Town of Southborough

FIVE YEAR VEGETATION MANAGEMENT PLAN 2018-2022

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March 1, 2018

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1. INTRODUCTION

The Town of Southborough's Vegetation Management Plan (VMP) is designed to establish a five-year program to control vegetation along facilities considered rights-of-way under 333 CMR 11.02. These include "…any roadway, or thoroughfare on which public passage is made and any corridor of land over which facilities such as…bicycle paths are located." In particular this means roads, curbing, sidewalks, medians/traffic islands and bicycle paths ("public ways"). In compliance with 333 CMR 11.00, Southborough is implementing an Integrated Vegetation Management (IVM) program that incorporates regulatory and industry standards that account for safety, environmental concerns and effective target vegetation control. Described in detail below, cultural, physical, mechanical, and chemical (herbicide) practices and principles are the four components of this plan.

Southborough is a suburban town in the Metro West area outside of Boston in Worcester County. Incorporated in 1727, the town is located alongside the Sudbury Reservoir. Southborough has retained open space and maintains hiking trails, playgrounds, ball fields, a golf course, cemeteries and environmentally sensitive areas associated with the Sudbury Reservoir and wetland areas. To maintain the aesthetics and character of the town as well as ensure that these public ways remain safe the vegetation along them must be carefully managed.

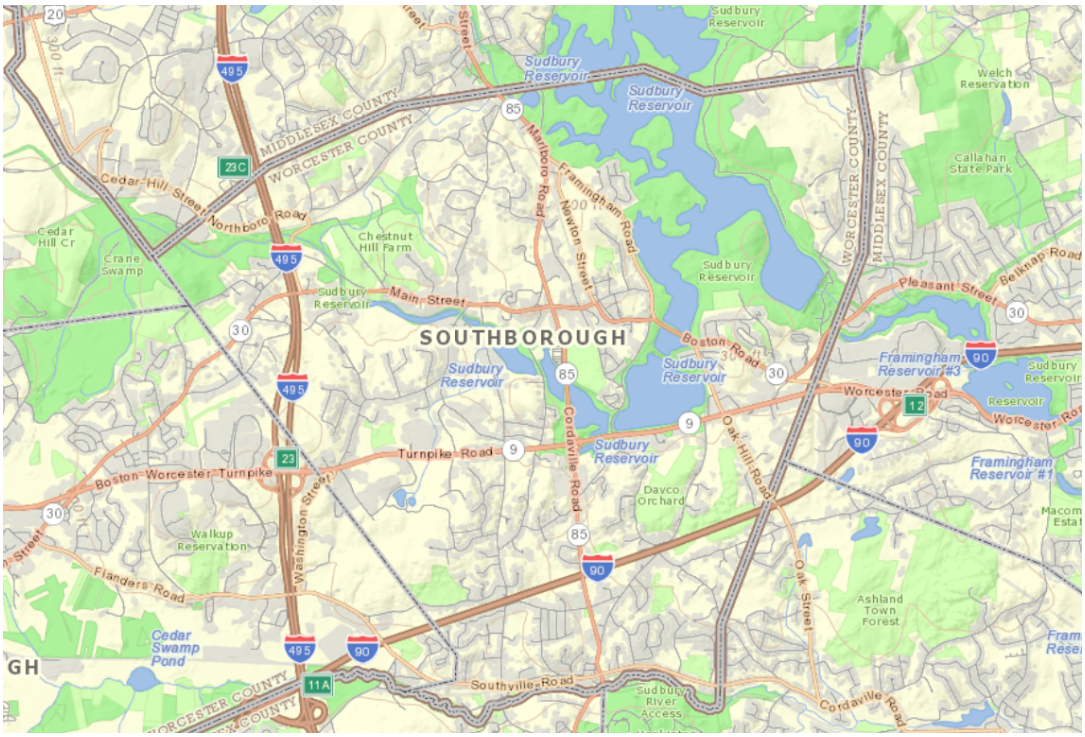

Figure 1: Southborough

2. GENERAL STATEMENT OF GOALS AND OBJECTIVES

Vegetation management along public ways is necessary to control unwanted vegetation that poses a public nuisance and creates traffic and pedestrian hazards. The operational goal of this VMP is to ensure vegetation management practices along public ways are conducted in an effective and environmentally sound manner.

Southborough is therefore instituting an Integrated Vegetation Management (IVM) program that adheres to the parameters set in 333 CMR 11.00. This will be accomplished by following an adaptation of the American National Standards Institute (ANSI)/International Society of Arboriculture (ISA) definition of IVM.[*] This IVM model includes six steps which are designed to be continuously re-examined and adapted to current conditions:

Step 1: "Understanding Pest and Ecosystem Dynamics" (Section 3)
Step 2: "Set[ting] Management Objectives and Tolerance Levels" (Sections 2, 5, 6, 8 & 10)
Step 3: "Compiling Treatment Options" (Sections 5 & 6)
Step 4: "Account[ting] for Economic and Environmental Effects of Treatment" (Sections 2, 7 & 8)
Step 5: "Site Specific Implementation of Treatments" (Sections 3, 4, 5, 6, 7, 8 & 9)
Step 6: "Adaptive Management and Monitoring"[†] (Sections 4 & 5).

Adhering to the model above, the individual objectives of this VMP are:

- To maintain safe public ways;
- To ensure that all vegetation management operations are conducted in a safe, effective regulatory compliant manner;
- To work towards achieving a long-term, low maintenance vegetation management program;
- To allow for unplanned tasks for which all precautions are taken to utilize the correct treatment methods;
- To use certified, licensed and qualified vegetation management crews;
- To have a Department of Public Works (DPW) representative available to respond quickly to interactions with the public and/or government agencies;
- To perform an annual assessment of treatment methods, cost effectiveness, environmental effects, public safety and regulatory compliance;
- To maintain the flexibility necessary to accommodate unique situations and the need for more appropriate techniques as they arise within the regulatory framework of 333 CMR 11.00 (in accordance with new regulations and/or scientific advances).

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[*] ISA and ANSI.
[†] Christopher A. Nowak and Benjamin D. Ballard, "A Framework for Applying Integrated Vegetation Management on Rights-of-Way," Journal of Arboriculture 31(1): Jan 2005. Step 3 could theoretically be mechanical only, which is not IVM. Step 4: 333 CMR11.01: "….minimize the uses of, and potential impacts from herbicides… while allowing for the benefits to public safety…"

Southborough's VMP is a public document designed to be the principle source of information for state and municipal officials, and other interested parties about Southborough's adherence to the regulatory standards set forth in 333 CMR 11.00. It also provides guidance to the qualified and licensed/certified individuals who perform the vegetation management treatment program.

3. IDENTIFICATION OF TARGET VEGETATION

Target Vegetation:

Any plant species which poses a public nuisance and/or has the potential to interfere with the operation and safety of the right-of-way.

Achieving a long-term, low maintenance vegetation management program requires the ability to identify incompatible plant species and to understand why they are targets. Incompatible vegetation along public ways poses a public nuisance and/or a safety risk to pedestrian or vehicles and interferes with the safe movement of goods and services.

Vegetation Posing a Risk to Safety

Vegetation that obstructs visibility or impedes movement along public ways poses a risk to public safety. M.G.L. Chapter 87, Section 5 authorizes tree wardens to control "all public shade trees, shrubs, and growths" along public ways. This includes woody plant species, grass and herbaceous species and public nuisance vegetation as listed below. For example, any vegetation such as grape vines or tree branches that might obscure street signs.

Public Nuisance and Noxious Vegetation

Public nuisance vegetation includes, but is not limited to plant species growing along public ways that pose a health, safety or environmental hazard. Noxious vegetation (weeds)[‡], which includes poisonous and invasive plants, pose a risk to safety and health because of heavy thorns, dense foliage and/or impenetrable stems; examples include, but are not limited to, Multi-flora Rose, Common and Glossy Buckthorn, Japanese Knotweed, Blackberries, Barberry and Autumn Olive. Although not the only poisonous target species of concern, Poison Ivy comprises the overwhelming majority of poisonous plant communities along public ways that require control.

Nuisance Grass and Herbaceous Growth

In most instances, grass is a desirable plant species. Along the shoulders of roads, grass growth is often encouraged and maintained through mechanical mowing. However, in some instances, grasses and other herbaceous plants are targets in areas where they cause a safety risk. These areas include, but are not limited to, cracks in asphalt, along guiderails, within paved traffic islands, medians, on and between sidewalks and the adjacent curbing. Herbaceous and other broadleaf vegetation can also impair the stability of grassy areas by out-competing the desirable grass species.

[‡] "NOXIOUS WEED. —The term ''noxious weed'' means any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment." (PUBLIC LAW 106–224—JUNE 20, 2000, TITLE IV—PLANT PROTECTION ACT).

4. PUBLIC WAY INTEGRATED VEGETATION MANAGEMENT

> "The purpose of 333 CMR 11.00 is to establish a statewide and uniform regulatory process which will minimize the uses of, and potential impacts from herbicides in rights-of-way on human health and the environment while allowing for the benefits to public safety provided by the selective use of herbicides."[§]

Returning to the ANSI/ISA definition of IVM, the individual components of an IVM driven vegetation management program cannot work without the others. They are all part of both the decision and the treatment phases of IVM. The six steps of IVM are the same for all IVM programs but the individual components and the items thereunder, are tailored to both the sites/ROWs being treated and the incompatible vegetation. As a result, IVM programs are well suited to deal with important items such as site sensitivity, the presence of endangered species, invasive species, safety, the public, the effectiveness of the program, etc.

Taking all these factors into considerations, the four components of Southborough's IVM program are: cultural, physical, mechanical, and chemical (herbicide). Where all four components come together is IVM (see Figure 2).

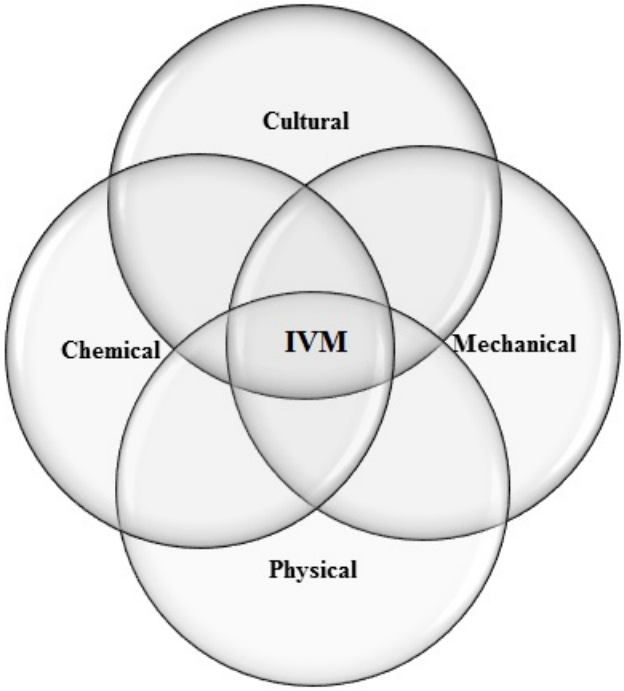

Figure 2: Public Way Integrated Vegetation Management

The cultural component of IVM may be the hardest component to pin down due to the many variations in how individuals and industries use the word "cultural." For the purposes of

[§] *333 CMR 11.00 Right of Way Management:* Section 1.

this VMP, the term means understanding the uses, requirements, and aesthetics of the different treatment areas in Southborough. In other words, the first step in implementing any municipal IVM program is understanding how the property in the treatment areas is being used and why it is being used that way. In some places, plantings are appropriate, but others, such as roadways and sidewalks, require vegetation free conditions. Grass and weeds on sidewalks and pavement, aside from being unsightly and creating tripping hazards, also damage and destroy concrete and pavement. Likewise, inappropriate plantings may cause safety concerns at intersections. A well designed IVM program recognizes and manages for instances in which these factors prescribe the treatment methods. In all cases, effective control methods are adapted or limited to suit the management situation.

Another "cultural" component of Southborough's IVM program is continued monitoring of the current and potential treatment areas. This allows the town to adapt the treatments to the conditions and to alter the treatment areas as necessary. For example, monitoring for new populations of poison ivy or other noxious vegetation such as the invasive plant species Oriental Bittersweet that is killing trees along our roads throughout the Northeast. Both of these plant species are on federal and state prohibited lists; both are most effectively controlled with herbicides.

The physical control components of Southborough's IVM program are general maintenance tasks that help prevent the establishment of vegetation. These include, sealing cracks, general right-of-way repairs (i.e. repaving, installing new sidewalk, etc.), cleaning ditches and sweeping streets (see Section 5).

Mechanical controls will be discussed in detail in Section 6, but in brief, they include mowing, selective pruning and hand cutting to remove or reduce noxious or hazardous vegetation. For example, applying the decision making part of an IVM program to the use of mechanical controls, in many locations the targets are grass and herbaceous plants growing along the edge of the road with no man-made obstructions (e.g. guiderail, curbs) therefore, they may effectively be controlled by the use of mowers, trimmers or other mechanical means.

The chemical control component of this IVM program is the use of herbicides to control incompatible vegetation that cannot be controlled effectively or safely by either physical or mechanical methods alone (see Section 6). When appropriate, herbicide use will be minimized by timing applications to maximize control, by avoiding fixed application schedules and by using the most selective methods practical on a site-by-site basis. The main chemical controls are basal, cut stump treatments, and foliar applications which may include pre-emergent herbicides.

In summary, the benefit of IVM is the ability to choose the most appropriate treatment method or combination of methods for each situation. This is only possible by using the cultural component of IVM in the process of deciding the direct methods of physical, mechanical and chemical treatments. This is achieved through careful monitoring, landscape awareness, education, experience and record keeping.

5. IVM PROTOCOL

Taking into consideration all four components of Public Way IVM, the protocol for implementing the IVM program is as follows:

Monitoring*:* All public ways will be surveyed prior to any scheduled treatment program. Monitoring will be conducted by foot or by vehicle. Monitoring of areas may also result from public requests. Monitoring is a year round protocol.

Maintenance: Roads will be cleaned using a street sweeper. Cracks in the asphalt and sidewalks and other defects will be repaired, and ditches will be cleaned.

Direct Vegetation Control Methods: The decision to use one or a combination of IVM techniques will take into consideration the cultural uses of the landscape. The direct IVM management tactics selected will control nuisance vegetation in the most environmentally responsible and efficient manner:

A. Mechanical Controls

1. Hand Cutting
2. Mowing
3. Selective Pruning

B. Chemical Controls

1. Foliar applications
2. Pre-emergent applications
3. Cut stump treatments
4. Basal applications

Record Keeping: A log of surveyed areas will be kept for future planning and reference purposes. Areas maintained either through physical repair, mechanical or chemical control will be recorded by the DPW for at least 3 years.

6. VEGETATION MANAGEMENT CONTROL METHODS AND RATIONALE FOR USE

As the two IVM components directly used to control vegetation, the following section is a description of mechanical and chemical treatment methods. The method(s) chosen for a given vegetation problem are based on achieving a long-term, low-maintenance vegetation management program.

Mechanical Methods:

1. **Hand Cutting:** cutting target species using hand saws, chain saws and brush saws. Target species are cut as close to the ground as practical: the ideal stump height is three inches or less (when possible). Hand cutting is used to remove hazard trees and to protect environmentally sensitive sites including sites where herbicide use is prohibited by regulation including the removal of target vegetation greater than twelve feet tall. Hand cutting is also used on sites where terrain, target species size or sensitivity renders mowing impossible or impractical. Hand cutting may be used at any time of the year.

2. **Mowing:** the mechanical cutting of target vegetation using machines including push mowers, riding-mowers, offset flail mowers, brush mowers, edgers and/or trimmers. Equipment selection is based on site, terrain, and target vegetation size. Mowing is used in most areas where terrain and target stem size permit efficient use of the equipment and in areas where herbicide use is prohibited by regulation. Mowing is the principle vegetation control measure on the shoulders of roads and grassy islands. Mowing may be used at any time of the year except when deep snow precludes operations.

3. **Selective Pruning**: the mechanical pruning of the tops or encroaching limbs of tall vegetation which may cause a hazard or hamper access. The equipment includes aerial lifts mounted on trucks or tractors or, if terrain or obstructions prevent equipment access, climbing crews. Selective pruning may be done at any time of the year and may provide a viable alternative to the removal of vegetation.

Chemical (Herbicide Applications) Methods

1. **Foliar Treatments:** the application of herbicides diluted in water, to the leaves, stems, needles or blades of target vegetation. The equipment consists of back pack and vehicle mounted sprayers; both use low pressure at the nozzle per 333 CMR 11.02. Foliar applications take place when leaves are fully developed in the spring until early fall and the beginning of leaf abscission—i.e., when leaves begin dropping.

    a. **Hand-held and back-pack sprayers:** hand pump or motorized back pack sprayers or squirt bottles. This technique is excellent for spot treatments, such as localized poison ivy infestations. It is not as effective as other methods on high density target vegetation.

b. **Vehicle mounted sprayers** use truck, tractor and/or ATV mounted equipment that delivers the herbicide solution through nozzles attached to a hose or boom-mounted apparatus. This technique is used along roadways that have good access and where obstructions, terrain or site sensitivity do not exclude the equipment.

2. **Pre-emergent Treatments:** 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 curbing, sidewalks, under guiderails/guardrails and on paved traffic islands. This method is used from the early spring to early fall.

3. **Cut Stump Treatment (CST):** the mechanical cutting of target species followed by an herbicide treatment to the phloem and cambium tissue of the stumps. CST treatments prevent re-sprouts, thereby reducing the need to re-treat the same vegetation. The CST mixture is diluted in water, basal oil or a non-freezing agent and is ideally made to freshly cut stumps. Application equipment includes low-volume, backpack sprayers, hand held squirt bottles, paintbrushes, or sponge applicators. This method is used where maximum control is desirable; to reduce the visual impact of vegetation management treatments, and/or to reduce the potential of adverse impacts to desirable vegetation because of its selectivity. CST may be used at any time of the year provided snow depths do not prevent cutting the stumps below three inches in height. It is best to avoid during the season of high sap flow, or in moderate to heavy rains. It is not practical in moderate to heavy stem densities.

4. **Low Volume Basal Treatment:** the selective application of an herbicide, diluted in specially formulated oil, to wet the entire lower twelve to eighteen inches of the target plant stems. Using a hand pump backpack, the oil enables the herbicide solution to penetrate the bark tissue and translocate within the plant. Low volume basal treatments are extremely selective and used when vegetation density is low and in areas where extreme selectivity is necessary. For public way treatments it is primarily an option for invasive species control. It can be used any time of year except when snow is too deep, in extremely wet weather and/or during spring sap flow.

Final Note: Anti-drift Adjuvants are added to the mix or solution in foliage and pre-emergent applications to help reduce the potential exposure to non-target organisms, reduce the break-up of sprays into fine droplets and increase selectivity and herbicide deposition onto target plants.

7. JUSTIFICATION OF HERBICIDE USE AND SUMMARY OF CONTROL STRATEGIES

By following the IVM protocol listed in Section 5, physical and mechanical treatment methods control many plants that interfere with traffic, visibility and safety. Chemical controls are, however, necessary in management situations where topography, access, growth rate, certain species-specific factors, applicator safety, or environmental/social concerns limit the potential for control by physical or mechanical methods.

To begin with, Southborough will only use herbicides on the DAR's *Sensitive Area Materials List.* The general characteristics of these herbicides are: low toxicity to humans and other animal species; short term soil persistence; biodegradation of active ingredients, and low mobility. The specific herbicide formulations and mixtures will be listed in the Yearly Operational Plans (YOPs). The manufacturers' labels and Herbicide Fact Sheets approved by the Department of Agricultural Resources will be included in the appendices of the YOPs.

Chemical controls are often the preferred method or only method to control plants that pose a health hazard for the technician in the field, either directly or due to their location. Poison ivy, for example, is extremely hazardous to handle; biologically resistant to mechanical removal and can pose a serious threat to anyone who inhales the smoke if it is burned. Likewise, attempting to control curbside plants and weeds by pulling them or trimming them can put a technician in danger from traffic and is ineffective for long term control.

Mowing controls 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 both difficult and sometimes dangerous to remove by mechanical treatment methods. These areas include, but are not limited to, cracks in asphalt, along guiderails, paved traffic islands and sidewalks and curbing. In these instances, grass can be identified as target vegetation.

Herbicide applications are the ideal treatment method to control nuisance vegetation. Once established, noxious and invasive vegetation are particularly difficult to control. Maintaining public ways by mechanical techniques can help control noxious vegetation by preventing its establishment, however, once established, hand-cutting noxious vegetation is less effective and more of a risk to the applicator than the use of herbicides.

Invasive vegetation is difficult to control. For example, Japanese Knotweed propagates primarily underground by rhizomes. Even, a half inch rhizome floating down a river or moved in top soil will start an infestation. In other words, digging up and removing the soil both spreads the plant and does not guarantee its removal from the site. As a result, herbicides are the most effective way to stop its spread.

This does not mean that mechanical methods are not an effective part of an IVM approach to treating Japanese Knotweed; this is the advantage of IVM. Mowing Japanese Knotweed in the early summer makes the plant much easier to treat with herbicides in the early fall during its ideal treatment window. Mowing the plant keeps it short at the time of treatment

allowing for easy walking through the area and allowing the applicator to effectively direct the herbicide onto the foliage of the knotweed and nowhere else.

Poisonous plant species, such as poison ivy, are another noxious species best controlled by herbicides. Poison ivy—low when young, tall vines when mature—grows along stolons and reproduces both by fine and fibrous rhizomes as well as by berries, and is, therefore, nearly impossible to control through cultivation, hand pulling or roadside mowing operations. These climbing vines grow over stone walls, tree trunks and guiderails, making mechanical control out of the question for safety and economic reasons. In some locations, the judicious use of herbicides may also help develop herbaceous communities that out-compete poison ivy.

Woody vegetation over twelve feet in height that causes safety issues for pedestrian or vehicles can and will be treated mechanically by pruning or ground cutting using hand tools or chainsaws. Sometimes, the stumps of woody vegetation will be physically removed, depending upon the species of plant and its proximity to other vegetation. Stumps may also be treated with an herbicide (CST) to prevent re-sprouting.

Small woody plants, under twelve feet in height growing along the road shoulder in an accessible location will usually be mowed or cut and possibly CST'ed. However, low volume foliar applications may be applied where woody plants or vines grow over obstacles, can't be hand cut and chipped, are resistant to control by mechanical means or where the target vegetation grows very rapidly.

Herbicides are a vital component of Southborough's IVM program as there are areas where they are the best choice to control vegetation effectively, safely and with less frequency because of their ability to control the whole plant including the roots. For example, weeds growing in sidewalks hold a significant potential for causing trips or falls and on a larger scale damage infrastructure through their root systems. There is also a legitimate aesthetic value to this treatment. Adventitious vegetation growth (i.e., unplanted/unplanned) is not part of the aesthetic design of sidewalks. To fulfill the requirements of 333 CMR 11.01(2), this plan must improve the cultural value of the sites being treated while taking into account cultural beliefs about the treatment methods: "…taking into account the economic, social and environmental costs and benefits of the use of any pesticide."

In summary, not only will Southborough monitor its vegetation it will also monitor its IVM program, records are kept regarding which treatments are applied to which sites. This information will be regularly reassessed so treatment prescriptions may be altered as the conditions at the various sites change over time. The plan will also maintain the flexibility necessary to accommodate unique situations and the need for more appropriate techniques as the industry changes.

8. DEFINITION, IDENTIFICATION AND TREATMENT OF SENSITIVE AREAS

The definition of sensitive areas regulated by 333 CMR 11.04 is as follows:

> …any areas within Rights-of-Way, including No-Spray and Limited-Spray Areas, in which public health, environmental or agricultural concerns warrant special protection to further minimize risks of unreasonable adverse effects.

Protecting these environmentally sensitive areas is accomplished by defining specific sensitive areas and establishing treatment restrictions within these borders based on the relative sensitivity of each site and the requirement to minimize any unreasonable adverse impacts within that area.

Sensitive areas regulated by 333 CMR 11.00 include the following:

Water Supplies:

- Zone I's
- Zone II's
- IWPA's (Interim Wellhead Protection Areas)
- Class A Surface Water Sources
- Tributaries to a Class A Surface Water Source
- Class B Drinking Water Intakes
- Private Wells

Surface Waters:

- Wetlands
- Water Over Wetlands
- The Mean Annual High Water Line of a River
- The Outer Boundary of a Riverfront Area
- Certified Vernal Pools

Cultural Sites:

- Agricultural Areas
- Inhabited Areas

Wildlife Areas:

- Certified Vernal Pool Habitat
- Priority Habitat.

These sensitive areas consist of no-spray areas in which herbicide use is prohibited, and larger, limited spray areas where herbicide use is permitted under certain conditions. Treatment in the limited spray areas require the use of herbicides from the *Sensitive Area Materials List*,

available at http://www.mass.gov/eea/agencies/agr/pesticides/rights-of-way-sensitive-area-materials-list.html , and following the application restrictions in 333 CMR 11.04, including applications at no more than the minimum labeled herbicide application rate for the control of target species.

TABLE 1: CONTROL STRATEGIES FOR SENSITIVE AREAS

Sensitive Area	Limited Spray or No-Spray Areas (feet)	Control Method	Time Limits Between Treatment(s)
Public Ground Water Supplies	400'	Mechanical Only	None
Primary Recharge Area	Designated buffer zone or 1/2 mile radius	Mechanical, Approved Herbicides*	24 months
Public Surface Water Supplies (Class A & Class B)	100'	Mechanical Only	None
	100'-400'	Approved Herbicides	24 months
Tributary to Class A Water Source, within 400' upstream of water source	100'	Mechanical Only	None
	100'-400'	Approved Herbicides	24 months
Tributary to Class A Water Source, greater than 400' upstream of water source	10'	Mechanical Only	None
	10'-200'	Approved Herbicides	24 months
Class B Drinking Water Intake, within 400' upstream of intake	100'	Mechanical Only	None
	100'-200'	Approved Herbicides	24 months
Private Drinking Water Supplies	50'	Mechanical Only	None
	50'-100'	Approved Herbicides	24 months
Surface Waters	10'	Mechanical Only	None
	10'-100'	Approved Herbicides	12 months
Rivers	10' from mean annual high water line	Mechanical Only	None
	10'-200'	Approved Herbicides	12 months
Wetlands	10'	Mechanical Only	None
	100' or with approved Wetlands Determination 10'-100' [per 310 CMR 0.05(3)(a) & 310 CMR 0.03(6)(b)]	Low-pressure Foliar, CST, Basal, Approved Herbicides	24 months
Inhabited Areas	100'	Approved Herbicides	12 months
Agricultural Area (Crops, Fruits, Pastures)	100'	Approved Herbicides	12 months
Certified Vernal Pools	10'	Mechanical Only when water is present	None
Certified Vernal Pool Habitat	10'-outer boundary of habitat	No treatment without approval	
Priority Habitat	No treatment outside the 4 foot paved road exemption without approval of the Natural Heritage Endangered Species Program (NHESP)		

*Massachusetts Approved herbicides for sensitive sites

Identification Methods

Two simple descriptions guide the complex identification of the sensitive areas defined in 333 CMR 11.04: *Readily identifiable in the field* and *Not readily identifiable in the field.* Readily identifiable in the field areas will be treated, identified and where appropriate, marked according to all applicable restrictions listed in 333 CMR 11.00. Not readily identifiable in the field areas will likewise be marked and treated when appropriate, but they are identified by the use of data marked on maps and collected in the YOP and notification processes before the time of treatment.

The individuals assigned the task of identifying and treating sensitive areas in the field will use the appropriate sources and methods from the following list:

- Town maps, records and institutional knowledge;
- Massachusetts Department of Environmental Protection water supply maps available through MassGIS (http://www.mass.gov/mgis/);
- Water Department, DAR, and Southborough Board of Health information and identified private wells along the ROWs;
- Correspondence, meetings and input—from the chief elected official, Board of Health, Conservation Commission, public water suppliers and the public—within the forty-five day YOP and twenty-one day municipal right-of-way notification letter review and comment periods and the 48 hour newspaper notification (under 333 CMR 11.06 & 11.07 and Chapter 85 of the Acts of 2000);
- An individual who verifies, identifies and, where appropriate, marks sensitive areas and any additional areas that may require special precautions;
- USGS topographical maps;
- Information from MassGIS;
- When necessary, confidential information from NHESP;
- A copy of the YOP and VMP.

The YOPs will contain maps with the most current data available at the time of printing. The maps are a resource and a tool for both the public and the applicators; therefore, they contain the data needed to identify, mark and treat sensitive areas appropriately.

Sensitive areas are located on the maps using a combination of the base USGS topographic maps and the most current data available through MassGIS such as public water supplies and certified vernal pools, along with municipal and private data for items such as private wells. At the time of treatment, additional sensitive area information that is collected through the review and notification processes (333 CMR 11.06-11.07) will be added to the information utilized by the applicators.

The Town of Souhborough will complete a Wetlands Determination allowing herbicide treatments to within 10 feet of wetlands as appropriate. Sensitive areas will be identified and marked in the field by trained and experienced individuals.

Priority Habitat of State-Listed Species

321 CMR 10.14(8) Massachusetts Endangered Species Act Regulations, Part II, exempts road maintenance from the permit process under the following condition:

> [321 CMR 10.14(8)] the maintenance, repair or replacement, but not widening, of existing paved roads, shoulder repair that does not exceed four feet from an existing travel lane, paved driveways, and paved parking areas, but not including parking areas on barrier beaches, coastal beaches, coastal dunes, or salt marshes, as defined by the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40 and 310 CMR 10.00), and not including actions that are likely to result in changes in storm water drainage….

If Southborough needs to treat areas along paved road ways outside of the 4 foot limit or spot treat poison ivy in known Priority Habitats, a copy of the YOP will be sent for approval to the NHESP of the Massachusetts Division of Fisheries and Wildlife.

9. OPERATIONAL GUIDELINES RELATIVE TO HERBICIDE USE

Regulatory Restrictions

- Follow the restrictions of all applicable state and federal regulations;
- Follow the guidelines and requirements in this VMP and the YOP's;
- Pesticide applicators must hold a valid pesticide license from the Department of Agricultural Resources;
- All application crews must be supervised by an individual with a Category 40 pesticide license;
- Pesticide applicators will keep the appropriate records according to state and federal regulations that at a minimum include:
    - Date, name and address of vegetation management contractor(s)
    - Identification of site or work area
    - List of crew members
    - Type of equipment and hours used, both mechanical and chemical
    - Method of application and description of target vegetation
    - Amount, concentration, product name of herbicide(s), adjuvants and dilutants (EPA registration numbers must be on file)
    - Weather conditions
    - Notation of any unusual conditions or incidents, including public inquiries;
- Foliar treatments will not be made to target vegetation that exceeds twelve feet in height.

Rain

- No herbicide applications will be conducted during periods of moderate or heavy rainfall.
- Foliar and pre-emergent applications are effective in light mist, however measurable rainfall that creates leaf runoff will wash the herbicide off target vegetation, therefore, if foliar and pre-emergent applications are interrupted by unexpected rainfall, the treatment will not resume until the rain ends and active leaf runoff ceases.
- No CST or basal applications during measurable precipitation events.
- CST or basal applications interrupted by measurable rainfall will not resume until precipitation has ceased.

Wind

Excessive wind can create drift during foliar and pre-emergent applications and significant herbicide drift can cause damage to desirable vegetation on or off the public ways. CST and basal applications, on the other hand, are much less affected by wind because they are applied in such a close proximity to the ground.

To minimize off-target drift, during foliar and pre-emergent applications, the applicator will comply with the following restrictions:

- During periods of wind strong enough to bend the tops of the main stems of trees on the public ways, the applicator will constantly observe the application to prevent movement

of the herbicide beyond the target area. The application will stop immediately if the applicator observes herbicide moving off target, until the wind subsides enough to permit further applications.

- All herbicide mixes will contain drift-retardant agents per the drift retardant agent label. In moderate wind conditions, as per label recommendations, more drift retardant may be added, at the discretion of the applicator, to control herbicide drift.

Equipment Calibration

- Foliar and pre-emergent application equipment will be calibrated at the beginning of the season, and as necessary during the season with changes to chemical mixes, treatment types, spray wands/tips, prior to touch-up application treatment(s), and in accordance with manufacturer's recommendations.
- Foliar application equipment will be calibrated to maintain pressures not exceeding sixty psi at the nozzle.
- Cut stump treatment squirt bottle applicators or hand pump sprayers will be adjusted to deliver the herbicide solution to the target zone.

General Guidelines

- All mixing and loading of herbicides will be conducted at the DPW's or contractors central facility.
- Mix only the estimated amount of herbicide necessary to carry out the vegetation control, based on monitoring results to ensure that there will be no waste and minimize potential problems.
- The vehicles carrying the spray operations will be equipped with appropriate spill kits including a bag of adsorbent material, 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 on the vehicle.
- Herbicide labels, fact sheets, the VMP, current YOP and *Herbicide Spill Check List* (Appendix 5) will be on-site.

10. ALTERNATIVE LAND USE PROVISIONS

At this time, Southborough does not offer Alternative Land Use provisions. Since the treatment areas are located primarily in suburban neighborhoods, there is no need for alternative land use provisions. For example, a common practice of abutters to roadways is to mow and maintain road shoulders. In this instance, the monitoring program would reveal that the area does not warrant vegetation control.

11. REMEDIAL PLAN TO ADDRESS SPILLS AND RELATED ACCIDENTS

This section is offered as a general procedural guide for responding to chemical spills or related accidents (related accidents include but are not limited to fire, poisoning and vehicle accidents). The following is, therefore, a guide to the items that will be available to the applicator on site in the event of a chemical spill or emergency.

Although education and attention will constantly be directed at accident and spill prevention, in the event of a spill, immediate action will be taken to contain the spill and protect the spill area (Appendix 5: *Herbicide Spill Check List* shall be available on-site to the applicator). Until clean, the spill area will be protected by placing barriers, flagging or crew members at strategic locations, as appropriate. If a fire is involved, care will be taken to avoid breathing fumes from any burning chemicals.

Minor spills will be remedied by soaking up the spill with adsorption clay or other adsorptive material and placed in leak proof containers, removed from the site and disposed of properly. Dry herbicides will be swept up or shoveled up directly into leak proof containers for proper disposal. When applicable, all contaminated soil will be placed in leak proof containers, removed from the site and disposed of properly. When applicable, activated charcoal will be incorporated into the soil at the spill location at a rate of several pounds per thousand square feet to inactivate any herbicide residue. Reportable spills will be reported to the DAR Pesticide Division.

The Massachusetts Department of Environmental Protection 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.

Types of Chemical Spills that Require Action

Chemicals include, but are not limited to the following:

- Herbicides
- Bar and Chain Oil
- Motor and Hydraulic Oil/Fluids
- Diesel Fuel
- Gasoline
- Title 3 Hazmat Materials

Required Spill Response Equipment

As a minimum, the treatment crew will have available on the job site:

- YOP with Emergency Contact List
- SDS (Safety Data Sheet)
- Product Label
- Product Fact Sheets (when applicable)
- Appropriate adsorbent material
- Shovel
- Broom
- Flagging
- Leak Proof Container
- Heavy-duty Plastic Bags

Personal Contact

In the event of **Personal Contact** with hazardous chemicals:

- Wash affected area with plenty of soap and water
- Change clothing which has absorbed hazardous chemicals
- If necessary, contact a physician
- If necessary, contact the proper emergency services
- If necessary, follow the procedures for Major or Minor Spills as outlined in Appendix 5
- Avoid breathing the fumes of hazardous chemicals

Reference Tables (information subject to change as necessary)

Table 2: Herbicide Manufacturers

MANUFACTURER	TELEPHONE NUMBER
Albaugh Inc.	(800) 247-8013
BASF Corporation	(800) 526-1072
Bayer Environmental Science	(800) 331-2867
Dow Agro Sciences	(800) 992-5994
E.I. du Pont de Nemours and Company	(800) 931-3456
Monsanto	(314) 694-1000
Nufarm	(800) 345-3330
PBI/Gordon Industrial	(816) 421-4070

Table 3: State Agencies

STATE AGENCY	TELEPHONE NUMBER	SPECIAL INSTRUCTIONS
Massachusetts Pesticide Bureau	(617) 626-1784	A.S.A.P. (within 48 hours)
Massachusetts Department of Environmental Protection, Emergency Response Section	Main Office: (888) 304-1133 (after hours number)	For emergencies involving reportable quantities of hazardous materials; required info: City/town, street address, site name (if applicable), material
Massachusetts Dept of Public Health, Bureau of Env.Health Assessment Toxilicology Program	(617) 624-5757	
Massachusetts Poison Information Centers	(800) 682-9211	For medical emergencies involving suspected or known pesticide poisoning symptoms

Table 4: Emergency Services:

EMERGENCY SERVICE	TELEPHONE NUMBER	SPECIAL INSTRUCTIONS
Souhborough Fire/ Police Department	911	
Massachusetts State Police, Framingham Barracks	(508) 820-2300	
ChemTrec	(800) 262-8200	
Clean Harbors	(800) 645-8265	
Pesticide Hotline	(800) 858-7378	PST: 8:00 am-12:00 pm, web: www.NPIC.orst.edu

Table 5: Town of Southborough contacts in case of a spill or accident:

Karen Galligan
Superintendent
Department Public Works
Town of Southborough
147 Cordaville Road, Southborough, MA 01772
(508) 485-1210

Southborough Fire/ Police Department	911
Southborough Conservation Agent: Beth Rosenblum	508-281-8984
Southborough Board of Health	(508) 481-3013

12: THE QUALIFICATIONS OF THE INDIVIDUALS SUPERVISING, DEVELOPING, AND SUBMITTING THE VMP

A. Individual Supervising the VMP:

Karen Galligan
Superintendent
Department Public Works
Town of Southborough
147 Cordaville Road, Southborough, MA 01772
(508) 485-1210

B. Individual who wrote and developed the VMP:

Karen Galligan
Superintendent
Department Public Works
Town of Southborough
147 Cordaville Road, Southborough, MA 01772
(508) 485-1210

Karen Galligan's qualifications extend from work experience in the field of Public Works. She has worked for the Southborough Department of Public Works (DPW) for 17.5 years, first as the Staff Engineer, then as Superintendent. Prior to coming to the Southborough DPW, she spent several years working as an environmental consultant.

APPENDIX 1:
333 CMR 11.00, RIGHTS-OF-WAY REGULATIONS

APPENDIX 2:
CHAPTER 132B

APPENDIX 3:
CHAPTER 85, SECTION 10

APPENDIX 4:
TREATMENT NOTIFICATION PROCESS PER 333 CMR 11.06-11.07

Appendix 4: TREATMENT NOTIFICATION PROCESS PER 333 CMR 11.06-11.07

A VMP serves as a guiding document for Southborough's IVM program. In the process of planning herbicide applications for any given year within the five-year time frame of the VMP, Southborough will also fulfill the requirements in 333 CMR 11.06, *Yearly Operational Plan (YOP)* and 11.07, *Public Notification* (See Appendix 1). No herbicide applications may occur without these additional actions, completed in the appropriate mandated time frames.

Following the requirements in 333 CMR 11.06, a YOP describes and locates the herbicide application program for the current year, including details of potential areas of retreatment ("touch-up") from the past year. The YOP will be submitted to the appropriate agencies and officials, along with a copy of the Environmental Monitor Notice (EMN), sent via certified return receipt or within the town, hand delivered with a sign off sheet, allowing for the 45 day review period before receiving approval from the DAR, Pesticide Bureau. The 45 day review countdown starts upon receipt of the YOP by the appropriate agencies and officials. The YOP may be sent out in hard copy or posted online. If posted online, a written notice must be sent out via certified return receipt (or hand delivered…) along with the EMN, with notice that a hard copy will be made available upon request.

Following the requirements in 333 CMR 11.07, additional notice must be sent to the appropriate agencies and officials, at least 21 days before herbicide applications may begin, containing additional details about the program including the approximate treatment dates. This notice may run concurrently with the 45 day review period and be sent in the same envelope. It must also be sent via certified return receipt or be hand delivered within the town. Additionally, at least 48 hours before herbicide applications commence, a 4x5 notice must be published in the local section of a paper of local/regional circulation.

The agencies and officials included in the notification and/or review process include:

Commonwealth of Massachusetts Agencies:

1. DAR, Pesticide Division (YOP, 21 Day Notice, EMN, Ad-copy).

If applicable the YOP is sent to:

1. NHESP
2. Massachusetts Water Resource Authority
3. Department of Conservation and Recreation (DCR).

Town Officials that receive the YOP, 21 Day Notice and EMN:

1. Chief Elected Official
2. Conservation Commission
3. Board of Health
4. Municipal Public Water Supplier.

Other:

1. A YOP is a public document and must be made accessible either online or in hard copy to anyone who requests access.
2. DEP defined Public Water Suppliers are sent a one page letter under 333 CMR 11.06 detailing how they can request information on the program.

APPENDIX 5:
HERBICIDE SPILL CHECK LIST

APPENDIX 5: HERBICIDE SPILL CHECK LIST

REPORTABLE SPILLS (Spills of reportable quantity of material): FOLLOW STEPS 1-11
NON-REPORTABLE SPILLS: FOLLOW STEPS 1-4, 7-11 as appropriate & contact the Southborough DPW representative.

Order	ACTION		Done (√)
1	Use any and all PPE as directed by product label or SDS		
2	Cordon-off spill area to unauthorized people and traffic to reduce the spread and exposure of the spill		
3	Identify source of spill and apply corrective action, if possible stop or limit any additional amounts of spilled product.		
4	Contain spill and confine the spread by damming or diking with soil, clay or other absorbent materials.		
5	Report spills of "reportable quantity" to the Mass. DEP and DAR:		
	Massachusetts DAR, Pesticide Bureau	(617) 626-1700	
	Massachusetts Department of Environmental Protection, Emergency Response Section	Main Office: (888) 304-1133 (after hours number)	
		Northeast Region: (978) 694-3200	
6	If the spill cannot be contained or cleaned-up properly, or if there is a threat of contamination to any bodies of water, immediately contact any of the following applicable emergency response personnel:		
	local fire, police, rescue	911	
	Southborough DPW Representative: **Karen Galligan**	(508) 485-1210	
	Southborough Conservation Agent Beth Rosenblum	508-281-8984	
	Product manufacturer(s)		
	1	1	
	2	2	
	3	3	
	Chemtrec	(800) 424-9300	
	additional emergency personnel:		
7	Remain at the scene to provide information and assistance to responding emergency clean-up crews		
8	Refer to the various sources of information relative to handling and cleanup of spilled product		
9	If possible, complete the process of "soaking up" with appropriate absorbent materials		
10	Sweep or shovel contaminated products and soil into leak proof containers for proper disposal at approved location		
11	Spread activated charcoal over spill area to inactivate any residual herbicide		