original GEIR process for VMPs has continued over a 12 year period via the production of multiple MEPA mandated reports, updates, and compliance documents (see also Bibliography):

- ENF (1992; EOEA #8978)
- Draft GEIR (1993; EOEA #8978)
- Final GEIR (1993; EOEA #8978)
- GEIR Update/ Expanded ENF (1999: EOEA #12092)
- Section 61 Finding (2001)
- Individual Airport VMP Annual Monitoring Reports (1998 to 2004, over 50 individual reports)
- Annual Status Reports Submitted to MEPA (5 reports, 2001 through 2005 inclusive)
- Guidance Document to Conservation Commissions (2004)
- ENF Update to the GEIR (this document, 2005)

Since the 1999 GENF/GEIR Update, the MEPA mandated documents have included the individual annual monitoring reports at each of the VMP airports, annual summary VMP Status reports, the five-year ENF/GEIR Update (this document) and the Guidance Document to Conservation Commissions. All of this work was centrally developed by MAC with input of Massport, FAA and DEP, but almost entirely funded by MAC. Certainly, the production of these documents has helped to collate the knowledge base for the implementation of VMPs at airports. However, at this point in the program's growth and with the completion of this filing, we believe that periodic updates to the 1993 GEIR or additional MEPA compliance documentation beyond this point will not provide additional environmental benefit or serve to improve the Statewide VMP program. While we anticipate the SVMP program to mature beyond this point as we gain additional experience in future years, such improvements in the program will occur readily under the regulatory processes which mandate permitting and coordination with Conservation Commissions, DEP, DCR, NHESP, and DFA. As documented in Sections 5.1 through 5.4, as well as elsewhere in this GENF Update to the GEIR, these various processes continue to mandate continuing improvements to the VMP program as will as the avoidance, minimization, and mitigation of environmental impacts.

In addition, the continued annual monitoring at the 10 MAC airports beyond the 5-year period of the first VMP YOP is unnecessary past this point, and would no longer provide a cost-effective use of VMP funds. A review of any of the annual wetland monitoring reports will show a consistently documented lack of adverse impact to wetland resources and wildlife. Instead, the monitoring reports have documented the recovery of the wetlands and the establishment of viable, although altered, wildlife habitat. Instead, the available VMP funds should be devoted to establishing VMPs at other MAC and Massport airports. It is anticipated that monitoring would be performed during at least the first three years of the

implementation of the VMP at any new airports. Nevertheless, some ongoing monitoring will be required at each of the existing 10 MAC VMP airports in order to continually review the overall progress of the VMP and YOPUs, as well as make any necessary adjustments in the programs for these airports. However, the monitoring focus would be shifted from wetland impact monitoring to overall monitoring of the regrowth of the vegetative zones.

Therefore, because the Statewide VMP program at airports is well-established with ample regulatory and public review processes in place, MAC and Massport recommend that with the completion of this MEPA Update document to the GEIR the cessation of:

(1) annual status report submission to MEPA on the VMP program, and
(2) future updates to the GEIR for vegetation management at airports.

Subsequent to this filing, the conduct of individual VMP projects will occur in response to aviation safety requirements, the statewide environmental regulatory framework, and local airport budget priorities. VMP projects will continue to be overseen by MAC and Massport, always following the standards of the established SVMP protocols, as well as maintaining full compliance with MEPA, WPA and other environmental regulatory requirements. MEPA reporting would continue to occur under the certain circumstances, in compliance with the Statewide VMP program:

a. all new VMPs for MAC and Massport airports would be noticed in the Environmental Monitor;
b. any significant amendment of the VMPs would require noticing in the Environmental Monitor; and
c. any significant VMP activity arising out of modifications of the existing airports (e.g., new runways or taxiways as part of airport expansion or upgrade projects) would not necessarily be covered under the existing VMPs and might independently trigger MEPA review as an ENF or EIR.

After 12 years of experience in successfully implementing the SVMP program on a Statewide basis, the purposes of MEPA's involvement have been well proven and fulfilled. MEPA provided the initial platform for MAC, Massport, and DEP, with input from Conservation Commissions and the environmental community, to cooperatively develop a regulatory and oversight process for vegetation management at airports, which has been fully implemented. The Statewide VMP program has "come of age", has more than adequate environmental safeguards in place, and can be safely allowed to proceed under the regulations and policies implemented during the past decade.

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Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Marshfield Municipal Airport. 2002. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. February 2002.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Marshfield Municipal Airport. 2002. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. December 2002.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Marshfield Municipal Airport. 2003. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. December 2003.

Yearly Operational Plan, 2003-2007 Guidance Document for the Marshfield Municipal Airport Vegetation Management Plan. 2004. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. March 2004.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Marshfield Municipal Airport. 2004. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. September 2004.

New Bedford Regional Airport

Vegetation Management Plan (VMP) New Bedford Regional Airport, New Bedford, Massachusetts. 1995. Prepared for the Massachusetts Aeronautics Commission by Camp Dresser & McKee, Inc. August 1995.

VMP Highlights Newsletter. 1996. Prepared for the Massachusetts Aeronautics Commission by ENSR. October 1996.

Notice of Intent: Vegetation Management Plan (VMP) for New Bedford Regional Airport (EWB), New Bedford, Massachusetts. 1997. Submitted to the New Bedford and Dartmouth Conservation Commissions. Prepared by Fugro East, Inc/ENSR. February 1997.

Final Findings Report for Vegetation Management Plan (VMP) New Bedford Regional Airport, New Bedford, Massachusetts. 1988. Prepared for the Massachusetts Aeronautics Commission by ENSR. February 1998.

Annual Monitoring Report: Vegetation Management Plan (VMP) New Bedford Regional Airport, New Bedford, Massachusetts. 2000. Prepared for the Massachusetts Aeronautics Commission by ENSR. August 2000.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, New Bedford Regional Airport. 2002. Prepared

for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. February 2002.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, New Bedford Regional Airport. 2002. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. December 2002.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, New Bedford Regional Airport. 2003. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. December 2003.

Yearly Operational Plan, 2003-2007 Guidance Document for the New Bedford Regional Airport Vegetation Management Plan. 2004. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. March 2004.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, New Bedford Regional Airport. 2004. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. September 2004.

Norwood Municipal Airport VMP-Related Documents

Final Vegetation Management Plan for Norwood Memorial Airport. Prepared for the Norwood Airport Commission by the Smart Associates. December 19, 1997.

Notice of Intent: Vegetation Management Plan for Norwood Memorial Airport. 1997. Prepared for the Massachusetts Aeronautics Commission by the Smart Associates. November 1997.

Tree Clearing at Norwood Memorial Airport, Norwood Massachusetts. 1997. Prepared for the Massachusetts Aeronautics Commission by the Smart Associates. December 1997.

Vegetation Management Plan Post-Construction Monitoring, Norwood Memorial Airport, Norwood Massachusetts. 2000. Prepared for the Massachusetts Aeronautics Commission by the Smart Associates. December 2000.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Norwood Municipal Airport. 2002. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. February 2002.

Amended Vegetation Management Plan for Norwood Memorial Airport. Prepared for the Norwood Airport Commission by the Smart Associates. February 14, 2002.

Notice of Intent: Amended Vegetation Management Plan (VMP): Norwood Memorial Airport, Norwood, Massachusetts. Prepared by The Smart Associates. March 2002.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Norwood Municipal Airport. 2002. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. December 2002.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Norwood Municipal Airport. 2003. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. December 2003.

Yearly Operational Plan, 2003-2007 Guidance Document for the Norwood Municipal Airport Vegetation Management Plan. 2004. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. March 2004.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Norwood Municipal Airport. 2004. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. September 2004.

Orange Municipal Airport VMP-Related Documents

Draft Vegetation Management Plan, Orange Municipal Airport, Orange Massachusetts. 1999. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. July 1999.

Notice of Intent for the Orange Municipal Airport Vegetation Management Plan. 1999. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. July 1999.

Final Vegetation Management Plan, Orange Municipal Airport, Orange Massachusetts. 2001. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. August 2001.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Orange Municipal Airport. 2002. Prepared for

the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. February 2002.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Orange Municipal Airport. 2002. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. December 2002.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Orange Municipal Airport. 2003. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. December 2003.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Orange Municipal Airport. 2004. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. September 2004.

Southbridge Municipal Airport

Vegetation Management Plan for Southbridge Municipal Airport. 1995. Prepared for the Massachusetts Aeronautics Commission by Camp Dresser & McKee. August 1995.

Southbridge Municipal Airport: Notice of Intent for Airport Vegetation Removal Limited Project. 1997. Prepared for the Massachusetts Aeronautics Commission by Dufresne-Henry. May 1997.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Southbridge Municipal Airport. 2002. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. February 2002.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Southbridge Municipal Airport. 2002. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. December 2002.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Southbridge Municipal Airport. 2003. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. December 2003.

Yearly Operational Plan, 2003-2007 Guidance Document for the Southbridge Municipal Airport Vegetation Management Plan. 2004. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. March 2004.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Southbridge Municipal Airport. 2004. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. September 2004.

Taunton Municipal Airport

Draft Vegetation Management Plan (VMP) Taunton Municipal Airport, Taunton, Massachusetts. 1997. Prepared for the Massachusetts Aeronautics Commission by ENSR. 1997.

Notice of Intent for the Taunton Municipal Airport Vegetation Management Plan (VMP), Taunton, Massachusetts. 1997. Prepared for the Massachusetts Aeronautics Commission by ENSR. November 1997.

Final Vegetation Management Plan (VMP) Taunton Municipal Airport, Taunton, Massachusetts. 1998. Prepared for the Massachusetts Aeronautics Commission by ENSR. February 1998.

Annual Monitoring Report: Vegetation Management Plan (VMP) Taunton Municipal Airport, Taunton, Massachusetts. 2000. Prepared for the Massachusetts Aeronautics Commission by ENSR. June 2000.

Environmental Monitoring Status Report: Taunton Municipal Airport Vegetation Management Plan Long-Term Environmental Monitoring Phase. 2001. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. June 2001.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Taunton Municipal Airport. 2002. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. February 2002.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Taunton Municipal Airport. 2002. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. December 2002.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Taunton Municipal Airport. 2003. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. December 2003.

Yearly Operational Plan, 2003-2007 Guidance Document for the Taunton Municipal Airport Vegetation Management Plan. 2004. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. March 2004.

Wetland Monitoring Status Report Vegetation Management Plan: Long-Term Environmental Monitoring Phase, Taunton Municipal Airport. 2004. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants. September 2004.

APPENDICES

Appendix A. 1993 GEIR Certificate

Appendix B. 2000 GENF Certificate

Appendix C. Response to Comments on 1999 GENF

Appendix D. Section 61 Finding on the GENF/GEIR

Appendix E. Guidance Document to Conservation Commissions

Appendix A.
1993 GEIR Certificate

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street, Boston, 02202

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ARGEO PAUL CELLUCCI
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October 15, 1993

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE FINAL GENERIC ENVIRONMENTAL IMPACT REPORT

PROJECT NAME	: Vegetation Removal in Wetlands at Public Use Airports
PROJECT LOCATION	: Statewide
EOEA NUMBER	: 8978
PROJECT PROPONENT	: MAC and Massport
DATE NOTICED IN MONITOR	: September 8, 1993

The Secretary of Environmental Affairs herein issues a statement that the Final Generic Environmental Impact Report submitted on the above project adequately and properly complies with the Massachusetts Environmental Policy Act (G. L., c. 30, s. 61-62H) and with its implementing regulations (301 CMR 11.00).

Introduction

This Certificate summarizes the review of a proposed change to the Department of Environmental Protection's (DEP) Wetlands Protection Act Regulations (310 CMR 10.00). Specifically, the DEP has proposed a new "limited project" provision for areas at public use airports that must be maintained free of obstructions in compliance with certain federal regulations. These areas are collectively called Protection Zones (PZs). The Generic Environmental Impact Report (GEIR) process was undertaken by Massport and the Massachusetts Aeronautics Commission (MAC) to assist DEP in evaluating the potential impacts of this proposed change, and in developing standard practices and policies.

This Certificate includes a brief background on this proposed regulatory change, an analysis of how the Final GEIR (FGEIR) responded to the issues that were raised as a result of the Draft, some directions to DEP, Massport and MAC that need to be followed prior to promulgation of the proposed changes, and some direction regarding subsequent periodic review. The comments received during the review of the FGEIR provide valuable guidance for DEP's upcoming effort to finalize the regulatory

language of this new provision. I expect that DEP will take advantage of the insights and suggestions outlined in these comments. I will discuss a number of these proposed refinements in the last section of this Certificate.

Overall, the FGEIR is a thoughtful and well prepared document. I commend the staffs of Massport and MAC, as well as their consultants, for a job well done. In the main, I concur with the objectives of this regulatory revision. It is clear, however, that many of the sites will present large and complex ecological systems, and despite the good guidance in the GEIR document, the local Conservation Commissions and the DEP will be presented with difficult issues and challenges as this new amendment is implemented. For this reason, I am requiring that the DEP, along with Massport and the MAC, prepare and file a new Generic Environmental Notification Form (ENF) in two years, consistent with the MEPA Regulation governing Generic ENFs and EIRs at 301 CMR 11.14(2). The objective of that ENF will be to evaluate the effectiveness of this new provision, and to provide all those involved with the opportunity to evaluate it based on actual field experience.

Background

In late 1991, the Massachusetts Aeronautics Commission (MAC) and the Massachusetts Port Authority (Massport) identified tree growth in Protection Zones (PZs) as a critical issue. It was estimated that most of the state's 46 public use airports required vegetation removal to come into compliance with Federal Aviation Administration (FAA) guidelines and regulations. It was also determined that most, if not all, of these airports will require some of this work in wetlands.

MAC and Massport, working with DEP, have taken a step toward resolving this problem by proposing a new "Limited Project" provision as a part of the Wetlands Protection Act Regulations. Specifically, the new regulation would apply only to tree clearing projects at public airports undertaken in order to comply with FAA regulations, orders and circulars. This provision would not apply to new airport facilities or to the expansion of existing airport uses which propose altereration of wetlands.

Under current wetland regulations, the tree clearing projects that involve greater than 5,000 s.f. can only be allowed through DEP's variance procedure, following MEPA review. The proposed regulatory change would allow local conservation commissions to review and approve such projects under the "Limited Project" provision of the regulations. In general, limited projects are a special category or type of project to which the performance standards in the Wetlands Regulations do not strictly apply. In addition, the proposed amendment would eliminate the need to file an ENF for every project that proposes alteration of over 5,000 s.f. or more of bordering vegetated

wetland (BVW). Finally, unless the Secretary of Environmental Affairs provides otherwise in the review of this generic EIR, once a program or policy has completed review under the MEPA regulations at 301 CMR 11.14, individual applications for the subject permits (specifically DEP Wetlands permits) will no longer require the filing of an ENF.

As noted in the FGEIR, in order for the new proposed provision to become effective, the GEIR under review herein must be prepared and approved by the Secretary of Environmental Affairs and adopted by DEP as policy.

The objectives of this new regulation are:

o To promote public safety by allowing removal of obstructions from PZs in wetlands in a timely and less costly manner.

o To ensure that environmental impacts from vegetation removal in wetlands are minimized through careful selection of appropriate removal and mitigation methods.

Policy and Regulatory Issues Addressed in the FGEIR

The FGEIR addressed many of the issues and concerns raised in the Certificate on the Draft GEIR and in the public comment on that document. As a result, a number of sections of the document were significantly revised, as noted below. In the main, these revisions will increase the protection of the resource areas over the previous proposals of the DGEIR. The major changes are highlighted and discussed in this section.

o The DGEIR "generically" outlined potential areas of impact, methods for vegetation removal and mitigation. The FGEIR went a step farther and identified methods of removal in terms of severity of potential impacts. The FGEIR thus established a decision pathway for choosing appropriate methods with a tiered ranking system.

o The FGEIR failed to clarify, as requested, whether there are any circumstances or combinations of circumstances under which vegetation removal would be reconsidered or waived by the FAA. As noted below, this information should be supplied to local conservation commissions so that they can have a full and fair evaluation of the range of alternatives available.

o Vegetation Management Plan (VMP) guidelines were presented in the DGEIR and in the FGEIR. Although the development of these

plans was strengthened in the FGEIR, preparation of such plans is not included as a requirement. The Limited Project provision should be revised to require a VMP with the Notice of Intent filing.

o The FGEIR included a provision for additional consultation and notification through the circulation of Notices of Intent to several state agencies. As noted below, this should be formalized in the regulatory language, and the Department of Food and Agriculture and the Massachusetts Historical Commission should be included in this circulation requirement. The other state agencies or departments include DEM and CZM, with respect to the ACEC program, and DEP's Division of Water Supply.

o The FGEIR was to consider whether there should be a threshold regarding the number of acres of impact above which DEP or other review would be required prior to approval. The comments of MA Audubon suggested several possibilities, such as a 10 acre threshold. The MAC and Massport were reluctant to set such thresholds. In the final consideration of this regulation, the DEP should evaluate this question and determine the consistency of this limited project provision with other limited project provisions, and it regulations generally.

o A number of issues were raised by Conservation Commissions in their comments on the DGEIR. These include the following:

a) How should the airport approach the Notice of Intent and disclosure of the full amount of impact area if more than one community is affected? The FGEIR states that a filing will be made in each community. As noted below, the DEP's regulations should require disclosure of the total impact area in all communities affected.

b) The FGEIR provides direction to the Commissions regarding when they should consider denying a proposed project, and what the process for the applicant would be if the commission denies a project. The FGEIR clarified that local commissions are not automatically required to approve these projects.

c) The 48 hour waiting period before conservation commissions can gain access to the property in the event of a compliance issue appeared to be unreasonable, and it was reconsidered and revised in the FGEIR.

o The DGEIR identified a potential of up to 1,282 acres of forested wetland, 66 acres of shrub/scrub wetland and 762,800

linear feet of bank that might be impacted at some point in time. It also reported that the obstruction removal program could lead to the removal of 80,000 mature trees statewide. While the FGEIR attempted to make a case that these estimates were highly conservative, it did not make much progress on mitigation, in particular with respect to ways that tree loss could be mitigated. The MAC and Massport have an obligation to consider this area of impact with more thoughtfulness, as noted below. Further, due to the potential to impact very large areas, mitigation should also address wildlife habitat, noted below as well.

Additional Requirements Prior to Promulgation

Several of the commenters have suggested, and I concur, that there is a need to clarify several points and to further refine the draft language of the regulation. This effort should address both the environmental concerns while allowing airports to address their safety issues. I understand and am pleased that the DEP is currently considering some refinements in such areas as contents of the Notice of Intent, and the requirement for the preparation of a long term vegetation management plan.

As noted in the FGEIR, the proposed regulation changes shall become effective upon certification by the Secretary of Environmental Affairs of the FGEIR and the formal adoption by the DEP of a Division of Wetlands and Waterways policy based on the GEIR findings. The last step of the MEPA process involves the preparation by the DEP of a M.G.L. c.30, s. 61 finding. The purpose of a s. 61 finding is to set up and formalize the environmental standards for a project or state agency action. It should identify the anticipated impacts and discuss how the agency, through provision of the regulation and otherwise, will take all feasible measures to avoid or minimize impacts to the environment. The DEP should file its s. 61 finding for the new regulation. With that s. 61 finding, the DEP should include its formal policy, the basis of which can be obtained from the GEIR and the comments. This s. 61 finding should identify the regulatory refinements that have been incorporated to address this Certificate and the comments, as well as a discussion of the measures that this regulation, and DEP, will require to avoid or minimize impacts to the environment that may result from this regulation.

Issues that need clarification or refinement in the draft regulation include the following:

o Vegetative Management Plans. The FGEIR went a long way in the development of such plans; however, as noted in the document, such plans have not, to date, been a requirement. The DEP should include a requirement for the preparation of a long term VMP in its regulation. Some type of a provision for regular updates of these plans should also be considered. The comments of Massachusetts Audubon and others provide excellent guidance on the topic.

o Circulation of the Notice of Intent. The regulation should incorporate the commitments of Massport and MAC in the FGEIR to circulate the NOI to certain state agencies, as noted in section 9.3.5 of the FGEIR. The Wenham Conservation Commission has asked that the "consultation process" outlined in section 5 be clarified as well. This section should include the Department of Food and Agricultural. The comments of The Department of Food and Agriculture note that at least 24 public use airports have farmland within their Protection Zones, and therefore notification of the Department of Food and Agriculture is appropriate. Finally, the Massachusetts Historical Commission should be included in the circulation requirement.

o Wildlife Habitat Evaluation. Several of the comments address the need for wildlife habitat evaluation as a standard requirement for these types of projects. Given the potential of some projects to impact tremendous acreage, the DEP should include such an evaluation as a requirement. The information is particularly crucial to Conservation Commissions when they consider appropriate mitigation.

o Work in More than One Community. The FGEIR states that NOIs will be filed each community where activity will take place. The regulation should require that the proponent disclose the extent of the proposed impacts area to each commission involved, regardless of the political boundaries. Consultation between the commissions should be encouraged.

o Revegetation. Several of the comments note the need for the regulations to discourage the introduction of invasive exotic plant species as a result of these projects. The DEP should consider refinements of the language that will accomplish this goal.

o Access Roads and Use of Heavy Equipment. The DEP should consider the addition of language that defines or places limitations on the size, type and duration of "temporary" access roads to provide clarification to local commission. In addition,

the use of heavy equipment should be discouraged to the extent possible.

In addition to the draft language refinements noted above, I have the following concerns that should be addressed by DEP in its s. 61 finding or formal policy, or by Massport or MAC, as appropriate.

The FGEIR does not seriously evaluate a possible "Waiver" by the FAA for projects of this type. I find that is a serious shortcoming of the FGEIR. Conservation Commissions must be given a fair evaluation of the range of alternatives, starting with a no-cut alternative. The ability to obtain a waiver for all or part of the proposed vegetation removal project is an important consideration for local commissions. Although the no-cut alternative may not be feasible at most of the airports, the commissions deserve an honest evaluation of this alternative by airports. The MAC and Massport should consider revising the Checklist proposed in Chapter 6 to more fully integrate this alternative.

The idea of mitigation banking was discussed briefly in both the Draft and Final GEIRs. The FGEIR was disappointing in its discussion on this subject. I understand the desire to remain flexible with respect to mitigation; however, the cumulative impact with respect to tree loss is significant. The FGEIR notes that MAC is planning to consider the tree loss issues in greater detail within the context of overall statewide vegetation removal projects. With the next Generic ENF filing, I expect that the MAC will report on this planning effort, and that it will make significant strides toward identifying an appropriate mitigation strategy to compensate for the loss of trees in the Commonwealth.

As noted in the comments of the Department of Food and Agriculture, the effectiveness of this GEIR depends upon its utility to airport managers and conservation commissioners. Training sessions and/or other necessary guidance and assistance should be considered by DEP, in cooperation with Massport and MAC. While this regulation has the effect of streamlining the regulatory process, it also has the potential to place a great burden on local Conservation Commissions in terms of evaluating and monitoring activity over a great number of acres of impact area. While considering training options, the DEP should also consider the provision of an on site environmental compliance monitor as a requirement of the Order of Conditions.

The possibility of establishing thresholds regarding the

size of limited projects was rejected by MAC and Massport. I continue to have concerns regarding the magnitude of impact areas in some locations. DEP should reconsider this question prior to promulgation of the final regulatory language, and should determine the consistency of this provision with the magnitude of impact areas allowed for other limited projects. This question may merit re-evaluation following actual field experience.

As noted in the Introduction of this Certificate, the DEP, along with Massport and MAC should submit a new Generic ENF in two years to evaluate the effectiveness of this new regulation. This Generic ENF should summarize the projects that have gone forward under this new provision, and discuss the experiences that the Conservation Commissions and the proponents have had to date with this new regulation. This will provide a good opportunity to evaluate the actual field experience with this regulation.

I appreciate the hard work of Massport, MAC, DEP and all those who have commented on the GEIR and proposed new regulation. While I acknowledge the impact areas are potentially large, this new regulation applies only to obstruction removal for existing runways, and not to new airport facilities. This built in limitation, along with the good guidance developed to date through the GEIR, the upcoming refinements in the regulatory language, the development of formal DEP policy, and the requirement for a periodic review through a new Generic ENF provide me with confidence that the remaining issues identified in this Certificate can be resolved by the DEP.

October 15, 1993
Date

Trudy Coxe
Trudy Coxe, Secretary

TC/JD/jd

Appendix B.
2000 GENF Certificate

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
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ARGEO PAUL CELLUCCI
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JANE SWIFT
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BOB DURAND
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January 14, 2000

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CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME	: Vegetation Removal in Wetlands at Public Use Airports – 1999 Update
PROJECT MUNICIPALITY	: Statewide
PROJECT WATERSHED	: Statewide
EOEA NUMBER	: 8978/12092
PROJECT PROPONENT	: Massachusetts Aeronautics Commission, with Department of Environmental Protection and Massport
DATE NOTICED IN MONITOR	: November 23, 1999

Pursuant to the Massachusetts Environmental Policy Act (G. L. c. 30, ss. 61-62H) and Sections 11.04 and 11.06 of the MEPA regulations (301 CMR 11.00), I hereby determine that this project does not require the preparation of a new Generic Environmental Impact Report (GEIR). Instead, the proponent shall file annual Status Reports for the next five years.

According to the Environmental Notification Form (ENF), the project involves an Update of the GEIR prepared in 1993. The project is subject to review pursuant to Section 11.09 (4) of the MEPA regulations because it involves programmatic review of the clearing of airspace at public use airports funded by the Massachusetts Aeronautics Commission. Because the proponent is an agency of the Commonwealth, and is providing financial assistance from the Commonwealth, MEPA jurisdiction extends to all aspects of the project that might have significant environmental impact.

Background

The 1993 GEIR proposed a statewide program of vegetation management within airspace protection zones (PZs) at public use airports, in a manner that would meet safety requirements while minimizing the environmental impacts of such work. Following the review of the 1993 GEIR, DEP incorporated key provisions into revisions to the Wetlands Regulations. The revisions allow for the permitting of vegetation management projects at airports as limited projects, provided that a Vegetative Management Plan (VMP) is prepared and filed with the Conservation Commission.

The GEIR Certificate required the proponent to evaluate the effectiveness of the new program and regulations in light of actual field experience. The Expanded ENF summarizes those findings. It documents that what was formerly a "tree clearing" program now relies on a more sophisticated method of Integrated Vegetation Management: using mechanical methods of removal, combined with chemical treating of resprouting vegetation to remove invasive or incompatible species, allowing for the natural development of desirable species. The Expanded ENF proposes to extend this method to vegetation management in upland areas, as well as in wetlands.

The expanded ENF has provided much useful information to evaluate the effectiveness of the implementation of the procedures and mitigation strategies developed in the 1993 GEIR. In general, the commenters agree that the new program is intended to provide far more environmentally sensitive results. The commenters also support the expansion of the integrated vegetation management method to upland areas.

However, because the program is still relatively new, there is still more to be learned about putting its goals into practice. For example, the Wenham comment letter identifies a problem concerning monitoring and revegetation resulting from vegetation control at the Beverly Airport. It appears that grubbing of vegetation to remove existing vegetation was accomplished, but wetlands vegetation has not been effectively reestablished.

To date, the VMPs have been weak in evaluating the habitat value of vegetated areas around the airports. Usually only special habitats identified by the Natural Heritage Program have been considered. Future VMPs should identify other habitat values that may be present, such as nesting and feeding areas, unidentified vernal pools, and fisheries, as well as potential rare, endangered, and state significant species habitat. Available mitigation strategies, such as nesting boxes, establishing of food plants, revegetation for vernal pool and fisheries temperature control, etc., should be considered. The VMPs should also consider the desirability of habitat enhancement of the vegetation control areas.

Status Reports

As proposed in the ENF, MAC should prepare and submit an annual Status Report for each of the next five years, documenting the status of all VMPs underway at public use airports in the preceding year. The format may be that employed in Section 3.3 of the ENF, except that additional sections summarizing the results of wetlands monitoring, wildlife impact evaluations, and invasive plant control (discussed below) should be added for each airport. I refer the proponent to the comment letter from Mass Audubon for more detailed suggestions on the reporting format.

DEP Guidance Document

The proponent is proposing to work with DEP to develop a guidance document for Conservation Commissions designed to clarify issues that have arisen in these initial vegetation management projects at airports. I fully endorse this proposal; in fact, the primary reason that I am not requiring a formal GEIR Update for MEPA review is that I believe such a guidance document would be a more effective use of agency resources to produce environmental benefits. The guidance should address the issues highlighted in this certificate and in the comment letters. If the draft Guidance has not yet been developed, the December 2000 Status Report should contain a section with responses to all comments received on the ENF.

Since the completion of the GEIR, the Commission has added invasive plant control to its vegetative control program. The Guidance should identify the species considered to be invasives, consider the likelihood of their being present at airport vegetation control areas, and present the proposed control strategies for each species, whether wetland or upland. Each VMP should address the issue of invasive plants.

In response to the comment of the Department of Food and Agriculture, the Guidance should encourage the leasing of cleared areas around airports for agricultural purposes.

Finally, the Guidance should discuss the issue of vegetation control necessary on private property where no agreements have been developed with the landowners.

Future Submissions

The annual Status Reports and the draft Guidance should be distributed to the MEPA Office, all commenters on the ENF, and to the distribution list below. A notice of availability will be published in the *Environmental Monitor*.

DEP/Boston
DEP/SE
DEP/NE

DEP/CERO
DEP/WERO
DF&A
NHP
DEM/ACEC
F&WL/Westboro
MCZM
EOEA/Land Policy
EOEA/Water Policy
Regional Planning Agencies
EPA
COE
Mass Audubon
Local Conservation Commissions

50 additional copies must be available on request.

Finally, a new Update ENF should be filed with MEPA during the sixth year (2005), and the DEP and MAC should issue their Section 61 Findings within the next 90 days.

January 14, 2000
DATE

Bob Durand

Comments received :

DEP - 12/28/99
DF&A - 12/9/99
MAPC - 12/13/99
Mass Audubon - 12/28/99
Wenham Conservation Commission - 12/13/99
City of North Adams - 12/7/99
Town of Norwood - 12/10/99
Boston Environmental Dept. - 12/21/99
Boston Water & Sewer - 12/14/99
M. Phelps - 12/23/99
Edwards & Kelcey - 12/9/99
Staff report

BD/DES/ds

Appendix C.
Response to Comments on 1999 GENF
(as provided in 2001 MEPA Status Report)

No.	Source	Comment	Response
1-1	Secretary's Certificate	"Pursuant to the Massachusetts Environmental Policy Act (G.L.c.30, ss 61-62H) and Sections 11.04 and 11.06 of the MEPA regulations (301 CMR 11.00), I hereby determine that this project does not require the preparation of a new Generic Environmental Impact Report (GEIR). Instead, the proponent shall file annual Status Reports for the next five years."	The first of the five annual Status Reports (2000-2004) is respectfully submitted herein.
1-2	Secretary's Certificate	"The expanded ENF has provided much useful information to evaluate the effectiveness of the implementation of the procedures and mitigation strategies developed in the 1993 GEIR. In general, the commenters agree that the new program is intended to provide far more environmentally sensitive results. The commenters also support the expansion of the integrated vegetation management effort to upland areas."	No response is necessary.
1-3	Secretary's Certificate	"However, because the program is still relatively new, there is still more to be learned about putting its goals into practice. For example, the Wenham comment letter identifies a problem concerning monitoring and revegetation resulting from vegetation control at the Beverly Airport. It appears that grubbing of vegetation to remove existing vegetation was accomplished, but wetlands vegetation has not been effectively re-established."	No grubbing has been performed under this program. Please refer to responses 5-1, 5-2, 5-3, 5-4, 5-5, and 13-9.
1-4	Secretary's Certificate	"To date, the VMPs have been weak in evaluating the habitat value of vegetated areas around the airports. Usually only special habitat identified by the Natural Heritage Program have been considered. Future VMPs should identify other habitat values that may be present, such as nesting and feeding areas, unidentified vernal pools, and fisheries, as well as potential rare, endangered, and state significant species habitat. Available mitigation strategies, such as nesting boxes, establishing of food plants, revegetation for vernal pool and fisheries temperature control, etc., should be considered. The VMPs should also consider the desirability of habitat enhancement of the vegetation control areas."	The Vegetation Management Plans (VMPs) have included an evaluation of all wildlife habitat, not just rare species. Future VMPs and MEPA Status Reports will present this information more clearly.
1-5	Secretary's Certificate	"As proposed in the ENF, MAC should prepare and submit an annual Status Report for each of the next five years, documenting the status of all VMPs underway at public use airports in the preceding year.	The first of five annual Status Reports is submitted herein.
1-6	Secretary's Certificate	"The proponent is proposing to work with DEP to develop a guidance document for Conservation Commissions designed to clarify issues that have arisen in these initial vegetation management projects at airports. I fully endorse this proposal; in fact, the primary reason that I am not requiring a	The Guidance document will be submitted in Summer/Fall 2001. As per the Secretary's Certificate, this comment section is submitted in lieu of a draft Guidance document at this time.

		formal GEIR Update for MEPA review is that I believe such a guidance document would be a more effective use of agency resources to produce environmental benefits. The guidance should address the issues highlighted in this certificate and in the comment letters. If the draft Guidance has not yet been developed, the December 2000 Status Report should contain a section with responses to all comments received on the ENF."	
1-7	Secretary's Certificate	"Since the completion of the GEIR, the Commission has added invasive plant control to its vegetative control program. The Guidance should identify the species considered to be invasives, consider the likelihood of their being present at airport vegetation control areas, and present the proposed control strategies for each species, whether wetland or upland. Each VMP should address the issue of invasive plants."	The issue of invasive species has been addressed in past VMPs and VMP Environmental Monitoring Reports as part of a mitigation package for the impacts of vegetation removal from airspace. A section on invasive species including identification of potentially invasive specie, likelihood of presence, and control strategies will be incorporated into the Guidance document. Additionally, future VMPs will continue to address this important issue.
1-8	Secretary's Certificate	"In response to the comment of the Department of Food and Agriculture, the guidance should encourage the leasing of cleared areas around airports for agricultural purposes."	A section on the compatibility of agricultural and airport usages will be included in the Guidance document. Please refer to comment 3-1 below.
1-9	Secretary's Certificate	"Finally, the Guidance document should discuss the issue of vegetation control necessary on private property where no agreements have been developed with the landowners."	Each VMP identifies off-airport vegetative obstructions, but in the absence of property rights no vegetation management may be proposed in these areas.
2-1	DEP Wetlands and Waterways Program	"As noted by the proponent, the vegetation management practices result in a change of wetlands type most often from a forested wetland to a shrub swamp. Although the proponent further notes that certain kinds of wildlife habitat may be enhanced as a result by promoting shrub swamp, these gains must be balanced against changes to forested wetland wildlife habitat."	Under the Statewide Airport Vegetation Management Program many acres of forested wetland habitat have been converted to scrub/shrub/herbaceous wetland habitat areas. Many acres of both forested wetland and upland habitats were preserved on airport property. Furthermore, existing forested wetlands located at most airports were already highly fragmented due to past vegetative management activity and human-induced development in surrounding areas, precluding the existence of forest interior species, which would require large parcels of undisturbed woodland. As a whole, early successional communities in both wetland and upland areas are a declining habitat resource throughout the Commonwealth. The maintenance of these communities on airport lands has proven to be an excellent bioreserve of early successional habitat that is compatible with human activity and will be preserved in the future due to airport management activities.
2-2	DEP Wetlands and Waterways Program	"In an effort to streamline regulatory review, the Department supports the proponent's recommendation that further guidance be provided to Conservation Commissions to encourage the issuance of Order of Conditions which correspond to the five-year duration of the VMPs. The Department also supports the recommendation that the VMP (which is valid for 5 years) need not be rewritten for	In 2000, MAC consolidated monitoring activities associated with the VMP program for the airports under its control, awarding the 5-year contract to a single statewide consultant. Under this contract a Guidance Document for Conservation Commissions will be produced. The proponent continues to support the position that Conservation Commissions should be encouraged to issue Orders of Conditions corresponding to the five-year duration of the VMPs. Furthermore, the support of a long-term maintenance

		future maintenance projects unless substantial changes have taken place since the completion of the initial VMP and provided that subsequent YOPs are comparable to those approved as part of the initial VMP. When appropriate, the Certificate of Compliance issued for each project could be drafted to provide for annual maintenance, consistent with those methods approved as part of the VMP, without the need for subsequent yearly review."	clause, under the Certificate of Compliance, will help to further promote the ongoing success of the VMP project.
2-3	DEP Wetlands and Waterways Program	"Section 5 of the document addresses other 1993 GEIR certificate issues. The proponent notes that DEP has incorporated the Secretary's suggested modifications into the 1994 revised wetland regulations. DEP agrees that the proponent should continue to explore the feasibility of obtaining FAA partial waivers whenever possible."	There is no regulatory provision for an actual waiver from FAA regulations. The FAA has, in certain instances, allowed a "modification of standard". In two instances (Norwood and Fitchburg Airports) the FAA has allowed such a modification to leave some vegetation uncut. In both cases, the uncut vegetation was located across a river from the airport. In one case, rare species habitat was involved. This option will continue to be exercised when possible.
2-4	DEP Wetlands and Waterways Program	"Section 5.3 addresses tree loss and mitigation banking. In the Department's opinion, the proponent does not assess the feasibility of mitigation banking, but only stated that on a case-by-case basis decisions would be made on allowing certain trees to remain when evidence that those trees would provide important wildlife functions such as raptor nest or den habitat. While it is true as the applicant suggests that grassland and younger forests provide habitat for a large number of rare species, mature forests do provide a type of habitat and consideration of mitigation for these impacts should be addressed by the proponent when feasible."	The Massachusetts Aeronautics Commission believes that mitigation banking is not a necessary component of the VMP program, because vegetation removal has not been proven to result in a loss of wetland resource areas. Vegetation removal has, however, resulted in an alteration of these resource areas from forested wetlands to scrub/shrub wetlands. There is, therefore, no need for mitigation banking, as appropriate mitigation can usually be identified. As stated previously, most forested wetland areas located on airport property are highly fragmented due to past vegetation management projects, airport activities, and other human development. These areas, therefore, often do not offer the highest quality habitat available to arboreal-dependent species. Additionally, VMAs have been developed to balance the needs for safe airport operations and environmental protection. VMAs adjacent to airport runways, by necessity, have been cut low to the ground. VMAs located further from runway areas do not always undergo drastic cutting, allowing for the preservation of some stands of mature trees. In these areas, selective cutting measures for obstructions that penetrate or threaten to penetrate FAA Part 77 Surfaces are employed. In many cases, large stands of mature forest may be found on airport property. Cutting on airport property, therefore, often does not usually result in negative impacts to the availability of mature forest habitat on a landscape level. Moreover, through the VMP process MAC is attempting to establish relatively stable vegetative zones with growth habits that are compatible with safe airport operations. This will minimize future large-scale disturbances to airport ecosystems.
2-5	DEP Wetlands and Waterways Program	"The Department supports the proponent's proposal to work with DEP to develop a guidance document for Conservation Commissions designed to clarify any issues that have arisen in the initial projects at airports. The Department also recommends	MAC will work with DEP to develop a guidance document for Conservation Commissions. This document will be designed to clarify any issues that have arisen during the development of previous Vegetation Management Plans (VMPs). MAC also supports the use of, as needed, training workshops for

		that the proponent commit to training workshops, as needed, for Conservation Commissions as part of the VMP submittal process."	Conservation Commissions.
2-6	DEP Wetlands and Waterways Program	"The Department further agrees that the establishment of resource impact size thresholds is not appropriate in that there are no thresholds for other limited projects and the VMP planning process has been shown to be an effective mechanism to minimizing impacts."	Comment noted.
2-7	DEP Wetlands and Waterways Program	"…the Project proponent is advised, if oil and or hazardous material pursuant to 310 CMR 40.0000, the Massachusetts Contingency Plan (MCD) is identified during the implementation of any future Vegetation Management Plan (VMP), the Bureau of Waste Site Cleanup (BWSC) should be notified pursuant to 310 CMR 40.0300, a Licensed Site Professional retained to render opinions as stated in 310 CMR 40.0000 and risk reduction measures undertaken pursuant to 310 CMR 40.0400, as appropriate. In addition, the BWSC must be notified in accordance with 310 CMR 40.0000 if any herbicide application exceeds the amount allowed by permit, license, approval, registration, order of or guideline and represents n Imminent Hazard to health, safety, public welfare, or the environment as defined by 310 CMR 40.0000."	Comment noted.
3-1	Department of Food and Agriculture	"A number of public use airports in the Commonwealth maintain their PZs partially through compatible agricultural use. We suggest that this practice may be considered during planning for upland vegetation planning for upland vegetation management….. In herbaceous, short shrub and tall shrub zones a range of crops could be considered, including hay, corn, small fruit, vegetables, nursery stock, Christmas trees, and small orchard trees."	The proponent duly notes the comment from DFA. Agricultural land preservation in areas surrounding municipal airports is compatible with airport management and safety regulations and would serve to protect valuable agricultural lands. However, working agriculture in Safety Areas adjacent to active runways could present a potential safety hazard as wildlife attractants. In addition, much of the land area cleared at municipal airports is occupied by wetland soils, which are often incompatible with agricultural use.
3-2	Department of Food and Agriculture	"The proponent has indicated that impacts to farmland are analyzed in each vegetation management plan, but does not elaborate. Experience at Plymouth Airport suggests that the public hearing process and consultation with farmers is the best way to avoid or minimize such impacts. We suggest that farm plans or, in their absence, technical assistance from the USDA NRCS district office can help resolution."	Impacts to farmland are reviewed under the Environmental Constraints section of each VMP. Analysis is conducted based upon DFA Farmland Identification Maps and identification of prime farmland soils. The public hearing process is open to all interested parties.
4-1	Massachusetts Audubon Society	"A centralized mechanism for coordinated review of the results of vegetation management practices at airports statewide is needed."	In November of 2000, MAC consolidated the Statewide Vegetation Management Program under one program consultant. Yearly status reports detailing monitoring efforts will be conducted through 2004.

4-2	Massachusetts Audubon Society	"No information on the results of wildlife evaluations and wetland monitoring activities is provided. This information presumably exists, since wildlife evaluations are required according to the limited project provision and the ENF repeatedly states that follow-up monitoring of affected wetlands is being conducted. The Department of Environmental Protection's comments on the Final GEIR requested that the Generic ENF include data on vegetation removal methods, type and quantity of wetland resource impacts, and mitigation/monitoring results. We concur that this information is needed. A summary of wetland monitoring results and wildlife impact evaluations should be required to be presented through the MEPA process."	A summary of monitoring information for wildlife habitat and wetland evaluations is included in the 2000 MEPA Status Report for the Statewide Airport Vegetation Management Program. Information on vegetation removal methods, type and quantity of wetland resource impacts, and mitigation/monitoring results are also included in this report.
4-3	Massachusetts Audubon Society	"Without a coordinated review of the program's successes and problems, there is no assurance that problems encountered at one site will be avoided in other similar situations, or that positive experiences with cost-effective best management practices and monitoring methodologies will be applied to future projects. This programmatic coordination function should be mandated through regulated, periodic, MEPA reporting and review."	Ongoing coordinated review is provided by the Massachusetts Aeronautics Commission (MAC), as this is a statewide program. Additionally in November of 2000, MAC consolidated the Statewide Vegetation Management Program under one program consultant. The compiled results of monitoring conducted during the 2000 field season has been submitted herein. This systematic monitoring program and reporting format will be completed yearly through the calendar year 2004.
4-4	Massachusetts Audubon Society	"The ENF does not, however, provide a summary of the impacts of work conducted to date on wetland functions and values, except to say that use of heavy equipment has not adversely impacted soils. "	According to the Massachusetts Wetland Protection Act, the functional values of a wetland may be divided into the following eight public interests: protection of public and private drinking water supplies, protection of groundwater, flood control, storm damage prevention, prevention of pollution, protection of fisheries habitat, protection of wildlife habitat, and protection of land containing shellfish. None, of these functional values are significantly adversely impacted due to vegetation removal. While wetland areas are converted to new habitat types, there has been no noticeable degradation of the ability of such wetlands to protect groundwater and drinking water supplies, control floods, mitigate storm damage, prevent pollution, or protect fisheries or shellfisheries. It has been stated previously that wildlife habitat and wetlands are altered as a result of VMP activities. However, the regrowth of early successional communities does not degrade habitat values, but alters them such that a new suite of species may utilize these areas.
4-5	Massachusetts Audubon Society	"We are aware of at least one location where the overstory trees were removed and there is only sparse vegetation in the shrub and ground layers, leaving large amounts of exposed soil. It is unclear whether or not such areas will revegetate with acceptable species, or whether invasive species such as phragmites will take hold on the exposed soils. Plantings or seeding may be necessary in some situations. Reporting of monitoring	It is standard practice that exposed soils are stabilized through seeding to prevent soil erosion or colonization by invasive species. Increases in available growing space resulting from VMP clearing often lead to rapid recolonization of VMP cutting areas. MAC is not aware of any instances where vegetation regrowth has not occurred. VMP programs are specifically designed to deter the regrowth of incompatible species and encourage native vegetation regrowth. Continued maintenance as designed under the Yearly

		results is needed to document post-treatment conditions and provide for adjustments as necessary."	Operational Plans will allow for the establishment of native plant communities by limiting competition from potentially invasive species during early regrowth years. This maintenance is necessary to ensure the sustainability of future native plant communities that are compatible with airport safety.
4-6	Massachusetts Audubon Society	"Wildlife habitat evaluations are required as part of the Notice of Intent permitting process for these projects, but no information has been presented regarding the methodology and results of evaluations conducted to date."	Wildlife habitat evaluations are provided in each VMP NOI and are summarized in the preceding document. The methodologies of individual habitat evaluations varied between individual VMP consultants. However, some wildlife habitat and observation documentation was provided for each airport. In the future, a concerted effort will be made to collect data and provide information on wildlife habitat and observations for the MEPA Status Reports. This effort will result in a standardized methodology appropriate for all VMP airports.
4-7	Massachusetts Audubon Society	Massachusetts Audubon requests that future submittal requirements should include: "amount of wetland alteration broken down by wetland resource type and method of vegetation management; wildlife habitat evaluations; summarized follow-up monitoring methodologies and results; summarized effective BMPs and problems encountered, documented progress toward program goals of establishing relatively stable plant communities of appropriate height for each designated zone."	The recommendations of the Massachusetts Audubon Society are duly noted and will be responded to in this and future MEPA Status Reports.
5-1	Wenham Conservation Commission	Project 1 Comments (June, 1992 Order of Conditions) The Wenham Conservation Commission outlines multiple problems with this project.	That project predates the 1993 GEIR. Since this time MAC has initiated a Statewide Vegetation Management Program to consolidate VMP activities and avoid the problems outlined by the Wenham Conservation Commission.
5-2	Wenham Conservation Commission	Project 2 Comments (March, 1997 Order of Conditions.) " The main problem with this project has once again been the lack of monitoring and reporting as required by the Order of Conditions. Reports are required at the end of the first and second growing seasons on the vegetation in the cut wetlands are to make sure that at least 50% of the cover consists of wetland species. No report has been submitted to date."	Monitoring reports have subsequently sent to the Wenham Conservation Commission. Monitoring reports will continue to be submitted through 2004.
5-3	Wenham Conservation Commission	"While we understand that the goal of each project in Wenham was to replace tall wetland vegetation with short wetland vegetation, thereby preserving these areas wetland the actual results in Wenham have so far fallen short of the goal. It would be interesting to find out whether the experience has been similar at other airports."	It is unclear from the comment, which "results" are being referred to has having "fallen short". Summary information on all VMP airports is provided in the preceding MEPA Status Report.
5-4	Wenham Conservation Commission	"We do not know the extent to which the use of heavy equipment to clear and grub vegetation in wetlands during the first project has been a contributing factor to the problems with re-establishing wetland vegetation. We believe that the contractor	Again, that project predates the 1993 GEIR and the statewide VMP program. Future monitoring efforts will be conducted through 2004. These reports will address vegetative regrowth and plant species diversity.

		was trying to avoid soil damage. Most grubbed areas do have vegetation, just not an adequate percentage of wetland species"	
5-5	Wenham Conservation Commission	"Although the Commission has concerns about herbicides in general, we agreed that the Airport has selected a relatively safe herbicide. We also agreed that the long-term strategy to encourage low-growing species and to selectively spray only taller species was probably preferable to large scale mowing operations. However, we wanted to be sure that the first herbicide application actually worked as planned; hence our requirements for monitoring before and after spraying the first time, and Commission approval to spray a second time. As noted above we have not received the monitoring report. "	Monitoring reports have been subsequently submitted.
5-6	Wenham Conservation Commission	"Both of the Orders of Conditions issued were good for five years because we understood the importance of follow-up maintenance work. With the first project, the Airport and the Commission anticipated attaching continuing conditions to the Certificate of Compliance, which would allow annual mowing of meadows. We would be open to a similar strategy for the second project. We would require continued access for inspections and monitoring. As for the need to rewrite the VMP, we agree that airspace in not likely to change, but would point out that the nature of the vegetation in each VMA has been changed by the present clearing activities. Thus, the management strategy for each are would need review."	Comment noted.
6-1	Metropolitan Area Planning Council	"After reviewing the Airport Vegetation Management GEIR Update we would like to request that further information is included concerning invasive plants and their controls. " "Secondly, while the control of vegetation by herbicides will have the desired stunting affect on invasive plants it also affects native plants."	The issue of invasive plants and potential control mechanisms is addressed in the preceding Status Report. In most cases, VMPs were specifically designed to promote the growth of species with growth height ranges that are compatible with future airport management, including both invasive and canopy strata species. Maintenance activities including the use of mowing, selective harvesting techniques, and herbicide treatments were outlined in the Yearly Operation Plans of the individual VMPs. The preceding MEPA Status Report details occurrences and removal methods for invasive species at the individual airports. Moreover, only targeted herbicide programs are utilized.
7-1	City of North Adams Airport Commission	"The North Adams Airport Commission supports the GEIR Update because this represents not only a considerable effort, but because we can testify to the success of the VMP Program at our airport. This environmentally sound program protects important natural resources while we maintain safe airports."	The Massachusetts Aeronautics Commission appreciates the continued support of the North Adams Airport Commission.
8-1	The Town of Norwood Airport Commission	"The Norwood Airport Commission supports the ongoing airport Vegetation Management Program at public use airports	The Massachusetts Aeronautics Commission appreciates the continued support of the Norwood Airport Commission.

		throughout the Commonwealth. I know that the ENF recently submitted by MAC, MassPort, and DEP is an important step in demonstrating and evaluating the overwhelming public benefit of the VMP, with minimal environmental impact."	
9-1	City of Boston The Environment Department	"We request that the Draft Environmental Status Report (DESR), the replacement document for the Logan GEIR, describe any necessary vegetation management and the method(s) employed."	The following comment was provided by Massport: Logan International Airport is in an urban setting. Massport's vegetative planning and selection process ensures that plantings associated with various projects, including terminal improvements, edge buffers, etc. do not interfere with airport operations. Massport utilizes a plant material list, which includes species that are appropriate for use at an international airport (plant materials that do not grow to excessive heights, can be pruned, do not attract birds, etc.). Massport also maintains existing plantings to ensure that they do not adversely interfere with airport operations.
10-1	Boston Water and Sewer Commission	"This update does not include a description of MassPort's vegetation management program at Logan International Airport. Please let us know if such a program exists so that we may comment accordingly.	The following comment was provided by Massport: Logan International Airport is in an urban setting. Massport's vegetative planning and selection process ensures that plantings associated with various projects, including terminal improvements, edge buffers, etc. do not interfere with airport operations. Massport utilizes a plant material list which includes species that are appropriate for use at an international airport (plant materials that do not grow to excessive heights, can be pruned, do not attract birds, etc.). Massport also maintains existing plantings to ensure that they do not adversely interfere with airport operations.
11-1	Mason Phelps	"The twofold purpose of the GEIR should be to allow trees to be cut in wetlands in order to permit safe airport operation, while minimizing the impact on these wetlands"	In all cases, VMPs were developed to minimize impacts to not only wetlands, but for any other environmental constraints identified within the near vicinity of each airport.
11-2	Mason Phelps	"It seems reasonable to me that if a tree outside of airport control is a hazard to the full use of a runway, the surfaces for this runway should be adjusted to accommodate this uncontrollable vegetation."	The creation of a displaced threshold due to airspace penetrations is a short-term solution to this problem and does not create an optimal situation for airport operations. The removal of airspace obstructions allows the airport to utilize the full extent of the runway surface and meet minimum FAA safety standards. Moreover, when obstructions exist on off-airport property legally documented easements are pursued from adjacent property owners.
11-3	Mason Phelps	"To me it is quite clear that the smaller the amount of vegetation removed from a wetland the less the wetland will be altered. This is recognized by DEM in its Forest Management GEIR which allows the removal of only 50% of the basal area in a wetland during a five-year period. Ideally then, from a wetlands standpoint, only vegetation which has actually penetrated one of these surfaces should be removed. The draft ORE Vegetation Management Plan, for convenience of management divided the airport into 100' X 100' squares and proposed to cut everything in any square which contained Almost Hazardous vegetation. This clearly cuts more trees than	In an effort to minimize repeated impacts to wetlands, trees, which are current obstructions and those, which will soon grow to be obstructions, are removed. Additionally, the commentator has misinterpreted the use of the 10,000 S.F. grid. This grid system is only used to illustrate the general level of airspace obstruction. It is not used to make final determination on which trees to remove.

		necessary for airport safety. The update uses vegetation zones for convenience of management as part of an Integrated Vegetation Management Plan. These zones are much too coarse, especially in wetland areas."	
11-4	Mason Phelps	"Using the Likely Hazard (LH) vegetation definition I would use the following management process. First, any vegetation which is actually penetrating one of the surfaces would either be chopped and lopped or cut down and removed. Then LH vegetation would be girdled and left in place. This would be done periodically as vegetation grows high enough to become LH vegetation.	Current vegetation management strategies are based upon FAA safety regulations. The best practical means of vegetation removal will continue to be utilized for the VMP program.
12-1	Edwards and Kelcey	"Edwards and Kelcey supports the ongoing Airport Vegetation Management Program (VMP) at public-use airports throughout the Commonwealth. We know the ENF recently submitted by MAC, MassPort, and DEP is an important step in demonstrating and evaluating the overwhelming public benefit of the VMP with minimal environmental impact. The previous GEIR supported many individual airport VMPs statewide that protected important natural resources and we do not feel that additional statewide environmental review of airport tree clearing is necessary."	The Massachusetts Aeronautics Commission appreciates the continued support of Edwards and Kelcey, Inc.
13-1	Dave Shepardson	"MAC should present the results of their state-of-the-art research in the GEIR Update (see page 2)."	The Massachusetts Aeronautics Commission (MAC) utilizes a zonation approach and a follow-up monitoring program to minimize environmental impacts and to ensure the success of the Statewide Vegetation Management Program. The zonation approach outlined in the GEIR Update involves the use of an Integrated Vegetation Management program to create sustainable zones of increasingly taller vegetative communities corresponding to increased distance from the runway surface. This approach ensures airspace safety in Approach and Transitional Surfaces, while minimizing the extent of vegetation clearing. Follow-up monitoring has been conducted at each VMP airport and will continue through 2004. Follow-up monitoring will record vegetative regrowth and guide future maintenance activities.
13-2	Dave Shepardson	"MAC should clarify the emergency procedure for airport work (i.e. MEPA procedure, see page 20.)"	Section 3.2.1 described a vegetation removal project that a conservation commission approved under an "Emergency Certification" as allowed in the Massachusetts Wetlands Protection Act.
13-3	Dave Shepardson	"I suggest an update of the VMP after five years. The update could evaluate the effectiveness of the plan, identify any problems with the plan or the process, propose any needed changes, and identify any further mitigation needed (see page 32.)"	The MEPA Certificate requires such a filing and this will be submitted.
13-4	Dave Shepardson	"The ENF commits to be responsive to inputs by this agency for issues of rare and endangered species, historic and archaeological resources, and ACEC	MAC and the individual airport commissions have submitted VMP documents to MEPA for each VMP Program airport. However, MEPA has not directly responded to any VMP.

		involvement (The update should provide examples of past responses)."	
13-5	Dave Shepardson	"The wildlife sections of VMPs have been weak, and most not considered fisheries (see page 10)."	A summary wildlife habitat evaluation conducted at each airport is provided in the preceding document. The methodologies of individual habitat evaluations varied between individual VMP consultants. However, some wildlife habitat and observation documentation was provided for each airport. Fisheries are considered when developing VMPs; however, few fisheries resources have been identified at airports. In the future, a concerted effort will be made to collect data and provide information on wildlife habitat and observations for the MEPA Status Reports. This effort will result in a standardized methodology appropriate for all VMP airports. Fisheries habitat will continue to be addressed where appropriate in subsequent Status Reports.
13-6	Dave Shepardson	"The update should discuss the experience with controlled burns and describe the further investigations proposed with appropriate state and local agencies (see page 15.)"	Controlled burning is discussed in the GEIR Update. Some limited controlled burning management has been performed with partner agencies and organizations at Nantucket Airport, Turner's Falls, and Hanscom Field. These airports are not reviewed under the scope of this VMP Status Report, as the majority of the areas burned were upland and required no VMP.
13-7	Dave Shepardson	"The ENF was not clear how the Beverly Airport VMP was modified by the Conservation Commission (see page 21.)"	The Conservation Commission modified its Order of Conditions using standard procedures. The actual VMP was not modified.
13-8	Dave Shepardson	"The ENF was not clear how the protected species were addressed at the New Bedford Airport (see page 23)."	"According to the MA NHESP, seven State-listed species have been documented in the vicinity of New Bedford Airport. As per MA NHESP special attention was given to the spotted turtle, swamp oats, the Mystic Valley amphipod, the potential presence of vernal pools onsite. The VMP consultant conducted surveys for these and other species. The survey results included the documentation of a population of spotted turtles and numerous amphibian breeding sites; however, no rare plants were identified on airport property. A sedge-meadow community was created within management Zone 1 to benefit the spotted turtle. The creation of this community with open meadow habitat and shallow seasonally ponded basins will provide future habitat for this species. Documented vernal pools occur in disturbed areas including a wetland replication area, shallow basin depressions associated with an abandoned sand and gravel mine, and within a recently disturbed pipeline easement. Further disturbance associated with the VMP should not adversely impact these areas. Additionally, future rare species monitoring is to be conducted under the EIR for the New Bedford Airport Expansion.
13-9	Dave Shepardson	"Note that the Orange Airport VMP proposed to clear and grub over 50 acres of land. And, several acres of wetlands were cleared and grubbed at Beverly Airport. It is not clear how that meets the limited project status (see page 32 and comment letter)."	This matter was addressed in a letter dated January 26, 2000 from Richard Doucette, MAC Environmental Analyst. The following is a summary of this letter. "No grubbing was done at Beverly Airport as part of the VMP. However, there was a previous project predating the VMP program that did include grubbing. Compliance with the local Conservation Commission permit will continue to be addressed by the Airport Engineer. Some additional

			work may be required to comply with the Wenham Wetland Bylaw. The Orange Airport VMP was recently permitted and does not propose any grubbing activity. However, there was some grubbing completed at Orange years ago, which was conducted under an ENF filing and Phase 1 waiver. As a condition of that Waiver, a VMP was required. That VMP was recently permitted by the Conservation Commission.
13-10	Dave Shepardson	"How are the grasslands managed to improve species habitat (see page 35)?"	Grasslands at Massachusetts airports are maintained primarily through managed mowing strategies. Mowing grasslands to specific heights promotes the structural and species diversity necessary to promote rare grassland species. Some limited controlled burning has been performed with partner agencies and organizations at Nantucket Airport, Turner's Falls, and Hanscom Field. Mowing and burning activities are being utilized to arrest forest succession, promote sandplain grassland species, and provide for safe airport operations.
13-11	Dave Shepardson	"Is the Environmental Compliance Monitor responsible for preparing monitoring reports (see page 35)?"	Yes, the Environmental Compliance Monitor is responsible for preparing monitoring reports.
13-12	Dave Shepardson	"The update should contain the Section 61 Finding of DEP for permitting and regulation changes, and MAC for funding projects. If they have not been prepared, the update should contain proposed findings (see question 1-10)"	The MAC Section 61 finding was submitted on March 2, 2001.
13-13	Dave Shepardson	"The ENF states that it is reasonable to conclude that further program-wide MEPA review will fail to yield additional benefit (see page 5). I anticipate the need for further MEPA review of the program, possibly after five years of experience, however, the details of the requirement should be determined following the review of the 1999 update."	The MEPA Certificate has mandated the submission of Annual Reports and re-filing with MEPA in five years.

Appendix D.
Section 61 Finding on the GENF/GEIR

The Massachusetts Aeronautics Commission (MAC), in conjunction with MassPort and Massachusetts DEP, filed a *GEIR for Vegetation Removal in Wetlands as Public Use Airports* (EOEA #8978) on August 31, 1993. In keeping with the October 15, 1993 MEPA Certificate, the MAC (in cooperation with Massport and DEP) filed a *GEIR Update for Airport Vegetation Management* (EOEA #12092) on November 23, 1999. This was a status report on the statewide Airport Vegetation Management Program. In the January 14, 2000 MEPA Certificate on that filing, the Secretary required this Section 61 Finding from the MAC.

Introduction

The Airport Vegetation Management Program began in the late 1980s when the MAC and Massport realized that, in order to comply with the FAA regulations for clear airspace, each airport would be required to clear large areas of trees from wetlands - which are protected by state law (MGL Ch.131 s40). The prospect of obtaining numerous Variances from the Wetlands Protection Act was daunting. It was determined that the appropriate action was to change the State Wetland Regulations to allow for airport tree clearing in wetlands. As a prerequisite to changing the Wetland Regulations (310 CMR 10) to allow for airport tree clearing in wetlands, an Environmental Impact Report was completed in 1993. The State Wetland Regulations were altered in 1994 to allow for tree clearing in wetlands at airports. This regulatory provision established a "Limited Project" for airport tree clearing. Numerous Limited Projects exist for generic projects that are generally perceived to be in the public interest (cross country sewers, landfill closures, etc.) and those which allow for some economical use of wetlands (agriculture, roadway access to upland areas, etc.).

Since 1994, the MAC has developed Vegetation Management Plans (VMPs), obtained permits, and initiated vegetation management at the following airports:

Beverly	Taunton	Fitchburg
Marshfield	Norwood	Mansfield
New Bedford	North Adams	Orange (permitting completed Feb/01)
Southbridge		Lawrence (permitting to be completed in 01)

A VMP usually takes more than one year to complete. It includes a study of the airspace, a determination of the vegetation that penetrates that airspace, and an analysis of the vegetation/wetlands/wildlife habitat. The VMP recommends which vegetation to remove and how to remove it. A series of public meetings are held to describe the problem and discuss the proposed solution with the public. The MAC and its consultants meet with affected neighbors in group meetings and individually. The VMP is submitted to various state and local agencies for input. It is submitted to the Conservation Commission, who holds public hearings and issues a permit under the Wetlands Protection Act. After the Conservation Commission approves the VMP, the document is finalized and the tree clearing project is awarded to a qualified bidder (as required by general law/regulation). The MAC/Airport/and Conservation Commission closely monitor the work to ensure compliance with the VMP.

Statutory/Regulatory Requirements for Section 61 Findings

State agencies are required, by general law and regulation, to issue a *Section 61 Finding* when the State agency takes action "on a Project for which the Secretary [of EOEA] required an EIR". The agency is required to "make a finding describing the Damage to the Environment and confirming that all feasible measures have been taken to avoid or minimize the Damage to the Environment."

MGL Chapter 30 Section 61 reads, in part:

> **Determination of environmental impact by agencies; damage to environment; prevention or minimizing; definition applicable to secs. 61 and 62.**
> Section 61. All agencies, departments, boards, commissions and authorities of the commonwealth shall review, evaluate, and determine the impact on the natural environment of all works, projects or activities conducted by them and shall use all practicable means and measures to minimize damage to the environment. Unless a clear contrary intent is manifested, all statutes shall be interpreted and administered so as to minimize and prevent damage to the environment. Any determination made by an agency of the commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have been taken to avoid or minimize said impact.

Further guidance is provided by the appropriate section of the MEPA regulations:

> **301 CMR 11.12 (5) Section 61 Findings.**
> In accordance with M.G.L. c. 30, section 61, any Agency that takes Agency Action on a Project for which the Secretary required an EIR shall determine whether the Project is likely, directly or indirectly, to cause any Damage to the Environment and make a finding describing the Damage to the Environment and confirming that all feasible measures have been taken to avoid or minimize the Damage to the Environment.
>
> (a) Contents of Section 61 Findings. In all cases, the Agency shall base its Section 61 Findings on the EIR and shall specify in detail: all feasible measures to be taken by the Proponent or any other Agency or Person to avoid Damage to the Environment or, to the extent Damage to the Environment cannot be avoided, to minimize and mitigate Damage to the Environment to the maximum extent practicable; an Agency or Person responsible for funding and implementing mitigation measures, if not the Proponent; and the anticipated implementation schedule that will ensure that mitigation measures shall be implemented prior to or when appropriate in relation to environmental impacts.

Natural Resource Impacts

The statewide program includes the tree cutting and other vegetation management activity such as follow-up maintenance through mowing or herbicide application, at several airports. This vegetation management activity will have a variety of impacts on natural resources. The statute and regs [301 CMR 11.12(5)] require that State agencies avoid, minimize and mitigate damage to the environment. "Damage to the environment" is defined in the statute as "any destruction, damage or impairment, actual or probable". The "natural resources of the commonwealth" are listed below as they appear in MGL Ch30 s61 paragraph 2.

- Air pollution

The statewide airport vegetation management program has no impact on air pollution, as it simply seeks to convert areas of tall vegetation into areas of shorter vegetation.

- Water pollution

Water pollution is possible from large scale land clearing activities through erosion and sedimentation caused by widespread soil disturbance. Chemical contamination is possible from fuel/lubricants originating from heavy equipment/machinery used in tree clearing operations. Herbicides are used for follow-up maintenance. This is a separate topic; see Pesticides below.

- Improper sewage disposal

The statewide airport vegetation management program produces no sewage and has no impact on existing/future sewage treatment.

- Pesticide pollution

Herbicides are used for follow-up maintenance. Pollution from pesticides is possible if necessary safeguards are not in place.

- Excessive noise

A complete loss of vegetative barrier between abutting residences and runways could result in increased noise levels in some specific cases.

- Improper operation of dumping grounds

The statewide airport vegetation management program has no impact on dumping grounds.

- Impairment and eutrophication of rivers, streams, flood plains, lakes, ponds, or other surface or subsurface water resources

The statewide airport vegetation management program does not impair surface or subsurface water bodies. There is no change in land use and no soil disturbance that might impact such resources.

- Destruction of seashores, dunes, marine resources

The statewide airport vegetation management program has no impact on any marine resources, as no airports currently in the program are located near marine resource areas. Trees tend not to grow tall enough in these areas to become obstructions.

♦ Underwater archaeological resources

There is no impact on this resource area since airports do not exist in or under water, except for seaplane bases (which have no vegetation).

♦ Wetlands

Wetland loss, damage or alteration is possible, as the statewide program requires the removal of trees from large areas of wetlands at each airport. Wetland alteration (the threshold used in the MA Wetlands Protection Act) is unavoidable, but can be mitigated. Wetland damage (the threshold used in the MEPA statute) could be caused by inadvertent filling, soil disturbance, building of temporary roads, and changes in hydrology.

♦ Open spaces

The statewide airport vegetation management program does not result in destruction, damage or impairment of open spaces. Most airport property is "open", in that manmade structures are not present. While buildings and paved areas are inevitably part of every airport, the majority of the land area remains in a natural (i.e. vegetated) state. The implementation of the statewide program does not alter the amount of open space on airports, but converts areas of taller vegetation into areas of shorter vegetation.

♦ Natural areas

The statewide airport vegetation management program does not result in destruction, damage or impairment of natural areas. It does certainly alter natural areas by converting taller plant communities to shorter plant communities. This alteration can be visually significant to airport neighbors and does change wildlife habitat characteristics. It does not result in any "destruction" of natural areas.

♦ Parks

The statewide airport vegetation management program has no impact on parks. This program converts areas of tall vegetation (on airport property) into areas of shorter vegetation.

♦ Historic districts or sites

The statewide airport vegetation management program could have impacts on archaeological resources districts or sites; if the methods employed caused soil disturbance in archaeologically sensitive areas. In the past, vegetation management has usually included "clearing and grubbing", which includes the removal of the entire plant, including root structures.

Avoid-Minimize-Mitigate Impacts

The statewide airport vegetation management program, by the nature of the proposed work, avoids all impacts to: air pollution, sewage disposal, dumping grounds, eutrophication/impairment of water bodies, seashores, dunes, marine resources, underwater archaeological resources, open spaces, parks and historic districts/sites.

As part of the statewide Airport Vegetation Management Program "Destruction, damage or impairment" of resources is possible for some resource areas. This section will describe those resources and how the program can minimize/mitigate any possible impacts.

- Water pollution

Water pollution is possible from large scale land clearing through erosion/sedimentation of waterways. To avoid this possibility, the statewide program does not propose traditional "land clearing". No stripping of soil or "grubbing" of roots has been done under this program. "Clearing and grubbing" will remain an option in upland areas when construction impacts can be contained and areas can be maintained by mowing. In areas where grasslands are to be created, this is the only viable method. Little if any traditional erosion controls are needed on VMP project. Vegetation is cut to ground level and roots/soils are left intact. Chemical contamination is possible from fuel/lubricants originating from machinery used in tree clearing operations. To avoid/minimize these possible impacts, vehicles are not parked or stored in or near wetland areas and any refueling is done outside wetland areas. Only biodegradable chainsaw bar and chain oil is used. Each VMP includes a spill containment plan to control any spills that do occur. None have yet been reported.

- Pesticide pollution

A pesticide is a chemical agents used to control a "pest". This includes herbicides, rodenticides, fungicides, etc. Herbicides are used as part of the VMP follow-up maintenance program to suppress the regrowth of stump sprouts from cut trees. Such sprouting can be quite vigorous, as the mature root structure is left in tact. Left unchecked, stump sprouts can grow more than 6' in the first year. Only tree species that grow too tall are targeted. This will give the lower growing species a competitive advantage. In an effort to avoid/minimize any impacts of herbicide use the VMP program voluntarily follows MA Dept of Food and Agriculture (DFA) guidelines. Only licensed commercial herbicide applicators are used, as they are the most well trained. Only DFA/DEP approved "sensitive area" herbicides are used. These are approved for use in wetlands and water supply areas. These herbicides can be purchased over the counter at garden centers, and used by private homeowners. These herbicides do not bioaccumulate. They bind tightly to soil particles so they do not move offsite. In the field, they quickly breakdown to their component parts, all of which are naturally occurring. Contractors use only low-pressure backpack sprayers and ounces of chemical/acre. They are closely monitored and their work complies with DFA guidelines.

- Excessive noise

A complete loss of vegetative barrier between abutting residences and runways could result in increased noise levels. Certain types of vegetated areas can provide a noise buffer. The actual decrease in noise depends on a number of factors including the composition of the

vegetated area, its height/width/density, the distances between the noise generator/receptor/buffer etc. The actual value of the buffer is more visual than auditory, and this perceived noise reduction can be meaningful in some instances. It is not possible to avoid this impact in all cases, as the removal of the trees is the basic project purpose. Impacts can be minimized by not cutting more vegetation than is needed. Each VMP takes these factors into account and recommends the least invasive cutting possible. Potential noise (and visual) impacts are mitigated by promoting the regrowth of a dense area of vegetation that can coexist with the airspace. This is the goal of every VMP. The very short-term impacts of a loss of vegetated buffer (1-2 years) is quickly offset by the abundance and diversity of regrowth that will occur. Our experience with VMPs shows that this initial regrowth can be more than 6' in the first year, so long as soil disturbance is minimized. This rapid and abundant regrowth can create a vegetative buffer that is equal to, or better, than the original buffer. To augment that natural regrowth, the MAC has in some cases replanted evergreen shrubs/trees in areas where a vegetated screen has been lost adjacent to homes.

- Wetlands

Wetland loss, damage or alteration is possible, as the statewide program requires the removal of trees from large areas of wetlands. Wetland "alteration" (the threshold used in the MA Wetlands Protection Act) is unavoidable, but can be mitigated. Wetland "damage" (the threshold used in the MEPA statute) could be caused by inadvertent filling, soil disturbance, building of temporary roads, and changes in hydrology. Wetland damage or loss is avoided through the development of a VMP for each airport, and the Conservation Commission's permitting of it. The VMPs have not recommended the construction of temporary roads or soil disturbance. Possible changes to hydrology should be very short term, as the cut areas regrow quickly with dense vegetation. Land use, impervious surfaces, soil types and runoff curve numbers do not change as a result of a VMP, so there should be no hydrologic changes to the site. Only the most qualified contractors should be hired to implement each VMP. The MAC rejected the low bidder on the largest tree cutting project in the program ($1,000,000 – New Bedford) because the contractor was felt to lack experience working in sensitive wetland resources. The Airport/MAC/Conservation Commission closely monitors the implementation of the VMP to avoid wetland damage or loss. No wetland loss has resulted from any VMP in this program.

- Natural areas

The statewide program does alter natural areas by converting taller plant communities into shorter plant communities. This alteration can be visually significant to airport neighbors and does change wildlife habitat characteristics. It does not result in any "destruction" of natural areas. The visual impact – which is important to airport neighbors - can be minimized/mitigated, as discussed in the "noise" section above.

Wildlife and wildlife habitat are not specifically mentioned in the statute or regulatory references to Section 61 Findings. But as this is an important component of our natural resource it will be included here in the "Natural Areas" section. Wildlife habitat is "altered" at each airport in the VMP program. This cannot be avoided, but the threshold is not "alteration" but "damage". Some habitat will be impaired or damaged for certain species; such as those which require mature trees. Most airports have been the subject of extensive tree clearing in

the recent past. As a result, few if any airports have much mature forest, and therefore limited habitat for forest interior species. Each VMP attempts to quantify potential habitat changes, and identifies appropriate mitigation. Aquatic wildlife habitat can be protected by (a) erosion/sedimentation control – which is usually accomplished by the utilization of low ground impact machinery which does not disturb soil, and (b) retaining or replanting streamside shading in areas of cold water fisheries – which are rare at airports.

Protection of wetland wildlife habitat has been an issue at a number of airports, including habitat for rare species. This includes, but is not limited to, reptile and amphibian habitat at New Bedford, Orange and Lawrence Airports. Damage to this habitat is avoided/minimize/mitigated by (a) development of a site-specific VMP by qualified consultants, (b) review of the VMP by Conservation Commissions and the MA DF&W Natural Heritage and Endangered Species Program and (c) working with consultants, NHESP, conservation commissions and concerned citizens to choose methodologies which will meet the goals of the VMP while safeguarding the wildlife and their habitat. This is not an easy task, but the program has been successful thus far in protecting these important resources. At Orange Airport, extensive study was made of salamander habitat and methodologies were chosen that will ensure habitat protection. At New Bedford Airport, the VMP used ongoing research of turtle habitat to ensure that turtles were not injured during tree cutting. At Lawrence Airport, intensive study the habitat of another species of turtle is now underway.

A number of VMPs have implemented wildlife habitat improvements. These include: creation of den trees or "snags", establishment of brush piles, increased "edge effect", increased grasslands and other areas of early successional growth. The creation of additional grasslands holds the most promise, as grasslands coexist with airspace quite well, and grassland are one of the more important declining habitat types in New England. Numerous rare species depend on grasslands, and grassland habitat has been improved at a number of airports through VMPs and EIRs. The MAC has been in repeated contact with the Massachusetts Audubon Society on this subject since 1997, in an effort to incorporate their research and recommendations into the program.

- Historic Districts or sites

The statewide airport vegetation management program could have impacts on archaeological resources, if the methods employed included widespread soil disturbance. In the past, vegetation management has included extensive "clearing and grubbing". This includes the removal of the entire plant, including root structures. This statewide program does not generally recommend "clearing and grubbing". This is meant not only to avoid impacts to archaeological resources, but also to avoid erosion/sedimentation and to facilitate abundant regrowth of the shrub layer. This helps avoid numerous other aforementioned impacts.

Conclusion

The Massachusetts Aeronautics Commission has committed considerable financial and staff resources to the VMP program. Over $4million has been invested, more than half of which is planning/permitting/public participation. The MAC has used all feasible measures to avoid, minimize or mitigate the environmental impacts. These measures include:

1. Development of the 1993 GEIR.
2. Creation of site-specific Vegetation Management Plans for each airport, with input from Conservation Commissions, neighbors, environmental agencies/groups and local officials.
3. Detailed review and permitting of each VMP by local Conservation Commissions.
4. Development of detailed technical specifications for each tree cutting and herbicide application contract.
5. Awarding contracts only to qualified contractors with experience in sensitive areas.
6. Employing an Environmental Monitor for each tree cutting project to ensure environmental compliance.
7. Close monitoring of tree clearing and herbicide application contractors by MAC staff, Airport Engineers, and Environmental Monitors.
8. Development of the 1999 GEIR Update.
9. Coalescing of the system-wide monitoring program under one contract in late 2000. This 5 year project will monitor regrowth of vegetation at various airports, and submit reports to the MEPA Office through the MAC.

Appendix E.

Guidance Document to Conservation Commissions

VEGETATION MANAGEMENT AT AIRPORTS
A GUIDANCE DOCUMENT TO CONSERVATION COMMISSIONS

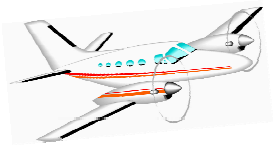
Mass Aeronautics Commission

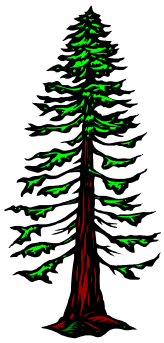
massport

DEP

MANAGING WETLAND VEGETATION AT AIRPORTS

All airports, from the smallest community airport to the largest commercial facility, need to manage their surrounding trees and smaller vegetation near the runways. As trees and other vegetation grow taller they create safety hazards for pilots and can limit the visibility between the aircraft and the control tower. The FAA Safety Regulations require that certain areas of trees and shrubs surrounding airports must be cut, even if they occur within wetlands. There are approximately 18,600 acres of airport property in the Commonwealth, of which about 1,350 acres are wetland resources (Draft General Environmental Impact Report [DGEIR, 1993]).





The MA Wetlands Protection Act (WPA; 310 CMR 10.00) allows for vegetation management at airports as a Limited Project Status for existing facilities only, but requires that vegetation management must be done with careful design and precautions to minimize adverse effects on the wetlands. The identification of areas that need to be cut in and near wetlands is presented in Vegetation Management Plans (VMPs) which are developed for each airport.

Subsequent to the revisions to the WPA regulations in January 1, 1994, vegetation management projects at many airports have been completed, with two more underway. All phases of tree removal have been monitored, and airports have been monitored by MAC for wetland impacts annually since the

cutting. The experience in permitting and monitoring of these VMPs has provided substantial information on the best approaches, common concerns experienced at the various airports, and successful Best Management Practices ("BMPs"), which are summarized and presented in this Guidance Document for Conservation Commissions.

The purpose of this Guidance Document is to address some of the commonly misunderstood aspects of the VMP programs, provide regulatory guidance under the MA Wetlands Protection Act, and to summarize the results from vegetation management that have occurred over the past decade.

CONTENTS

- *Managing Wetland Vegetation at Airports*
- *Purpose & Need for Vegetation Management*
- *Background and Evolution of Wetland Regulations*
- *Developing the VMP*
- *Identification of Wetland Impacts*
- *From NOI to Order of Conditions*
- *After the Orders*
- *Acronyms*
- *List of References*

PREPARATION OF GUIDANCE DOCUMENT

This Guidance Document was jointly prepared and reviewed by MAC, Massport, FAA, DEP, and Baystate Environmental Consultants, Inc. to summarize the VMP development and WPA permitting at MA airports, addressing common issues that emerge in many Notice of Intents.

PURPOSE AND NEED FOR VEGETATION MANAGEMENT

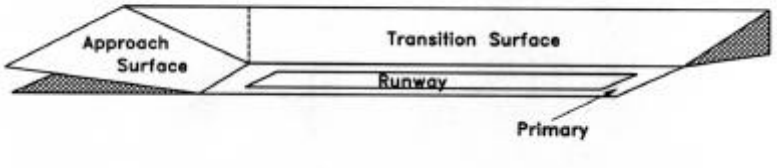
The Massachusetts Aeronautics Commission (MAC) is the oversight and certification agency for 42 of 44 public use airports in Massachusetts. Logan International Airport and Hanscom Field are owned and operated by the Massachusetts Port Authority (Massport). MAC and Massport sponsor vegetation management projects at their airports in order to meet Federal Aviation Administration (FAA) safety standards.

FAA regulations and standards require that airspace Protection Zones (PZs) must be achieved and maintained in order to assure an appropriate level of safety at each airport, and to maintain eligibility for Federal grant funds. PZs are crucial elements of aviation and public safety because when maintained they ensure unobstructed flight paths and views for pilots, air traffic controllers, and ground crew, enabling safe takeoffs, landings, and ground movements. The failure to keep these protection zones clear of penetrating vegetation results in a direct increase of risk to pilots and passengers due to the increase potential for a plane crash during takeoff or landing. The risk is also present for a secondary impact to local residents and the environment that would accompany any potential plane crash. In addition, compliance with FAA regulations, orders, and advisories is necessary for eligibility for federal funding for airport maintenance and improvement projects. If trees grow to a height that violates the safety standards, the airports are often required to artificially and temporarily shorten the runways using "displaced thresholds" by remarking the runway while preparing the removal of the penetrations. However, this reduces the usable runway, also creating a reduced margin of safety for the pilots and public.

Removing the trees maintains the originally approved runway and restores the necessary safety conditions. It does not allow use by larger planes or more frequent use of the airport.

The protected airspace at airports principally includes the "Part 77 Surfaces" (FAA regulations, 14 CFR Part 77, Objects Affecting Navigable Airspace) with some other visually protected areas (e.g., line of sight from the control tower) and certain aircraft navigational aid (NAVAID) critical areas. Determining "penetrations" within the protected airspace is a process called "Obstructions Analysis" which uses detailed survey photogrammetry to determine the height of vegetation surrounding the airport, comparing this information with the protected airspace. This process identifies the areas of vegetation that must be removed.

The Part 77 Surfaces include three surfaces for each runway: a **primary surface**, an **approach surface**, and a **transition surface**. These 3-dimensional surfaces are similar to the field and seats of a football stadium. The **Primary Surface** is essentially the runway surface and immediately adjacent areas (analogous to the football field, sidelines, and end zones). Continuing the stadium analogy, the seats along the side lines and the stadium rows along the length of the field represent the **Transition Surface**. The ends of the stadium, behind the goal posts, represent the **Approach Surface**. The transition surface slopes at a ratio of 7:1, meaning that it extends 7 feet horizontally for every 1 foot increase in elevation. The slope of the approach surface is a function of the instrument approach serving the runway and the type of aircraft using the runway, typically either 20:1, 34:1, or 50:1 (for precision instrument approaches). If a structure or an object, such as vegetation, penetrates any of the Part 77 Surfaces or other surfaces defined and described in the GEIR, it is considered an obstruction. When obstructions exist, an airport must either remove the obstruction or potentially compromise and constrain airport operations.



BACKGROUND AND EVOLUTION OF WETLAND REGULATIONS

Until the early 1990's, vegetation management at airports was an individual action at each airport in Commonwealth. With the strengthening of wetland regulations over the past three decades, vegetative penetrations into the protected airspace around airports were often not removed due to conflicts with the Wetlands Protection Act. As trees surrounding airports grew, runways and airports became increasingly out of compliance with safety regulations or faced with decreasing effective runway length and diminishing airport safety. As a result, many airports were forced to operate with "displaced thresholds" (markings on the runways showing the decreased operational runway length that pilots could safely and legally use).

Prior to 1994 and the changes in the Wetlands Protection Act (WPA) regulations, vegetation removal at airports within wetland areas larger than 5000 SF, required both a variance under the WPA and an Environmental Impact Report (EIR) under the Massachusetts Environmental Policy Act (MEPA). The original WPA process required sequential denial by the local Conservation Commission (frequently more than one Town for single airport), and denial by the Regional Office of DEP, prior to requesting the granting of a variance by the DEP Commissioner. The MEPA process required an Environmental Notification Form followed by a Draft EIR and a Final EIR. Each of these procedural steps, with its own documentation, notification, and time requirements, would need to have been repeated at each airport, resulting in significant delay of necessary safety actions mandated by the FAA and MAC.

Changes in the Wetland Regulations: Recognizing the repetitive and extensive permitting to be done for each of the airports, MAC and MassPort, began a public process with the Department of Environmental Protection (DEP) in 1991 to address the conflicts with the Wetlands Protection Act. It was recognized that vegetation management at airports, similar to VMP work along utility right-of-ways, needed to be done for the public good, and that a streamlined regulatory process needed to be developed to allow these activities without requiring a WPA variance and MEPA EIR for each of the airports. It was mutually determined to seek a regulatory remedy while studying and identifying the general environmental effects of VMP activities on wetland resources at airports.

MEPA Process: MAC, Massport, and DEP collaborated in the preparation of the 1993 Generic EIR (GEIR) to analyze the statewide impacts of airport vegetation management on wetlands and develop modifications to modify the wetland regulations to more readily allow vegetation management at airports for purposes of public safety. After a high level of public and environmental scrutiny, a "Limited Project" status category was developed and incorporated into the WPA regulations.

Summary of Airport VMP MEPA Process

Document	Date
ENF (#8978)	early 1992
ENF Certificate	April 8, 1992
Draft GEIR	early 1993
Draft GEIR Certificate	April 15, 1993
Final GEIR submitted	Aug. 31, 1993
Final GEIR Certificate	Oct. 15, 1993
GEIR Update/ Expanded ENF	Nov. 1999
GEIR/GENF Certificate (#8978/12092)	Jan. 14, 2000
Section 61 Finding	March 2, 2000
Annual Status Reports	March 2001 February 2002 March 2003

The focus of this MEPA process was stated in the Secretary's Certificate on the ENF.

"The overall objective is to stream line the review process so that airport operators can undertake badly needed tree clearing projects without extensive delays so that navigational airspace can be maintained."

After extensive public review and comment, the Final GEIR was accepted and a regulatory blueprint was created to allow VMP activities at airports within wetland resources. As stated in the Secretary's Certificate to the Draft GEIR:

"There is a clear need to develop a rea-

BACKGROUND AND EVOLUTION OF WETLAND REGULATIONS (CONTINUED)

sonable solution that allows airports to clear obstructions that are in wetlands while insuring that the wetlands are protected. If the [VMP] is designed according to the guidelines and recommendations presented in the GEIR and the NOI is properly prepared, the long-term impacts to the wetlands functions and values are not expected to be significant."

This extensive and public regulatory MEPA process recognized and accepted the purpose and need for VMP activity at airports and recommended an approach for the Conservation Commission review of VMP Notices of Intent.

Following the MEPA process, DEP issued an amendment to it's WPA regulations on January 1, 1994 to allow airport vegetation management activities to qualify as "Limited Project" status projects (310 CMR 10.53(3)(n)). This provision placed several limitations and requirements for the Airport VMP Notice of Intent (NOI) applications.

To qualify for the limited project status, VMP project must meet the following conditions (310 CMR 10.53(3)(n)(1-4)):

1. *such projects must be undertaken in order to comply with Federal Aviation Administration (FAA) Regulation Part 77 (14 CFR Part 77), FAA Advisory Circular 150/5300-13 (Navigational Aids and Approach Light Systems), and FAA Order 6480.4 (Air Traffic Control Tower Siting Criteria), all as amended, or to comply with the airport approach regulations set forth in M.G.L. c. 90, §§ 40A through 40I inclusive;*

2. *such projects must be undertaken at airports that are managed by the Massachusetts Port Authority (Massport) or that are subject to certification by the Massachusetts Aeronautics Commission (MAC);*

3. *the requirement outlined in 310 CMR 10.53(3)(n)1. must be certified in writing by the FAA or by the MAC;*

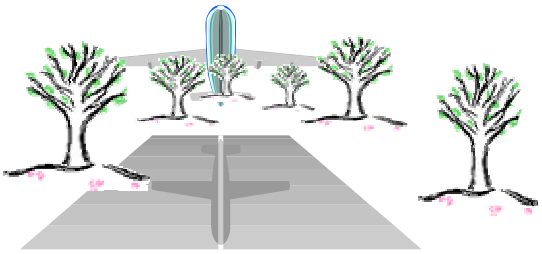
4. *such projects shall not include the construction of new airport facilities or the expansion or relocation of existing airport uses;*

Another outcome of the MEPA process was that the Secretary requested periodic updates to the GEIR filing to report on the effectiveness of the revised WPA regulation and on the progress in implementing vegetation management projects. As a requirement of the Secretary's January 2000 Certificate on the GEIR/GENF, MAC prepares and submits annual status reports detailing VMP work completed during the preceding year. As long as the VMP activities stay within the parameters established under the initial MEPA review process, additional MEPA review is performed under the annual status reports and GEIR/GENF updates. Through the 1999 GEIR Update, MAC and Massport volunteered to work with DEP to develop this guidance document for Conservation Commissions designed to clarify issues that have arisen in these initial vegetation management projects at airports, and help Commissions understand the permitting process for these unique, large scale projects in wetlands.

DEVELOPING THE VMP

Wetland regulation 310 CMR 10.53(n)(5) (f) requires that the Notice of Intent applications have a VMP developed for the airport which identifies all PZ's. Yearly Operational Plans (YOPs) for future maintenance of the VMP treated areas are also required (310 CMR 10.53(n)(5)(a-e)). The vegetation management process at airports has become well defined, and follows a regular, predictable path with regard to the Wetlands Protection Act. The typical steps in the VMP process include:

- ✈ Development of Draft VMP
- ✈ Public Presentation of Draft VMP and Outreach



- ✈ Preparation and Submittal of Notice of Intent and VMP
- ✈ Issuance of Orders of Conditions
- ✈ Finalization of VMP
- ✈ Implementation of VMP
  - Short-term cutting plan
  - Long-term maintenance plan
  - Monitoring plan

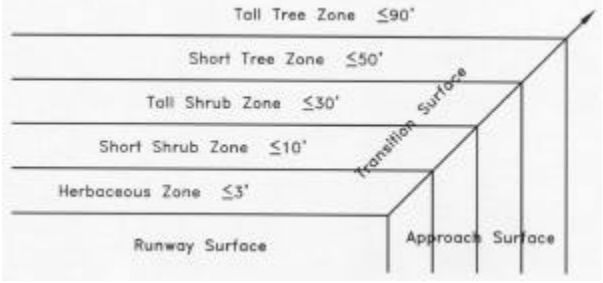
Draft VMP: The first step in developing the Draft VMP is to identify the vegetative obstructions that penetrate into the protected airspace which must be removed. This is done with the "Obstructions Analysis" for the "Part 77 Surfaces" and the identification of other protected areas (e.g., line of sight from the control tower) and certain aircraft navigational aid (NAVAID) critical areas (see description, page 2).

A cutting plan is developed based upon the critical vegetation requiring removal and the wetland resource information. The plan information on wetland resources and impacts (See Table of VMP Contents) is collated into a VMP document, which presents the discussion and conclusions in narrative form and tables, with the technical information placed in appropriate appendices. The document is focused toward the interests of Conservation Commission members, with the analysis and contents reflecting the requirements under the Limited Project Provision of the WPA.

Zonation and Integrated Vegetation Management: A vegetation zonation approach is often used for VMPs combined within an Integrated Vegetation Management Program. Generally, the further away from the runways, the taller vegetation can be permitted to grow without causing safety violations. Some VMPs identify vegetation management zones within which species that would grow to be penetrations are discouraged by active management such as selective cutting and herbicide use. The remaining species which will not grow to the penetration height of protected airspace will become dominant. Such an approach minimizes future maintenance activities, thereby minimizing wetland intrusion and operational costs. Integrated Vegetation Management combines sequential use of mechanical, chemical and biological treatment. The typical approach is to mechanically remove the penetrating trees/shrubs, chemically treat fast growing re-sprouting stumps and/or invasive species, and encourage the natural development of desirable species which suppress the re-establishment of undesirable plants through shading and other biological means.

Once the compatible vegetative structure is established, periodic herbicide treatment programs may be needed every two to five years to maintain the plant height zones and prevent succession to vegetative communities with taller species.

Typical VMP Vegetation Zones

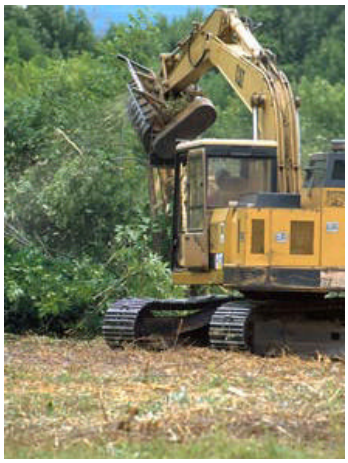


Common Tree and Shrub Removal Techniques

Method	Description
Logging	Individual trees cut with chain saws or other mechanized equipment (e.g., feller buncher). Trees transported and whole logs separated, and the remaining limbs and branches are chipped.
Drop and Lop	Trees cut with chain saws. All limbs, branches and resulting slash is lopped and left in place.
Drop and Mow	Trees cut with chain saws. All limbs, branches and resulting slash is mowed with flail mower. All slash resulting from mowing is less than one foot above the ground.
Cut and Chip	Trees cut with chain saws and transported by a cable or grapple skidder to a chipper in an upland area. The entire tree is chipped.
Mowing	A heavy duty track-mounted flail mowing head or a flail mowing head attached to a rubber-tired vehicle is used to mow and chip trees. This practice is commonly used for trees having a diameter of 6 inches or less. All slash resulting from mowing is less than one foot above the ground.

DEVELOPING THE VMP (CONTINUED)

Typical VMP Contents	
Section	**Description**
Introduction	VMP intent, compliance with WPA and MEPA, aviation safety issues, public process, relationship to other airport projects.
Setting	location, watershed/drainage patterns, floodplains, highways, and surrounding land uses
Goals and Objectives	as approved by MEPA (1993 GEIR and 1999 Updates), including compliance with FAA, MAC, MEPA, and WPA regulatory requirements
Protection Zones and Review of Existing Obstructions	Part 77 Surfaces; Airport Design Standards, NAVAID Critical Areas/surfaces; Air Traffic Control Tower Siting Criteria.
Methods of Vegetation Management	mechanical, chemical, and/or biological controls; rationale; Integrated Vegetation Management; design for minimization of future, large scale, and disruptive vegetation removal projects
Identification of Target Vegetation	defines location of Vegetation Management Areas/Zones (VMAs/VMZs); vegetation species to remain and be promoted in the various zones
Identification of Sensitive Resources	e.g., wetlands, listed species, critical habitats, public water supplies, private wells, cultural resources, residential abutters
Analysis of Alternatives	analysis and selection of removal and maintenance methods based upon ability to meet the program objectives, identifying the most practicable method with the least environmental impact.
Description of Impacts	projected changes in vegetative structure and wildlife characteristics in VMAs/VMZs; invasive species concerns, erosion and sedimentation potential; other.
Mitigating Measures	methods avoiding, minimizing, or compensating for impacts to sensitive resources including residential properties; enhancement of airport-compatible wildlife habitat (e.g., increasing habitat for rare & endangered grassland birds); erosion controls and other BMPs; suppression of invasive species; time of year restrictions (e.g., heavy equipment use when ground is "frozen, dry, or otherwise stable to support the equipment used.").
Yearly Operational Plan (YOP)	five yearly operational plans for implementation of VMPs, followed by periodic updates**.**
Monitoring Plan	VMP implementation pre-construction and post-construction monitoring programs for vegetative changes, wildlife, and/or water qual-
Public Participation Program	description of Public Outreach and Commentary
Appendices	Wildlife Survey Forms, MA Natural Heritage Program correspondence, Herbicide Information, Remedial Plan to Address Spills and Related Accidents, Airspace Obstruction Certification from MAC, Archaeological Reconnaissance Survey



Brontosaurus Flail Mower
(up to 6 inch diameter trees)

Tracked Mower

Tree removal using Feller-Buncher

Mowing with Flail Mower (Brontosaurus)

Invasive species are considered incompatible in all zones, irrespective of height, and, where possible, are removed. This practice is done as mitigation, not to maintain airspace.

Public VMP Process: Prior to the approval of the VMP, the document goes through an open, public planning and review process inclusive of all interested parties including municipal officials, the local news media, abutters, and State and Federal agencies. Local review includes discussion at informal, local meetings. Newsletters may also be used. Abutters typically receive direct written notification and there may be individual meetings with abutters, if requested. Draft and Final VMPs are submitted to the several state environmental regulatory agencies in accordance with the requirements of the Limited Project provision of the state wetland regulations. A notice of availability of the VMP is published in the *Environmental Monitor* for the proposed project. Federal review includes FAA and FDA, the latter in relation to herbicide use. Under certain circumstances, additional Federal agency review could be triggered relative to federally regulated rare species or Section 404 permitting by the Army Corps of Engineers, if any wetland fill (temporary or permanent) were involved as part of the work effort. However, the ACOE has concurred that the typical forestry work, by itself is not jurisdictional.

New Bedford Airport. Shrub wetland regrowth, second growing season.

IDENTIFICATION OF WETLAND IMPACTS

The loss of mature trees as a result of airport vegetation management does alter the wetland environment. The question is, what are the type of changes that occur and what is the potential significance of such alteration? There has been considerable study and public review of the general types of effects on wetlands by VMP activity (GEIR #8978, #6307). The cutting of trees in and near wetlands is not new or unique to airports. While such activity is typically discouraged unless absolutely necessary to the public interest, trees have been cut in wetlands as part of other programs for many years. The MA WPA makes allowances for vegetation management in wetlands under "Limited Project Status" (310 CMR 10.53) for several different types of projects. Vegetation management may also be performed as an environmental benefit. A MassWildlife (DFWELE) program converts forested lands shrub to grassland habitats as an environmental enhancement. This program also provides the use of herbicides to control invasive wetland species at www.state.ma.us/dfwele/dfw. The cutting of trees and vegetation within wetlands has been performed as part of airport management activities prior to the Wetlands Protection Act and more recently over the past eight years under the new regulatory changes of the Wetlands Protection Act granting Limited Project status for such endeavors.

Since 1995, VMP projects have taken place at ten separate airports, as permitted under the Wetlands Protection Act, with follow-up monitoring at each. Monitoring typically focuses upon the vegetative regrowth, especially within wetlands and the evaluation of wildlife habitat and overall health of the wetland. Additional observations are made relative to overall site conditions including erosion, stream scour, and sedimentation. The evaluation of wildlife habitat is primarily based upon examination of the structure of the vegetative

IDENTIFICATION OF WETLAND IMPACTS (CONTINUED)

communities and food species associations, inferring the expected species, with supplemental information provided by generalized observations of wildlife via direct and indirect observation by sign (ie: scat, tracks, dens, nests, auditory identification. Specific target species (e.g., rare species known to be present) may also be looked for during monitoring.

VMPs Permitted and Completed at Airports since 1993 Wetlands Protection Act Regulation Revision

Airport Name	VMP Mgmt. in Wetlands (acres)	Monitored Years	Environmental Issues Reviewed
Beverly	52.5	2001-2003	WR, H, WH, IS
Hanscom	17.4*	Pending	N/A
Marshfield	74.5	2001-2003	WR, H, WH, IS
New Bedford	177.5	2001-2003	WR, H, WH, VP, RS, IS
North Adams	36	2001-2003	WR, H, WH, IS
Norwood	100.7	2001-2003	WR, H, WH
Southbridge	4.7	2001-2003	WR, H, WH
Taunton	35.0	2001-2003	WR, H, WH, RS
Mansfield	13.7	2002-2003	WR, H, WH
Fitchburg	14	2002-2003	WR, H, WH, VP, IS
Orange	17.1	2002-2003	WR, H, WH, RS, IS
Total =	473.2		

*Runway 11/29 only. Remainder subject to subsequent permitting.

WR = Wetland Regrowth/Boundary	H = Hydrology
WH = Wildlife Habitat	VP = Vernal Pools
RS = Rare Species	IS = Invasive Species

Based upon the recent VMP activity, several general conclusions can be made relative to wetland impacts at Massachusetts airports. The conclusions are based on the multiple years of wetland monitoring at each of the airports as summarized in the above table. The interested reader is referred to the detailed annual monitoring reports for each of the airports, which are submitted annually to the MAC, local airports and conservation commissions within the airport communities. While some subtle, not directly observable changes, cannot be ruled out, the following general observations have been made.

- No changes have been observed in wetland jurisdictional boundaries as a consequence of VMP activities.

- No changes in local hydrology (e.g., vernal pools or stream flow) have been observed as evidenced by diminished flooding boundaries in pools or increased stream scour.

- When tested at Beverly and Orange Airport, there has been no detection of herbicide residuals due to localized herbicide application as part of VMP activities.

- There have been no long-term impacts on erosion or sedimentation within wetlands due to the tree cutting activity. Short term erosion during initial cutting has been controlled and restored during operations.

- Periodic maintenance of the vegetative zones under the Yearly Operational Plans (i.e., long-term maintenance plans) has not increased observable impacts to wetland resources.

- No diminishment of rare species or their habitat has been observed as part of permitted VMP activities and some improvements to rare species habitat have been noted (e.g., spotted turtle at Taunton Airport; grassland birds at Beverly, New Bedford, and Orange Airports).

- Some invasive vegetation (e.g., European buckthorn, Japanese knotweed, purple loosestrife) can become more dominant following VMP activities and requires management.

Following the initial physical removal of the tree canopy, the wetland areas are kept in a state of early vegetative

succession via routine maintenance. Therefore, the vegetation tends to be dominated by herbaceous and shrub species with some young tree saplings. Vegetation management does not result in a loss of vegetated areas, but does convert taller plant communities to shorter ones. Shorter growing tree species, shrubs and grassland species can provide equal levels of soil stabilization, water quality protection and improved air quality. In some cases these values may be improved when converting from less dense areas of tall trees to more dense areas of shorter trees and shrubs. While there is a theoretical increase in runoff potential following tree removal due to the loss of rainfall interception by the tree canopy, this appears to be offset by the dense regrowth of the shrub layer once the light is able to reach the former forest floor. Increased stream scour and excessive erosion have not been noted following any of the VMP cutting at any of the airports.

Wildlife habitat type of a forested community is obviously different than that of shrub, immature woodland or grassland communities. Wildlife expected to be present will be those species dependent on, or accepting and/or tolerant of the ecological niches present in such early successional vegetative complexes, characterized by dense herbaceous and shrub-sized woody species. Experience at the various airports, as in similar projects, demonstrates that some of the same mammal, avian, reptiles and amphibians present prior to cutting are able to utilize the habitat after cutting. For example, raptors such as red-tailed hawk that use the trees for nesting or perching prior to cutting, may use the modified area for hunting of exposed prey. Similarly, spotted turtle and eastern box turtle have both been documented at airports in the same general areas, before and after tree removal. This does not mean that the habitat is equivalent. However, the alteration does not necessarily result in the elimination of all wildlife previously utilizing the area.

From some perspectives, the habitat value of younger (early successional) forests and grasslands can also potentially outweigh the value of mature trees due to increases in vegetative and habitat diversity and the relative rarity of that habitat in the nearby and regional environment. Recent research by the Massachusetts Audubon Society indicates that airports provide most of the last refuges for grassland species in the Northeast [www.massaudubon.org/Bird-&-Beyond/Grassland_Birds/large.html]. This important habitat type including some wetlands and buffer zone areas, can be protected, and even enlarged, by airport vegetation management efforts. Therefore, in many cases, important wildlife habitat can be improved by vegetation management at airports under a well designed program.

Invasive Species: The removal of the tree canopy under a VMP can possibly create conditions that favor the expansion of invasive species into the exposed unoccupied niche, especially if such species are already living in the area. The presence of purple loosestrife and European buckthorn has been a concern at several airports.

Second post-cutting growing season at Taunton Airport wetland.

Therefore, the VMP program may need to address these concerns, to prevent dominance in the vegetative regrowth by invasive species. Such dominance limits the establishment of a broader, more desirable vegetative community of diverse native species in the VMP areas. Follow-up work under the YOPs typically includes semi-annual or annual mowing of regrowth areas, hand pulling, or the selective use of herbicides, all of which have proved successful in limiting growth of invasive species. However, hand pulling is typically less effective for larger, more extensive infestations and viable root stock is often left with this technique. Nevertheless, localized hand pulling does have useful applications.

Herbicide Use: Herbicides are often a vital part of the management of vegetation at airports and along utility ROWs. Herbicides can be used to suppress rapid growth of suckers from stumps of cut trees and incompatible species, and give the shorter species an advantage. Over time, the shrubs may grow thick enough to shade out the tall tree seedlings. This dense and varied shrub community requires some maintenance – usually small, periodic herbicide applications –to maintain its stability. Applied directly by hand (via "Cut Stump Treatment" or "Foliar Spray Method" of resprouts), chemical treatment in compliance with statutory regulatory requirements has been shown to entail far less disturbance than follow-up mechanical removal techniques.

Conservation Commissions are frequently concerned about the use of herbicides in or near wetlands. Such use is strictly regulated by the MA Dept. of Food and Agriculture (DFA) and the airport VMPs follow the DFA

IDENTIFICATION OF WETLAND IMPACTS (CONTINUED)

guidelines and each VMP is reviewed by the DFA. All herbicides in MA must be registered and approved for a specific use by the U.S. EPA and the DFA. In addition, herbicide use in or near wetland resource areas requires additional levels of regulatory review. In Massachusetts, the Rights of Way Management Regulations apply (333 CMR 11.00). However, the DFA's VMP Advisory Panel has determined that herbicides, when applied under the guidance of an Integrated Vegetative Management (IVM) program and other conditions, have less impact on wetlands than mechanical only techniques (Environmental Consultants, Inc. 1989). IVM programs typically combine mechanical clearing with herbicide use and natural processes to aid in maintaining the desired vegetation with the goal of minimal future maintenance and disturbance of the environment. Such IVM programs are described within the VMP, if applicable to the project.

The Herbicide Regulations (333 CMR 11.00) dictate special procedures or limitations on the frequency of application allowed within specified distances to "sensitive areas" such as public and private drinking water supplies, standing or flowing water (10 feet), and agricultural or inhabited areas. Additional permitting would be required for use in water, but is not needed at airports to control vegetative penetrations. Other typical guidelines for herbicide application include:

- A qualified, DFA-licensed person must apply the herbicide.
- Vegetation management crews must exercise care to ensure that low-growing desirable species and other non-target organisms are not unreasonably affected by the application of herbicides.
- Herbicides must be handled and applied only in accordance with labeled instructions.
- Herbicides must not be applied during the following adverse weather conditions (high wind, dense fog, moderate to heavy rainfall, high temperatures and low humidity for volatile herbicides, deep snow preventing adequate coverage of target plants).
- At least 21 days in advance of herbicide application, the DFA, the Town/City, the Board of Health, and Conservation Commission shall be notified of the appropriate date of the application.
- No foliar application of herbicides shall be used to control vegetation greater than 12 feet in height except for side trimming.

Experience with herbicide use at airports has proven that the controlled use of the appropriate herbicide, usually glyphosate (brand name, Roundup or Accord), is a viable method for vegetation management in PZs surrounding airports. Selective use of herbicides is cost effective and can reduce or eliminate the need for future, large-scale maintenance efforts that are more intrusive.

Glyphosate is typically applied directly to stumps or leaves by hand spraying with a backpack sprayer. This practice is used both to limit the amount of herbicide used and the amount of herbicide reaching non-target vegetation. Any glyphosate that reaches the ground will stay in the soil and rapidly biodegrade. Glyphosate works by inhibiting photosynthesis. At two airports, water and wells were tested for glyphosate before and after herbicide use. In all cases, the herbicide was not found to be present.

Rare Species: Rare species are protected under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00). Both the Massachusetts Natural Heritage and Endangered Species Program (NHESP) and the United States Fish and Wildlife Service (USFWS) are contacted regarding the presence of any endangered or threatened species within or adjacent to the airport. If a project is located in a specified habitat of rare vertebrate or invertebrate species, as identified in the NHESP Atlas of Estimated Habitats of State-Listed Rare Wetlands Species, the project may not have an adverse effect on the habitat. In order to avoid adverse effects, the NHESP should be consulted for additional mitigation measures that may be implemented as part of the VMP. Such measures have included restrictions on time of cutting activity for grassland bird habitat maintenance and for amphibian migration, and limitations on the number of trees cut annually in sensitive areas (e.g. vernal pools).

Mitigation and Best Management Practices (BMPs): In developing the VMP Program requirements, the various existing programs for vegetation management in wetlands were used as a starting base (e.g. forestry practices and utility right of ways). The 1993 GEIR identified several BMP approaches among the alternative removal methods and other BMPs have evolved during the conduct of the work

over the past decade of VMP activity at various airports. These BMPs may include, but are not limited to, time of year restrictions, limiting the use of heavy equipment on steep slopes or in wetlands, stabilizing inactive skid roads, using erosion controls when needed, installing water bars, and not applying herbicides on windy days.

Modern, light pressure forestry equipment that exerts less than 4 pounds per square inch on the soil, less than a human walking through the wetland, is only used where local conditions are suitable and its use is an efficient alternative to other methods. In areas where stable soils are present at some time of the year, the use of flail mowers, feller-bunchers, and other heavy equipment, is yields excellent results for both tree removal and minimization of impacts. Large areas of trees in unstable soils, where there is good reason not to allow the cut material to remain in the wetland, may require sophisticated (and expensive) removal methods such as "high-lead logging" (i.e. the use of overhead cables) or removal by helicopter.

Box Turtle, Marshfield Airport

Other mitigation may include specific habitat enhancements following cutting such as the leaving of some snags in cut areas for wildlife and the planting of vegetation along a stream corridor for shade enhancement. Preservation of land in agricultural use is also identified by MEPA as a beneficial vegetation management technique and compatible use near airports. Forest practices BMPs intended to foster tree replenishment are not used since they would create future penetrations of protected airspace, although the promotion of shorter stature trees may be used at some locations.

FAA Waivers: FAA waivers from the obstruction clearing standards may, on rare, unique occasions, be issued for extreme cause relating to environmental, engineering, and/or economic issues. One such example was at Norwood Airport where FAA granted a waiver to reduce cutting in the transition surfaces because of a combination of its location within an Area of Critical Environmental Concern, the presence of three (3) State listed rare species, and the high cost of full implementation.

FROM NOI TO ORDER OF CONDITIONS

Once the Draft VMP has been reviewed by the public and interested agencies, the Notice of Intent is prepared for submission to the Conservation Commission. If an airport is located in more than one community, the NOI must describe impacts for all municipalities. The technical basis for the NOI is the VMP, which was already provided for a public review and may have an interim revised version. An airport vegetation removal project can only receive approval under the limited project provision (310 CMR 10.53(3)(n)) if MAC or FAA have certified in writing the need for compliance with protected navigable or other airspace, and the project is for existing facilities only. This restriction does not prohibit the airport from regaining full use of the runway and facilities that have been constrained by the vegetative penetrations.

As per sub-paragraph 8 of the limited project provision, there are several other requirements:

"such projects shall be designed, constructed, implemented, operated, and maintained to avoid or, where avoidance is not practicable, to minimize impacts to resource areas, and to meet the following standards to the maximum extent practicable:

a. hydrological changes to resource areas shall be minimized;

b. best management practices shall be used to minimize adverse impacts during construction, including prevention of erosion and siltation of adjacent water bodies and wetlands in accordance with standard U.S.D.A. Soil Conservation Service methods;

c. mitigating measures shall be implemented that contribute to the protection of the interests identified in M.G.L. c. 131, § 40;

d. compensatory storage shall be provided in accordance with the standards of 310 CMR 10.57(4)(a)1 for all flood storage volume that will be lost;

e. no access road or other structure or activity shall restrict flows so as to cause an increase in flood stage or velocity;

f. no change in the existing surface topography or the existing soil and surface water levels shall occur except for temporary access roads;

FROM NOI TO ORDER OF CONDITIONS (CONTINUED)

g. temporary structures and work areas in resource areas, such as access roads, shall be removed within 30 days of completion of the work. Temporary alterations to resource areas shall be substantially restored to preexisting hydrology and topography. At least 75% of the surface of any area of disturbed vegetation shall be reestablished with indigenous wetland plant species within two growing seasons and prior to said vegetative reestablishment and exposed soil in the area of disturbed vegetation shall be temporarily stabilized to prevent erosion in accordance with standard U.S.D.A. Soil Conservation Service methods;

h. work in resource areas shall occur only during those periods when the ground is sufficiently frozen, dry, or otherwise stable to support the equipment being used; and

i. slash, branches, and limbs resulting from cutting and removal operations shall not be placed within 25 feet of the bank of any water body"

The public review of the NOI follows the course of most typical NOIs, although the project areas are frequently quite large and the NOIs tend to be lengthy. Wetland boundaries are reviewed under the NOIs, as well as the wetland's dominant functions and values of wetlands. The tree removal methodologies are reviewed by the Commission, and modifications may result from the review process. Once the Commission members and the airport have discussed the relevant issues and resolved any uncertainties, the public hearing is closed and the Order of Conditions is issued.

While Conservation Commissions should review all projects in wetlands with caution, the justification for these projects (assuming the conditions of 310 CMR 10.53(3)(n) are met) has already been determined through the public MEPA process and the decisions of the Secretary of Environmental Affairs as supported by DEP. Therefore, the focus of Commission review of a VMP NOI should be on the short-term and long-term measures and mechanisms that will be necessary to achieve the desired vegetated cover within the wetlands, such that any other adverse impacts to the interests presented under the WPA are minimized or avoided.

Orders of Conditions: The Orders of Conditions typically issued for VMP projects tend to be of the same type and length normally issued by the Commissions relative to other large complex projects. Selected sample Special Conditions from the Final GEIR and past VMP projects are listed below.

The duration of the Orders can be written for a period of 5 years. Because the VMP/YOP must be developed for a 5-year period and the intended follow-up monitoring will be performed for this period, the Commissions are encouraged to issue their Orders for this same 5-year period so that the period of review coincides with the mandated term of the YOP. Commissions will have the opportunity to review and comment on the future revisions to the YOPs that will indicate the future VMP maintenance activities within the previously cut areas.

Selected Optional Special Conditions for Airport VMP Orders

- There shall occur no change in existing surface topography or the existing soil and surface water levels except for temporary access roads that are specifically defined on the approved plans.
- Wherever possible, the removal of trees shall occur during those periods when the ground is sufficiently frozen, dry, or otherwise stable to support the mechanized equipment used.
- All activities shall be undertaken in such a manner as to prevent erosion and siltation of adjacent water bodies and wetlands as specified by the U.S.D.A. Soil Conservation Service (presently, NRCS), Field Office Technical Guide of Standard Practices (Section IV), as amended.
- The placement of slash, branches, and limbs resulting from the cutting and removal operations shall not occur within twenty-five (25) feet of the bank of a water body and there shall be no stockpiling within other wetlands.
- All disturbed or exposed soil surfaces shall be temporarily stabilized after each work day with hay, straw, mulch, or any other protective covering and/or method approved by the US Department of Agriculture Soil Conservation Service to control erosion.
- Erosion control devices shall not block passage between uplands and vernal pools between the dates of March 1 and June 1, nor between September 1 and October 15. Alternate erosion controls shall

be constructed if needed during these periods.

- Drainage and flow patterns shall not be significantly altered. Water flow in perennial or intermittent streams shall be maintained at all times.
- Vegetation removal equipment and other construction equipment shall be stored in a manner and location that will minimize the compaction of soils and the concentration of runoff.
- Construction materials and used petroleum products resulting from maintenance of construction equipment shall be collected and disposed of offsite. No on-site disposal of these items is allowed.
- All stream crossings shall be conducted in accordance with the Massachusetts Best Management Practices Timber Harvesting Water Quality Handbook and as specified in the NOI.
- All fueling or lubrication of equipment, including chainsaws, within 100 feet of Bordering Vegetated Wetlands, Bank or Land Under Water shall be performed in a manner to contain the entire volume of any potential spillage. The contractor shall have appropriate spill control measures immediately on hand.

- Except as otherwise approved under this Order of Conditions and presented on approved plans, all equipment shall be operated and maintained to prevent alteration of resource area and buffer zones; no equipment is to enter or cross any wetland resource area at any time, unless the activity is clearly indicated on plans and/or within information approved within this Order of Conditions; no equipment shall be parked or stored within 100 feet of any wetland boundary.

AFTER THE ORDERS

Following the issuance of the Order of Conditions, the Draft VMP is modified to produce the Final VMP document, incorporating any changes or modifications that ensued from the NOI process.

Implementation of VMP: The first step in implementing the approved VMP is to develop the bid documents and the contract specifications. These technical documents complement the plans approved by the Commission and detail the environmental protections, methodology, and other procedures that must be followed by the successful bidder on the contract. Typically, the contract is limited to the first year's vegetation management activity, which includes most of the major tree removal. The airport consultant and environmental personnel with appropriate expertise in forestry, wildlife, water quality, and/or erosion/ sedimentation control provide monitoring of the daily activities, to document compliance with the specifications and the Order of Conditions. Follow-up monitoring is performed by environmental personnel, and additional cutting or treatments are performed under separate bid procedures to licensed or qualified contractors.

Beverly Airport

Guiding the overall progression of a VMP beyond the work covered in the first year's contract is a series of Yearly Operational Plans (YOPs), which are developed for a 5-year period. YOPs provide strategies for annual

AFTER THE ORDERS (CONTINUED)

scheduling and budgeting of vegetation management activities. These documents are updated periodically and eventually evolve into the maintenance schedule for the airport VMP, listing the routine management activities that need to be performed annually in order to preserve the vegetative zones as designed into the original VMP.

VMP Changes Over Time: Airport VMPs by regulation must cover a five-year period. The most intensive work during this period is typically during the first two years, when most of the vegetative removal takes place under a single contract. The activities typically covered under the last few years of the YOP are more directed towards routine maintenance and monitoring. The maintenance activities are the responsibility of the airport and monitoring is currently being performed by MAC for the airports.

Any activities beyond the limits of the original approval (e.g. revised PZs), will potentially be subject to a new permit application. A Certificate of Compliance may be issued by the Commission for the work approved under the original VMP and YOP, with future maintenance of the managed condition as a continuing condition under the original order. Conservation Commissions can, as a condition of the Certificate of Compliance, specify the continual submittal and review of the periodically updated YOPs.

ACRONYMS

BVW	Bordering Vegetated Wetland (as per Wetlands Protection Act)
DEM	MA Department of Environmental Management
DEP	MA Department of Environmental Protection
DFWELE	MA Department of Fisheries, Wildlife & Environmental Law Enforcement
DFA	MA Department of Food and Agriculture
EIR	Environmental Impact Report (as per MEPA)
ENF	Environmental Notification Form (as per MEPA)
EOEA	Executive Office of Environmental Affairs (includes MEPA office)
EPA	Environmental Protection Agency (federal)
FAA	Federal Aviation Administration
FDA	Food and Drug Administration
GEIR	Generic Environmental Impact Report (as per MEPA)
MAC	Massachusetts Aeronautics Commission
Massport	Massachusetts Port Authority
MEPA	Massachusetts Environmental Policy Act
MHC	Massachusetts Historic Commission
NHESP	Massachusetts Natural Heritage and Endangered Species Program
NOI	Notice of Intent (as per Wetlands Protection Act)
PZ	Protection Zone (as per FAA and MAC requirements)
ROW	Right of Way
VMA	Vegetation Management Area
VMP	Vegetation Management Plan
WPA	Massachusetts Wetlands Protection Act (310 CMR 10.00)
YOP	Yearly Operational Plan for VMP

LIST OF REFERENCES

- Draft Generic Environmental Impact Report for Tree Clearing in Wetlands at Public Use Airports (EOEA #8978). Massachusetts Aeronautics Commission and Massachusetts Port Authority. March 1, 1993.
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