

# Vegetation Management Plan (VMP)

City of Haverhill, MA

2018-2022



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## **Statement of Goals and Objectives**

This Vegetation Management Plan (VMP) is intended to establish criteria for the City of Haverhill to control vegetation along municipal Rights of Way (ROW) in compliance with the Rights of Way Management Regulations (333 CMR 11.00) as promulgated by the Massachusetts Department of Agricultural Resources (MDAR).

The primary objective of this VMP is to provide the public with safe and unobstructed ROWs while minimizing reliance upon herbicides. Vegetation maintenance is necessary along public ROWs including: roads; sidewalks; and trails to control unwanted vegetation that may pose a public nuisance, result in safety hazards or cause damage to structures and infrastructure. The City of Haverhill has approximately 250 centerline miles of roadways, intersections, and ROW's associated with dozens of municipal properties. The goal of the program is to control undesirable vegetation while maximizing environmental protection and minimizing herbicide use. Only herbicides listed on the current ROW Sensitive Areas Materials List will be used. The VMP's success will be based upon periodic monitoring and inspection which is expected to result in:

- Protection of the public and environment;
- Control of target vegetation;
- Reduction in volume of chemical application;
- Reduction in frequency of chemical application;
- Ensure vegetation management activities are conducted in a safe, effective, and regulatory compliant manner; and
- Protection of sensitive areas.

This VMP will serve as technical guidance for individuals involved in ROW vegetation management and as an accessible source of information for residents and public officials.

## **Target Vegetation**

Target vegetation will be limited to species that pose a safety hazard, compromise infrastructure, are a public nuisance, or are invasive and may have detrimental effects on natural resources. The City of Haverhill will submit a Yearly Operational Plan (YOP) for MDAR approval to specify the herbicide(s) to be used, target species and detail application locations.

### Hazard Vegetation

Hazard vegetation poses a risk to public safety and represents vegetation that impedes movement along public ways. Hazard vegetation may: obscure sightlines, obscure signs, obscure vehicular movement, create windfall hazards, and cause winter shading (causing ice/reduced melting). Hazard vegetation may include, but is not limited to, trees, tree limbs and shrubs.

### Nuisance Vegetation

This category includes nuisance vegetation that could cause problems to the general public, employees or contractors. It generally includes vegetation that is barbed, poisonous, poses a health risk, and/or causes dermatitis. Target vegetation in this category is primarily poison ivy and other nuisance vegetation within 10 feet of the edge of pavement.

### Detrimental Vegetation

Detrimental vegetation includes grasses and woody plants that are destructive or compromise the function of infrastructure by growing in cracks along the roadway, pavement/bridge joints, medians/traffic islands, drainage structures/drainageways, trails and bike paths.

### Invasive Vegetation

Invasive plants can colonize a space and virtually eliminate the biodiversity of an area. This can result in changes in wildlife due to habitat change, impede natural hydrologic function and cause an overall change in the natural functions of an area. Invasive plants can include those listed on the Massachusetts Prohibited Plant List.

### **Vegetation Management Methods & Actions to Minimize Herbicides**

Vegetation management methods will include both non-chemical techniques and chemical application where necessary. Vegetation control may involve the following methods:

- Cultural Control – use of ground cover, Adopt-a-Park Program.
- Physical Control – street sweeping, sealing cracks, resurfacing, mulching, hand pulling.
- Mechanical Control – hand cutting, mowing, selective trimming.
- Chemical Control – foliar herbicide treatments, pre-emergent treatment, cut stump surface treatment.

The control methods selected will be chosen based on a variety of factors and with the goal to achieve a long-term, low maintenance, ecologically sound vegetation management program with minimal herbicide use.

### Cultural Control

Cultural control methods rely primarily on the use of groundcover where appropriate. These include the use of native groundcovers that can help outcompete and/or crowd out target vegetation and establish a stable, beneficial vegetation community.

Another cultural control method includes public programs that promote the sponsorship and care of landscaped areas. The Adopt-a-Park Program allows individuals and businesses to maintain a landscaped area throughout the growing season. These areas are regularly maintained, helping to eliminate weed growth and reduce City maintenance needs. Over 65 of these locations throughout the City are currently maintained.

### Physical Control

Physical control methods will rely primarily on pavement maintenance. Pavement maintenance consists of sealing cracks and general ROW repairs including resurfacing and installing new sidewalks. This helps to eliminate weeds by preventing access to both sun and soil for growth. The City also completes annual street sweeping. The build-up of sediment and other material can provide a medium for plant growth. Regular street sweeping can help eliminate this material from accumulating as a base for weed establishment. Additionally, the City will employ proper mulching techniques to planting beds and roadside areas to prevent weed growth. Physical control will also include the hand pulling of targeted grass and weeds by hand where safety and economic feasibility has been established.

## Mechanical Control

Mechanical control methods may include hand pulling/cutting, mowing and/or selective trimming.

### *Hand Cutting*

Hand cutting consists of the mechanical cutting of target species using chain saws and brush saws. Target species are cut as close to the ground as practical. Hand cutting is used in order to protect environmentally sensitive sites. It is also used on target vegetation greater than twelve feet in height. Hand cutting is used on those restricted sites where terrain, site size or sensitivity renders mowing impossible or impractical. Hand cutting may be practiced at any time during the year.

### *Mowing*

Mowing consists of the mechanical cutting of target vegetation using push mowers, large rider mowers, rear deck mowers, brush mowers, edgers and line trimmers. Selection of specific equipment is based on terrain, target vegetation size and equipment availability. Mowing will be used in areas where terrain and target stem size permit safe and efficient use of the above machinery. Mowing will take place within 10 feet of the edge of pavement and will be the principal method for vegetation control along road shoulders and where herbicide use is prohibited. Mowing will be conducted seasonally when weather conditions allow.

Invasive plant species will not be mowed unless a separate invasive species control plan has been developed that supports mechanical cutting as a valid and effective control technique. This plan shall include a discussion of species control options, steps for removal, plant (and soil material, if applicable) disposal, monitoring and long-term control.

### *Selective Trimming*

Selective trimming consists of the mechanical pruning of the tops of encroaching limbs of tall trees that may hamper roadway, sidewalk, and trail and bike path access. Trimming will be accomplished using aerial lifts via trucks or tractors, or if terrain or obstruction prevents equipment access, by climbing crews.

Similar to above, invasive plants shall not be trimmed unless a separate invasive species control plan has been developed to support the mechanical trimming as a valid and effective control technique.

## Chemical Control

Chemical control may include foliar treatment and/or cut stump surface treatments.

### *Foliar Treatment*

Foliar treatments involve the selective application of an herbicide diluted, in accordance with manufacturers' directions, to the foliage. Several types of equipment for foliar treatments may be used. These could include: backpack sprayers, hand-held pump sprayers or a motorized truck-mounted sprayer. Foliar treatments with backpack and hand-held pump sprayers are used on low-density target vegetation. The herbicide solution will be diluted to the lowest labeled rate that will provide effective control of target species. Motorized application equipment may be used for foliar treatment on areas where the vegetation density is high and the use of a backpack spray may not be as effective.

These foliar applications will take place when plants are in full leaf and actively growing, and in accordance with the product label. When used according to the City's herbicide application program, foliar treatments are an effective and efficient method to control the whole target plant. Controlling the whole target plant reduces the potential of resprout from live root systems.

#### *Pre-Emergent Treatment*

This involves the use of pre-emergent herbicides using the same equipment described in the foliar treatments above. Pre-emergent applications are used where season long vegetation control requires "vegetation-free conditions" such as along certain curbing, sidewalks, under guardrails and on paved traffic islands. Usually, pre-emergent treatments are used in conjunction with foliar applications, unless the goal is to prevent the growth of vegetation in the spring, to reduce the amount of applied herbicides and applications. This method is used from the early spring to early fall.

#### *Cut Stump Surface Treatment*

Cut stump treatments consist of mechanical cutting of target species using chain saws, and followed by herbicide treatment applied with a squirt bottle, a hand pump sprayer, or painted on the freshly cut surface of the stump. The cutting procedure is identical to that outlined in the Hand Cutting section of this VMP. Cut stump application can be effective during the dormant period, however, it may not be effective during times of sap flow (i.e., maple and birches during the months of February through early April), as flowing sap will limit the herbicide from being absorbed into the stump down to the roots. Certain types of herbicide formulations are limited to freshly cut stumps to be effective.

#### Monitoring

All roadsides will be visually surveyed by the City of Haverhill Department of Public Works (DPW) prior to any scheduled treatment program. Monitoring will be conducted by Haverhill (DPW) by foot and/or by vehicle. Monitoring of areas may result from requests from the public. All monitoring records will be maintained by the Haverhill DPW.

#### Record Keeping

A log of areas surveyed will be maintained by the City for future planning and reference. Areas maintained either through physical repair, mechanical or chemical control will be recorded.

#### Control Tactics

The decision to use one or a combination of vegetation control techniques will depend on the site-specific situation. The control tactics selected will control target vegetation in the most environmentally sensitive and efficient manner.

<b>Control Method/Target Vegetation</b>	<b>Grasses</b>	<b>Low-Growth Nonpoisonous<sup>1</sup></b>	<b>Low-Growth Poisonous<sup>1</sup></b>	<b>Tall Growth Nonpoisonous<sup>2</sup></b>	<b>Tall Growth Poisonous<sup>2</sup></b>	<b>Conditions</b>
Cultural Control	✓	✓				Where landscape, traffic and safety conditions allow.
Physical Control	✓	✓				Where landscape, traffic and safety conditions allow.
Mechanical – Hand-Cutting		✓		✓		Where landscape prevents mowing; individual trees or branches.
Mechanical – Mowing	✓	✓				Where landscape, traffic and safety conditions allow.
Chemical – Foliar <sup>3</sup>	✓	✓	✓			Within cracks or joints; when safety concerns eliminate the use of mechanical methods. Certain invasive plants.
Chemical – Cut-Stump <sup>3</sup>				✓	✓	When species are persistent and invasive.

<sup>1</sup>Low Growth – herbaceous growth (generally 3-4' high, grasses, vines, short woody growth)

<sup>2</sup>Tall Growth – woody vegetation greater than 4' in height

<sup>3</sup>Except in no-spray areas

**Justification of Herbicide Use**

This plan focuses on the minimization of herbicide use within ROWs. Vegetation management along public ways is necessary to control unwanted vegetation that pose a public nuisance, obstructs views and creates a traffic or pedestrian hazard. By following the proposed vegetation management methods discussed in this plan, physical and mechanical treatments control most plants that interfere with traffic, visibility and safety. Chemical controls are necessary in management situations where topography, access, growth rate, species specific factors, worker safety, or environmental concerns limit the potential for control by physical or mechanical methods.

Chemical controls are often the preferred method or only method of control for plants which pose a health hazard for the technician in the field, either directly or as a function of location. Poison ivy, for example, is extremely hazardous to handle, biologically resistant to mechanical removal and can pose a serious threat. Individuals attempting to control curbside plants and weeds by pulling or trimming them can also put a technician in danger from traffic and is generally not effective for long-term control.

In many situations, poisonous plant species, such as poison ivy cannot be effectively controlled by mowing. Due to the low growing nature of poison ivy, and the fact that it grows along stolons and reproduces both by fine and fibrous rhizomes as well as by

berry, it is nearly impossible to control through cultivation, hand pulling or mowing at the height generally used in roadside mowing operations. Moreover, the climbing characteristics of this plant over stone walls, up tree trunks and around guardrails/guiderrails, make mechanical control out of the question for safety and economic reasons.

Mowing will control most grasses. Herbicide applications, however, are used where mechanical control is not feasible due to location, stem density and/or height. Although grass is more often a desirable vegetative cover along public ways, in areas where it is a target, it is difficult and sometimes dangerous to remove by mechanical treatment methods. These areas include, but are not limited to, cracks in asphalt, along guardrails/guiderrails, paved traffic islands, sidewalks and curbs. In these instances, grass can be identified as target vegetation.

Woody vegetation (low and high growth species) growing along the ROW that interfere with pedestrian or vehicle safety is controlled by a variety of techniques. Pruning or ground cutting using hand tools or chain saws primarily controls large woody vegetation. Depending upon the species of plant removed and its proximity to other vegetation, these stumps may be treated with an herbicide to prevent resprouting, although they often can be removed mechanically.

Small woody plants that are growing along the road shoulder in an accessible location will usually be mowed along with the roadside grass. Woody plants that are growing over obstacles that would impede the mower, or have a viney growth habit and are not practical to hand cut or chip, or that grow very rapidly, can be controlled through the use of the foliar application of herbicides.

Finally, invasive plant elimination is sometimes warranted to promote the growth of a more diverse mix of vegetative species, reduce sedimentation and improve natural drainage and wildlife habitat. Managing invasive plants via mechanical means can be ineffective and/or detrimental depending on the species, making the colonization stronger. In these situations, the use of an herbicide may be necessary. Working in conjunction with the Conservation Commission, there may be opportunities to remove invasive material and encourage the growth of native species.

### **Identification of Sensitive Areas**

Sensitive areas are defined within 333 CMR 11.00 as areas within ROWs in which public health and environmental concerns warrant special protection to further minimize risks of unreasonable adverse effects of herbicides. These include public groundwater sources, Class A public surface water sources, associated surface water bodies, tributaries, Class B drinking water intakes, private wells, state listed species habitat, wetlands, waters over wetlands, riverfront areas, certified vernal pools, inhabited areas and agricultural areas. Sensitive areas will be identified through the use of existing data and verified when necessary in the field.

#### Sensitive Areas Basemap

There are several readily available sources of information that can be used to develop a draft sensitive areas basemap. These sources include:

- Massachusetts Department of Environmental Protection (MassDEP) Water Supply Maps (1:25,000).
- Aerial Photographs.
- MassDEP Wetlands Conservancy Maps (scale 1:1,000).



- Municipal maps and records including those from the Haverhill Health Department to identify private water supplies.
- Regional Planning Agency maps and records.
- U.S. Fish and Wildlife Service National Wetlands Inventory Maps.
- Ortho Photo Information – MassDEP (1:5,000).
- Massachusetts Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP).
- Available MassGIS maps.

Identification of Treatment Areas

With the draft sensitive areas basemap complete, the Haverhill DPW staff will identify and mark the proposed treatment areas on the basemap. Haverhill DPW staff will visually survey treatment areas in the field for any additional sensitive areas not already on the basemap. Sensitive areas identified in the field that are not already on the basemap will be added or adjusted as needed. Similarly, treatment areas located within sensitive areas will be adjusted according to the Sensitive Areas Restrictions listed in Table 2. An updated basemap will be developed.

Field Verification of Sensitive Areas & Marking of Treatment areas

With the draft sensitive areas basemap complete, Haverhill DPW staff will deploy in advance of treatment crews to identify the treatment areas in the field. All treatment areas will be identified and marked on the sensitive areas maps. Sensitive areas in the vicinity of the treatment areas will be confirmed during this field effort, if possible, and any additional sensitive areas identified in the field or corrections will be applied to the basemap. Treatment areas located within no spray areas will be adjusted according to the Sensitive Areas Restrictions listed in Table 2.

<b>Sensitive Area</b>	<b>No Spray Areas</b>	<b>Limited Spray Areas</b>	<b>Where Identified</b>
Wetlands and Water Over Wetlands	Within 10 feet (unless provisions of 333 CMR 11.04(4)(c) are followed)	10 – 100 feet; 12 months must elapse between applications; Selective low pressure, using foliar techniques or cut-stump applications	YOP Maps and identify on site
Certified Vernal Pool	Within 10 feet	10 feet to the outer boundary of any Certified Vernal Pool Habitat; 12 months must elapse between applications; Selective low pressure, using foliar techniques or cut-stump applications	YOP Maps and identify on site
Public Ground Water Supply	Within 400 feet (Zone I)	Zone II or IWPA (Interim Wellhead Protection Area which is the Primary Recharge Area); 24 months must elapse between applications; Selective chemical, using foliar techniques or cut-stump applications	YOP Maps

Public Surface Water Supply	Within 100 feet of any Class A public surface water source	100 feet to the outer boundary of the Zone A; 24 months must elapse between applications; Selective chemical, using foliar techniques or cut-stump applications	YOP Maps
	Within 10 feet of any tributary or associated surface water body located outside of the Zone A	10 feet to the outer boundary of the Zone A; 24 months must elapse between applications; Selective chemical, using foliar techniques or cut-stump applications	
	Within 100 feet of any tributary or associated surface water body located within the Zone A of a Class A public surface water source		
	Within a lateral distance of 100 feet for 400 feet upstream of any Class B Drinking Water Intake	Within a lateral distance of between 100 - 200 feet for 400 feet upstream of intake; 24 months must elapse between applications; Selective chemical, using foliar techniques or basal or cut-stump applications	
Private Water Supply	Within 50 feet	50 – 100 feet; 24 months must elapse between applications; Selective chemical, using foliar techniques or cut-stump applications	In YOP will list and identify on site
Surface Waters	Within 10 feet from mean annual high-water line	10 feet from the mean annual high-water line and the outer boundary of the Riverfront Area; 12 months must elapse between applications; Selective chemical, using foliar techniques or cut-stump applications	YOP Maps and identify on site
Agricultural and Inhabited Areas	N/A	0 – 100 feet; 12 months must elapse between application; Selective chemical, using foliar techniques or cut-stump applications.	Identify on site
State-listed Species Habitat	No application within habitat area except in accordance with a YOP approved in writing by the Division of Fisheries and Wildlife		YOP Maps <sup>1</sup>

<sup>1</sup>Includes Estimated Habitats of Rare Wildlife and the Priority Habitats for State-Listed Species as shown on the most recent edition of the Massachusetts Natural Heritage Atlas prepared by the NHESP.

### **Operational Guidelines for Applicators Relative to Herbicide Use**

As required by regulations, individuals applying herbicides to ROWs must hold a valid Core certification as long as an individual with a Category 40 pesticide certification from the MDAR is physically onsite to supervise. The applicator(s) will be City staff and/or a certified contractor working under the supervision of the City of Haverhill. All applicators and their supervisors will have a copy of the VMP and YOP with them at all times while onsite for reference during the herbicide application. A Daily Vegetation Management Report form will be filed at the end of each day with the individual supervising the YOP. This will include the following information:

- Applicator name and pesticide license #
- Weather conditions during application
- Identification of site/work area
- Type of equipment and hours used
- Method of application
- Target vegetation
- Herbicide, amount/concentration used
- Identification of adjuvants or dilutants and amount/concentration used
- Unusual conditions or incidents noted
- Public inquiries noted
- Recording/verification of sensitive areas
- Lane miles treated
- Total amount of herbicide used
- Man hours (actual spray hours) vs. total herbicide used

In addition to the applicable rules and regulations, applicators will adhere to the following operational guidelines.

#### Weather

Herbicide application will be restricted during certain adverse weather conditions, such as rain or wind. Herbicide applications will not be conducted during periods of rainfall and applicators will follow the rain-free protocol according to labeled directions. If foliar applications are interrupted by unexpected rainfall, the treatment will not resume until the rain ends and active leaf runoff has ceased.

To minimize off-target drift, the applicator will comply with the following restrictions:

- During periods of wind, which are strong enough to bend the tops of the main stems of trees on the roadside, the applicator will periodically observe the application of the foliar treatment to ensure that there is no significant movement of the herbicide. If the applicator can see the herbicide moving off target, the application will immediately stop until the wind has subsided enough to permit further applications.

- Herbicide solution to be used for a foliage application may contain anti-drift agents. Anti-drift agents may be added to the foliage herbicide solutions as per the anti-drift agent label. In moderate wind conditions, as per label recommendations, more anti-drift agent may be added, at the discretion of the applicator to control increased drift.
- Foliar treatment will not be made to target vegetation that exceeds twelve feet in height.

#### Equipment Calibration

Foliar application equipment will be calibrated prior to application and in accordance with manufacturer's recommendations. Applicator nozzles will be adjusted to apply a coarse spray pattern. Equipment will be adjusted to deliver an herbicide solution that minimizes herbicide overspray.

#### Sensitive Area Restrictions

In defined sensitive areas, there exists a no-spray area where herbicide use is prohibited and a limited spray area where herbicide use is allowed under certain conditions. In places around sensitive areas where herbicide use is allowed, only the minimum labeled rate of application for the control of target species can be applied.

#### **Qualifications of Individuals Developing & Submitting the Plan**

Mr. Michael Stankovich is the Director of Public Works for the City of Haverhill. With over 30 years of public works experience, Mr. Stankovich has been the DPW Director for the City of Haverhill for the last 10 years. He has a B.S. from the State University of New York's College of Environmental Science and Forestry in Syracuse and an MBA from the Keller Graduate School of Management in Chicago. He will oversee the implementation of the VMP and YOP for the City of Haverhill.

Comprehensive Environmental Inc. (CEI) is a civil engineering and environmental science firm that has served municipal, state, and federal agencies throughout the New England area for over 30 years. Ms. Stephanie Hanson is a Project Manager and Principal Scientist at CEI, specializing in the areas of wetlands, water resources, stormwater, environmental permitting and resource area protection. Ms. Hanson is a Certified Ecologist with a B.S. in Environmental Geoscience and M.S. in Environmental Science.

#### **Alternative Land Use Options**

Every effort will be given for alternative land use options. However, there are specific criteria to be met for adoption of alternative land use options. First, the alternative land use option must control the nuisance vegetation in a similar manner, environmentally and efficaciously, as allowed in this VMP.

#### **Remedial Plan to Address Spills and Related Accidents**

All mixing and loading of herbicides will be conducted at the facility where the herbicides are stored. This will be a City facility if the application is completed by a City employee, or possibly offsite, if the application is being completed by an outside contractor. Only the amount of herbicide necessary to carry out the vegetation control, based on monitoring results, will be mixed daily to ensure that there will be no waste and will minimize potential problems. The vehicles carrying out the spray operations will be equipped with a bag of absorbent, activated charcoal, leak-proof containers, a broom and a shovel, in case of minor spills. A clipboard log of the herbicides on the vehicle will

be kept in the vehicle. Herbicide labels and fact sheets will be carried on-site by the applicator.

Spills requiring action include: herbicides, fuels, oils and other motor/hydraulic fluids.

As soon as any spill is observed, immediate action will be taken to contain the spill and protect the spill area. The cause of the spill must be identified and secured. Spill containment will be accomplished by covering the spill with absorptive clay or other absorptive material or, for large spills, building clay or soil dikes to impede spill progress. Until completely remediated, the spill area will be protected by the placement of barriers and by the delineation of the spill area by crew members. If a fire is involved, care will be taken to avoid breathing fumes from any burning chemicals.

Minor spills of liquid herbicide will be remedied by soaking up the spill with adsorption clay or other adsorptive material and placing it in leak proof containers, removed from the site and disposed of properly. Minor spills involving dry herbicides, such as granulars, will be swept up or shoveled up directly in leak proof containers, removed from the site and disposed of properly. All contaminated soil will be placed in leak proof containers, removed from the site and disposed of properly. Any minor spill will be reported to the MDAR, Division of Crop & Pest Services.

Major spills will be handled in a similar manner as minor spills, except in cases where the spill cannot be contained and/or removed by the crew. In this case, the MassDEP Emergency Response Unit and the MDAR, Division of Crop & Pest Services must be contacted.

Emergency first responders (including, but not limited to, fire and police) should be immediately notified of a major spill and/or any size incident deemed a possible risk to public health, safety and the environment.

MassDEP will be contacted when there is a spill of a reportable quantity, regardless of major or minor spill status and in accordance with 310 CMR 40.0000 Massachusetts Contingency Plan.

In the event of a spill, information on safety precautions and clean up procedures may be gathered from the following sources:

- Herbicide label
- Herbicide Safety Data Sheet (SDS)
- Herbicide Manufacturer
  - DOW (800) 992-5994
  - Dupont (800) 441-3637
  - Monsanto (314) 697-4000
  - NuFarm (877) 325-1840
  - Bayer (866)-99-BAYER
- MDAR, Division of Crop & Pest Services
  - Clayton Edwards (617) 626-1700
- Massachusetts Department of Environmental Protection
  - Emergency Response (888) 304-1133
- MA Department of Public Health, Bureau of Environmental Health's
  - Environmental Toxicology Program (617) 339-8351

- Massachusetts Poison Control Center  
24-Hour Hotline (800) 222-1222
- City of Haverhill Department of Public Works (978) 374-2360
- Haverhill Fire Department  
(978) 373-8460 – non-emergency or 911
- Haverhill Police Department  
(978) 373-1212 – non-emergency or 911
- Haverhill Health Department (978) 374-2338
- Chem-Trec (800) 424-9300
- National Pesticide Information Center (800) 858-7378
- National Animal Poison Control Center (888) 426-4435

### **Monitoring Plan**

On an annual basis, the Haverhill DPW will evaluate the success of this Vegetation Management Program based on the goals and objectives stated in this VMP (page 1) which include:

- Protection of the public and environment;
- Control of target vegetation;
- Reduction in volume of chemical application;
- Reduction in frequency of chemical application;
- Ensure vegetation management activities are conducted in a safe, effective, and regulatory compliant manner; and
- Protection of sensitive areas.

This monitoring plan will evaluate the relative success of the VMP. Plan success constitutes achievement of the above goals and objectives. Monitoring plan and assessment activities will include the following:

1. Pre-application assessment of each treatment area to include estimated area of treatment and identification of target species. Treatment areas will be mapped for future assessment.
2. Recording of volume of herbicide used during treatment for each area.
3. Post-evaluation of each treatment area to include a description of the overall control of target species and observation of nearby sensitive resource areas, noting impacts if any.
4. The Haverhill DPW will hold an annual VMP monitoring meeting in the fall after completion of all herbicide application activities. This meeting will assess the following issues:
  - a. Overall control of target species in each treatment area;
  - b. Volume of herbicide applied;
  - c. Impacts related to weather;
  - d. Sensitive area impacts, if any;

- e. Comments received from the public, if any; and
  - f. Overall program implementation including suggested changes.
5. Meeting minutes will include the above information, data and discussion points and will include comparisons to previous years' information, if available. Recommendations on location and use will be reflected in the next year's YOP as applicable.

**Notification Procedures**

Once approved, a copy of the VMP will be provided to the Mayor, Board of Health and Conservation Commission. Upon approval of the VMP and YOP and 21-days in advance of the application of herbicide to a ROW, the City will notify the MDAR, Board of Health, water supplier, Mayor, and Conservation Commission of the application. Notification will include: method and location of application, herbicide fact sheet, U.S. EPA registration number for herbicide and applicator contact information. Additionally, at least 48-hours prior to a ROW herbicide application, the applicant will publish in a local newspaper the following information: methods and location of pesticide application, approximate dates of herbicide application, name of herbicide(s) to be used, description/purpose of application and contact information for the designated individual representing the City whom citizens can contact.