

Appendix G

Vegetation Management Plan

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New Bedford Regional Airport Vegetation Management Plan Yearly Operational Plan, 2008-2012



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New Bedford Regional Airport Vegetation Management Plan Yearly Operational Plan Update, 2008 to 2012

This following report provides the updated 5 year Yearly Operational Plan (YOP) for the New Bedford Regional Airport Vegetation Management Plan in compliance with the Limited Project Status provision 310 CMR 10.53(3)(n)5.f. requirements. This YOP has been designed to maintain vegetation in accordance with FAA regulations for safe airspace.

VMP and YOP History

On April 16, 1997 the New Bedford Conservation Commission issued a 3-year Order of Conditions for vegetation management at New Bedford Regional Airport as outlined in the submitted Notice of Intent application, which was extended for an additional 2-year period. The permitted NOI contained a set of Yearly Operational Plans (YOPs) for vegetation management at New Bedford Regional Airport following the initial cutting in the winter of 1999. The 5-year YOPs outlined vegetation management techniques and follow-up maintenance activities included (see Sheet 1):

- (1) areas of continued light mowing,
- (2) areas of heavy mowing,
- (3) areas of cutting and chipping of trees,
- (4) herbicide treatment, and
- (5) selected areas of drop and lop (felling of large trees, cutting of limbs and leaving slash in place).

As per the Order of Conditions and the YOPs of the VMP, maintenance has been conducted at the Airport since vegetation removal in 1999, with monitoring activities also conducted from 1999 through 2004. Herbicide application occurred following the initial cutting in 1999. Follow-up monitoring for the identification of problem areas was implemented in summer 2000. Additional site review in the late spring of 2000 identified the need for additional selective foliar treatment. This area was treated in late summer, 2002. 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 included approximately 1.3 acres located principally at the Runway 14 approach surface. In addition, environmental monitoring at New Bedford Airport was conducted annually for several years after the initial cutting at a total of seven sampling locations to observe the regrowth and overall assess wildlife conditions and habitat. When monitoring conducted, annual monitoring reports were submitted to the Conservation Commission. During the course of this study, BEC biologists recorded data including measurements of plant species composition and relative abundance and wildlife populations to determine the impacts of the VMP upon the airport's wetland communities.

Prior to VMP cutting activities the peripheral areas being managed were predominately wooded and shrub/scrub wetland and upland systems. Vegetative management activities have resulted in

the conversion of these communities to primarily herbaceous and scrub/shrub communities, which will presumably be held at this state via routine vegetative maintenance. Monitoring showed that vegetative cover reached 100 percent rapidly and that the overall abundance and diversity of existing vegetation increased.

Dense shrub dominated ground level vegetative stratification that has developed with the open canopy and higher light regimes has altered wildlife habitat, but not with a loss of functional value. Scrub/shrub communities provide ample forage and cover opportunity for local and migratory wildlife populations. Grassland areas, a declining habitat resource in the Commonwealth of Massachusetts, are abundant within the airport. Further maintenance will continue to arrest the process of forest succession and promote the sustainability of these communities. Therefore, the continuing VMP activities should not result in significant adverse impacts to these wetland wildlife habitats.

YOP Update Requirement

In conformance with the Limited Project Provision for vegetation management at airports, the 5-Year Vegetation Management Plans (VMPs) need to be updated and presented to the Conservation Commission. As per 310 CMR 10.53(3)(n)5.f.:

“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. 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.”

The first 5-Year Vegetation Management Yearly Operational Plan (YOP) for New Bedford Regional Airport ended for 2002, with essentially all of the proposed work completed during that period. The updates of the YOP will promote the future success of the VMP by ensuring the proper treatment of vegetation regrowth. The updated YOP responds to the vegetative changes observed in the field and consist primarily of mowing and foliar herbicide treatments as necessary in alternating years. In DEP’s review and comment on the GENF for the “Massachusetts Statewide Airport Vegetation Management GEIR Update” (EOEA #12092), 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.”

Consistent with the above DEP guidance, the VMP YOPs are an ongoing maintenance practice, analogous to wetland vegetation control in a permitted detention basin. The updated YOPs modify only the timing and implementation of the same methodologies detailed under the continuing maintenance provision permitted under the original Order of Conditions. This continued maintenance will help to ensure the success of the Vegetation Management Program at New Bedford Regional Airport. YOP updates will continue to be submitted as required in conformance with the Limited Project Provision 310 CMR 10.53(3). The remainder of this document outlines the anticipated continuation of the original and updated YOP for the next five (5) year period, providing ongoing maintenance of the previously approved vegetative conditions.

Update of the 5 Year Vegetation Management Yearly Operational Plan

Overview: The purpose of the Vegetation Management Plan implemented at New Bedford Regional Airport, as well as at other airports throughout the Commonwealth, is to maintain safe airport operations and obtain permits to remove current and potential vegetative obstructions to FAA Part 77 airspace and approach lighting protection zones in an environmentally sensitive manner. The MAC submitted a Notice of Intent (NOI) application to the New Bedford Conservation Commission in February 1997. This application was submitted under the auspices of MAC’s Statewide Airport Vegetation Management Program and pursuant to the Massachusetts Wetlands Protection Act (310 CMR 10.00) and Limited Project Provisions of 310 CMR 10.53(3).

All on-airport surfaces were cleared as permitted by the Conservation Commission in 1999. However, the maintenance of these cleared airspace protection zones requires routine vegetation management and follow-up on an annual or semi-annual basis. The VMAs to be maintained under this YOP have been consolidated into six Maintenance Areas where the maintenance treatment is expected to be relatively uniform (Table 1 and Sheet 1).

Maintenance Area	VMA Description	Location	Typical Maintenance Activity
1	Primary Surface / Grass Zone (<3’) Routinely mown or developed areas.	Immediate Runway Periphery and In-field areas and areas near developed airport facilities.	Annual or more frequent mowing
2	Short Shrub Zone (<10’)	Periphery of MA 1	Selective cutting/herbicide or mowing every third year.
3	Tall Shrub to Tall Tree Zones (Maximum heights <30’, <50’, <90’)	Airport wide. Height restrictions ranging from 30’ feet to 90’.	Selective cutting or herbicide application following approved zonation methodology
4	River Protection Area – within Short Tree Zone (<50’)	Southwest of primary runway approach surface.	Selective cutting of penetrations at or above 50’.
5	Areas of regular inundation. Maximum height range from 3’-90’	Airport wide.	Selective hand cutting (drop and lop)
6	Phragmites Control/Removal area	Runway 5 Approach	Herbicide and mowing treatments

*New Bedford Regional Airport Vegetation Management Plan Update
DEP File No. SE49-226; BEC File No. 15.0611060.00*

The proposed update of the YOP for New Bedford Regional Airport is as outlined in Table 2 and as described below.

Table 2. Proposed Update of Yearly Operational Plan (YOP)		
Year	Maintenance Area	Treatment
2008	1,2,3,5,6	Area 1: Annual or more frequent mowing. Area 2: Selective hand cutting or mowing of low shrub zone including RW 23 light lane penetrations. Area 3: Selective hand cutting of the penetrations on the upland knoll adjacent to Rt. 140 (allowable tree heights <50ft, approximately 75% of the canopy cover). Area 5: Drop and lop tall shrubs penetrating light lane near ILSF in RW 23 approach. Area 6: Mowing of light lane area portion (June/August). Initial herbicide treatment of entire area, and spot treatment of any Phragmites in surrounding or recently cut areas.
2009	1,5,6	Area 1: Annual or more frequent mowing. Area 5: If needed, selective hand cutting of any penetrations within 10' of open water. Area 6: Mowing of light lane area portion (June/August). Follow-up herbicide treatment.
2010	1,2,6	Area 1: Annual or more frequent mowing. Area 2: Selective cutting or herbicide treatment of penetrations as needed. Area 6: Mowing of light lane area portion (August only, if penetrations not an issue). Follow-up spot herbicide treatment.
2011	1,2,3,4	Area 1: Annual or more frequent mowing. Selective cutting of Area 3 if needed. Area 4: Selective cutting of trees >50 ft taller than the runway elevation, as needed. Seek additional off airport aviation easements if needed.
2012	1,2,3,6	Area 1: Annual or more frequent mowing. Areas 2,3,6: Selective foliar herbicide treatment, if needed.

General Approach: 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, thereby promoting safe, navigable airspace protection zones. In time, mowing will result in the selection of species with low growth habits. This will eventually lead to the development of a stable, low-growing plant community requiring less future maintenance. Maintenance mowing will be conducted on a bi-annual basis, and primarily located within the perimeter fence; however, limited mowing outside of the fenceline may be required to maintain compatible plant communities.

Low-volume foliar herbicide treatments will be conducted on target species, which consist of both invasive species and species with growth habits that are incompatible with safe airspace regulations. Herbicide application will follow the zonation concept originally approved by the Conservation Commission. This concept calls for vegetation with a potential for growth above a

certain height to be selectively removed while leaving shorter growing species. Herbicide treatments will occur in alternate years and will consist of low-volume foliar treatment of invasive and incompatible species (see, Table 3 Zonation Compatible Species List, and Table 4 Target Invasive Species List). Invasive species, especially Phragmites, are a continuing problem at New Bedford Municipal Airport, which requires control by foliar herbicide treatment. Incompatible species will also require foliar herbicide treatment. Incompatible species are canopy species that have the potential to obstruct navigable airspace in future years, these species vary by management area and in general taller woody stem species are tolerated farther from the primary surface. In time, herbicide treatments will most likely decrease the levels of invasive and incompatible species found on-site, and the use of herbicide is expected to be reduced.

Table 3. Zonation Compatible Species List		
Zone	Common Name	Scientific Name
Grass Zone: Max. Height 3 feet.	Woolgrass Tussock sedge Little bluestem Large cranberry	<i>Scirpus cyperinus</i> <i>Carex stricata</i> <i>Schizachyrium scoparum</i> <i>Vaccinium macrocarpon</i>
Short Shrub Zone: Max. Height 10 feet.	Sheep Laurel Sweet fern Meadowsweet Steeplebush Bayberry Lowbush blueberry	<i>Kalmia angustifolia</i> <i>Comptonia peregrina</i> <i>Spirea latifolia</i> <i>Spirea tomentosa</i> <i>Myrica pensylvanica</i> <i>Vaccinium angustifolium</i>
Tall Shrub Zone: Max. Height 30 feet.	Highbush blueberry Speckled alder Witch hazel Spicebush Sweet pepperbush Arrowwood	<i>Vaccinium corymbosum</i> <i>Alnus rugosa</i> <i>Hamamelis virginiana</i> <i>Lindera benzoin</i> <i>Clethra anlifolia</i> <i>Viburnum dentatum</i>
Short Tree Zone: Max. Height 50 feet.	Grey birch Pussy willow Sumac Red cedar	<i>Betula populifolia</i> <i>Salix discolor</i> <i>Rhus spp.</i> <i>Juniperus virginiana</i>
Tall Tree Zone: Max. Height 90 feet.	Red maple Yellow birch Scarlet oak	<i>Acer rubrum</i> <i>Betula allegheniensis</i> <i>Quercus coccinea</i>

Note: This list is not inclusive and is merely a list of common species, which will be allowed to continue to exist within each specified zone. Other species whose maximum height is below the allowable threshold for each zone are also acceptable and will remain within each management zone.

Table 4. Typical Target Invasive Species List for Herbicide Use		
Plant Type	Common Name	Species Name
Invasive Species	<ul style="list-style-type: none"> ▪ Glossy buckthorn ▪ Multiflora rose ▪ Purple loosestrife ▪ Oriental bittersweet ▪ Autumn olive ▪ Common Reed 	<ul style="list-style-type: none"> ▪ <i>Rhamnus frangula</i> ▪ <i>Rosa multiflora</i> ▪ <i>Lythrum salicaria</i> ▪ <i>Celastrus orbiculatus</i> ▪ <i>Eleagnus umbellata</i> ▪ <i>Phragmites australis</i>

Description of Each Maintenance Area:

Maintenance Area 1: Maintenance Area 1 consists of both upland and wetland areas, which are routinely mown including the primary surface and surrounding grasslands. Continued routine mowing of this area will maintain the area within maximum height limits which range between 3 inches and 3 feet of grade. The limited wetland areas will only be mown in dry or frozen conditions that are capable of supporting the equipment. Alternatively, low ground pressure equipment (low pressure tires or tracks resulting in less than 3 psi ground pressure) that will avoid damaging the soil surface can be used in wetlands. Areas outside of the primary surface and runway safety areas are typically only mown annually and may require heavy mowing of denser woody stem areas.

Maintenance Area 2: Maintenance Area 2 consists of both upland and wetland areas, which must be maintained with vegetation heights below 10 feet. Depending on the accessibility of equipment and ease of mowing (wetness or uneven terrain may inhibit mowing), maintenance may include rough mowing every second or third year, or selective cutting and herbicide treatment of incompatible species. Wetland areas would only be mown in dry or frozen conditions that are capable of supporting the equipment. Alternatively, equipment with low ground pressure that will avoid damaging the soil surface can be used in wetlands. Selective herbicide application of woody stem species in areas that are inaccessible to heavy mowing or hand cutting of woody stem species within 10' of open water will allow for maintenance.

Within the southern portion of the RW 23 light lane approach section of this Maintenance Area, there are some tall shrubs that need to be removed in order to maintain approach light visibility. Since the shrubs are generally of a uniform height and within upland, this area is proposed to be rough mown in 2008. A small portion of this area is on the edges of an Isolated Land Subject to Flooding wetland resource. The edges of resource are uneven and mowing may not be possible; therefore in those areas hand removal is proposed.

Maintenance Area 3: Maintenance Area 3 consists of both wetland and upland areas occupied by a variety of height classes of vegetation ranging from tall shrubs to tall trees. Continued intermittent, selective herbicide treatment or hand cutting of target woody stem species, following the approved zonation methodology, will be sufficient to maintain this area (See Table 3). The maximum height allowable by any vegetation within this zone varies from 30 feet to 90 feet and biannual airport evaluation of penetrations may be needed. Within the Tall Tree Zone (<90'), very little management is expected to be needed and would only consist of selective cutting, and may only need assessment every 5 years. Shorter vegetation zones may require more frequent assessment and management.

Within Maintenance Area 3 is an approximately 1 acre area of penetrations or potential penetrations on an upland knoll adjacent to Route 140 that is in the RW 23 approach. This area has a 75 percent canopy cover of trees between 60 and 70 feet in height, but exists in a 50 foot height zone; therefore, maintenance is needed. This cutting is proposed under a separate Notice of Intent. This area will be maintained with selective cutting and herbicide use as part of Maintenance Area 3 after the cutting occurs.

Maintenance Area 4: Maintenance Area 4 consists of the riparian corridor of Paskamansett River. This special river management zone is only to be maintained by selective cutting of trees, which penetrate safe airspace or obstacle free zones. Trees will be dropped and lopped, but left at least 25 feet from the bank of the River. No herbicide application will occur within 25 feet of the River unless it is proposed to control Phragmites or other invasive species, but not within 10 feet of open water. The maximum height allowable by any vegetation within this zone is 50 feet.

Maintenance Area 5: Maintenance Area 5 consists of areas that are subject to frequent or permanent inundation, and areas within 10 feet of such areas. Plant communities within this area are unable to be maintained by herbicide treatment due to their close proximity to open water. Selective hand cutting of target species following the approved zonation concept is therefore the proposed means of maintaining these areas (See Table 3). The maximum height allowable by any vegetation within this area varies between 3 feet and 90 feet in height.

Maintenance Area 6: Maintenance Area 6 consists primarily of wetland areas dominated by the invasive *Phragmites australis*, which generally grows up to 15 feet in height. These areas are not always accessible to mowing due to inundated or extremely soft soil conditions. An invasive species control plan is proposed to remove Common Reed from this area and allow native herbaceous and shrub species to grow in these areas. The proposed plan will be an adaptive management plan working with the City to develop the most effective treatment regime possible. Although the proposed treatment is based on available research, each environment is unique and shifts in the management techniques may be needed to best convert these areas to native species. The Airport will continue to work with the Conservation Commission to find the best method of treatment for this area, in conjunction with the City's plans to treat Phragmites in surrounding off-Airport areas.

In Maintenance Area 6, management will include a combination of herbicide treatment and cutting in August to reduce the energy transfer from the growing plant to the rhizome to reduce the existing population and improve the potential for desirable vegetation to become established. The management regime will also maintain airspace and lighting surfaces. The maximum allowable height for this maintenance area varies. Within the light lane (200 feet off the RW 5 approach light center-line), the maximum height allowable of the vegetation is the height of the approach lights, which is the runway height or approximately 5 feet above grade. See the YOP Plan for the allowable vegetation heights outside of the light lane. Since the Phragmites will grow up to 15 feet, the invasive plant will grow to obscure the approach lighting system, and active management is needed throughout the growing season.

Within the light lane, cutting is proposed in June/July to cut the vegetation to allowable heights. A second cutting and/or herbicide treatment is planned for this area in August. The second cutting will maintain the allowable vegetation heights in this area, and damage the plants, by reducing the energy transferred to the rhizome, starving them and reducing potential for the rhizomes to spread the plants into new areas. As funding allows, herbicide treatment is proposed to reduce Phragmites coverage at the Airport overall, but especially within the light lane and recently cleared areas. As much as possible to maintenance allowable heights, cutting will occur in dry conditions, and will involve either hand cutting. Alternatively, the area could be mown

with low ground pressure equipment (less than 3 psi) to minimize impacts in wetland areas. After mowing Phragmites, the cutting/mowing equipment should be cleaned before working in other areas to avoid spreading the species to new areas of the Airport.

In the areas outside of the light lane, the Phragmites is not a monoculture and there is approximately 30 percent cover of shrubs and other plants. Other than a few individual Autumn olive shrubs, and multiflora rose along the road, the remaining 30% cover is predominantly native. The Airport is proposing herbicide treatment the Phragmites with glyphosate (or a glyphosate - imazapyr combination) over the entire Maintenance Area 6. Areas outside of the light lane are not proposed to mown prior to treatment. Herbicide treatment is proposed to occur in late August or September before the first frost to best impact the root system of the plants. A general treatment of the dominant Phragmites area is proposed, and will unavoidably harm the intermixed natives. However, if mowing is not conducted first, the woody stemmed native species may survive the herbicide treatment, and provide seed sources and cover as the Phragmites population is reduced. Spot treatments are also proposed for any smaller Phragmites populations in surrounding areas, especially areas that were recently cut and could be invaded.

After the initial year of treatment, spot treatments are proposed to prevent Phragmites recolonization. If it appears that the native species have been killed by the herbicide treatment, cutting may be proposed in the second year. For areas where a combination of mowing/cutting and herbicide treatment is proposed, no mowing should occur within 2 weeks of herbicide treatment to ensure that the treated portion of the plant is not removed before the herbicide is fully absorbed by the roots.

Off Airport Avigation Easements: These areas are located off airport property, but has the potential to penetrate safe airspace. If required, off airport avigation easements will be sought. If vegetation management is required off airport property, an updated VMP will be prepared and appropriate approvals and permits will be obtained.

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