

TOWN OF WILMINGTON
DEPARTMENT OF PUBLIC WORKS



VEGETATION MANAGEMENT PLAN
January, 2014 - December, 2018

TABLE OF CONTENTS

INTRODUCTION.....	2
IDENTIFICATION AND QUALIFICATIONS OF APPLICANT.....	2
STATEMENT OF OBJECTIVES.....	2
DESCRIPTION OF TARGET VEGETATION.....	3
INTEGRATED ROADSIDE VEGETATION MANAGEMENT.....	6
SUMMARY OF CONTROL METHODS.....	8
JUSTIFICATION OF HERBICIDE USE.....	9
HERBICIDE APPLICATION METHODS.....	9
IDENTIFYING AND PROTECTING SENSITIVE AREAS.....	9
SENSITIVE AREA RESTRICTION GUIDE.....	11
OPERATIONAL GUIDELINES FOR HERBICIDE APPLICATORS.....	13
MITIGATION MEASURES.....	13
ALTERNATIVE LAND USE OPTIONS.....	13
REMEDIAL PLAN TO ADDRESS SPILLS AND RELATED ACCIDENTS	13
HERBICIDE ALTERNATIVES.....	15
EVALUATION AND RECOMMENDATIONS.....	16

INTRODUCTION

The following Vegetation Management Plan (VMP) has been developed by the Wilmington Department of Public Works (DPW) to ensure compliance with Rights-of-Way Management Regulations (333 CMR 11.00) for control of hazard, detrimental, nuisance and invasive vegetation within the Town of Wilmington controlled rights-of-way. In order to provide consistency between town-controlled roadways and state-controlled roadways in Wilmington, the format of Wilmington's VMP closely follows the format of the 2009-2013 statewide Vegetation Management Plan for the Massachusetts Department of Transportation (MDOT).

IDENTIFICATION AND QUALIFICATIONS OF APPLICANT

Jamie M. Magaldi, PE, MCA
Assistant Public Works Superintendent
Wilmington Department of Public Works
121 Glen Road
Wilmington, MA 01887

Mr. Magaldi currently serves as the Assistant Public Works Superintendent for the Town of Wilmington Department of Public Works and is charged with co-managing the Department's five (5) operational divisions (Highway, Parks & Grounds, Tree, Cemetery, and Garage) consisting of approximately 30 employees, 5 of which are licensed pesticide applicators. Mr. Magaldi also serves as project manager for many of the department's internal projects.

Mr. Magaldi is a professional civil engineer registered in Massachusetts and is also a Massachusetts Certified Arborist. He is a member of the Massachusetts Tree Wardens and Foresters Association, American Public Works Association, Massachusetts Highway Association, Massachusetts Arborists Association and the Society of Municipal Arborists. Mr. Magaldi holds a Bachelors of Science degree in Civil Engineering from Merrimack College of North Andover, MA.

STATEMENT OF OBJECTIVES

The Town of Wilmington Vegetation Management Plan (VMP) was developed in accordance with the revised 333 CMR 11.00 Right of Way Management Regulations effective September of 2005 and revised in March of 2007 in association with the Massachusetts Department of Agricultural Resources (MDAR). The plan is intended to provide an approved set of criteria and standards for the Town of Wilmington to control right-of-way vegetation which conforms to the regulatory requirements of 333 CMR 11.00.

The management and control of roadside vegetation is an extremely important responsibility of the DPW's Highway Division. Left uncontrolled, roadside vegetation can impede normal maintenance operations, obstruct motorists' line of vision, threaten pedestrian safety and jeopardize capital investments such as pavements, sidewalks, guardrails, and utilities. Although maintaining a neat and aesthetically pleasing appearance is also of concern, the major objective of the Vegetation Management Plan is to provide a safe and unobstructed public right-of-way for vehicular and pedestrian travel.

DESCRIPTION OF TARGET VEGETATION

The Wilmington Department of Public Works Highway Division will prioritize a road plan for control of target vegetation based on control necessity, roadway volumes, and speeds. As approved VMPs for other municipalities state, early identification and timely removal of unwanted species is the easiest, most effective, most environmentally responsible, and least costly method of weed control.

To mirror MDOT's vegetation management plan, target vegetation along roadways falls into one or more of the following categories: hazard vegetation, detrimental vegetation, nuisance vegetation, and invasive vegetation. The vegetation may then fall into the physical sub-categories of either annual or perennial, woody shrubs and vines, or tree growth. It's important to note that some categories of target vegetation may by themselves rule out a specific control method. For example, invasive vegetation may be spread quite easily by mechanical mowing, thus should be controlled by another means.

TARGET VEGETATION CATEGORIES

1. *Hazard Vegetation*. This category represents the highest priority target vegetation as it related directly to public safety. Hazard Vegetation includes vegetation obscuring sightlines, growing over guardrails, creating obstacles to signs or vehicular movement, interfering with critical utilities such as traffic signals, posing windfall hazard over vehicular or pedestrian, or creating winter shade leading to icing conditions. In the winter, shadows cast on roadways by evergreen trees can delay melting (especially in "low salt" areas) resulting in possibility of hazardous road conditions and an increase in the amount of de-icing chemicals (road salt) applied.
2. *Detrimental Vegetation*: Vegetation including weeds, grasses, and woody plants that are destructive to or compromise the function of highway structures, including grasses in pavement and bridge joints, medians barriers and traffic islands, as well as vegetation growing in and along drainage structures thus compromising and clogging drainage ways.
3. *Nuisance Vegetation*: Vegetation along roadways that could potentially affect the general public and/or DPW employees maintaining the ROW, such as Poison Ivy (*Toxicodendron radicans*). Poison Ivy and other nuisance vegetation growing within 30 feet of the edge of roadway pavement or sidewalk or other infrastructure requiring maintenance within a Town right-of-way is considered a hazard and will be prioritized accordingly.
4. *Invasive Vegetation*: Plants that have spread from areas other than rights-of-way such as gardens and agricultural areas into the wild, where they pose problems for the natural environment. Because they tend to be non-native species, there are few local diseases or pests to help control them. Invasive vegetation tends to spread quickly and thrive in disturbed conditions, outcompeting and displacing native species. Specific target invasive plants include but are not limited to Tree of Heaven (*Ailanthus altissima*), Japanese Knotweed (*Polygonum cuspidatum*), Multiflora Rose (*Rosa multiflora*), Oriental Bittersweet (*Celastrus orbiculatus* Thunb.), and Russian Olive (*Eleagnus angustifolia*).



Figure 1 – Hazard Vegetation at intersection of Concord Street and Woburn Street
Hazard vegetation obstructs site distance at critical intersections



Figure 2 – Detrimental Vegetation at Cherokee Lane Subdivision
Detrimental grass damages Town infrastructure and is unsightly.



Figure 3 – Nuisance and Invasive Vegetation on Marion Street
Nuisance vegetation creates a public safety hazard to workers & pedestrians.



Figure 4 –Hazard Vegetation blocking a traffic signal at Woburn Street and Salem Street
Hazard vegetation obstructs critical utilities

INTEGRATED ROADSIDE VEGETATION MANAGEMENT

To maintain control over roadside vegetation, the Department of Public Works plans to implement an integrated roadside vegetation management program (IRVMP). Similar to the working Integrated Pest Management (IPM) programs currently being utilized within the Wilmington School Department, the key components of this strategy will be to:

1. **Identify** priorities for vegetation control
2. **Implement** the control methods in an environmentally responsible manner
3. **Monitor** the plan in order to judge effectiveness and alter as needed.

Controls methods shall include the following:

1. **Mechanical** – The physical removal by mowing, machine pulling / trimming, or hand pulling / selective trimming. This control method, although time consuming and expensive from a labor and materials perspective, provides minimal threat of toxicity to the surrounding environment. Mechanical control tends to be most effective in relatively small and isolated areas. When relied on as the primary target vegetation control method, it is proven inefficient as it cannot keep up with the rate of growth during ideal weather conditions. Mechanical control is currently the Department’s primary control method, as a skid-steer mounted flail mower attachment is used for long runs of vegetation control, with labor forces supplementing the flail mower using gas-powered hand tools, trimmers and clean up tools. This operation typically occupies 4 to 5 workers who could otherwise be working more efficiently on another job, tends to irritate the traveling public as smoke and dust can be generated on dry days, and puts a work crew at unnecessary safety risk at sight-distance hindered public ways and intersection.



Figure 5 –Mechanical flail mower currently in use by Wilmington DPW crews

2. **Chemical** – The application of low volume foliar herbicide treatments and cut-stump treatment. Chemical herbicides shall be limited to selected right of ways where the placement of personnel and equipment in or around the roadway would jeopardize the safety of the motoring public and maintenance personnel, or where access to target vegetation restricts using mechanical control. There are two methods of herbicide application that may be utilized: *foliar treatment and cut stump stem treatment (See MDOT's approved VMP)*:

Foliar Treatment is the application of water-diluted and drift controlled herbicides to fully developed leaves, stems, or blades of a plant. This control method is generally the most effective and economical method, particularly in areas where mechanical methods preclude the safe placement of men and equipment. It is also the best technique to control noxious and poisonous vegetation that presents a public safety hazard to pedestrians, and inspection and maintenance crews. Wilmington DPW will utilize post-emergent, low volume, low pressure foliar treatment herbicide applications only that have been approved for use by the MDAR in "Sensitive Areas."

Stem Treatment (cut-stump) is any technique which applies herbicide to the stump or stem of the target vegetation.. This method is often not practical in moderate or heavy stem densities but offers the opportunity to chemically treat undesirable vegetation in sensitive or difficult to access sites where other methods are not possible. Wilmington DPW will consider the use of stem treatment although does not expect this will be a main control method due to the inefficiencies of using this method in large areas.

As herbicides appear to be the most effective and environmentally sound means for preventing the re-growth of target vegetation, chemical controls are an essential part of a thorough IVM program.

3. **Cultural** – The practice of reducing and controlling vegetation problems by utilizing good housekeeping techniques and maintenance procedures (ie, avoiding the spread of weed seed by disposing of invasive species properly).
4. **Roadside Development** – Utilization of design methods which provide physical barrier or sustainable low maintenance landscapes. These methods will be considered as part of the Town's review of proposed projects under the current Community Development Technical Review Committee. The intent of this control method is to eliminate or reduce the potential for the growth of target vegetation, thus eliminating or reducing the need to control it.

By themselves, each one of these control methods will not work effectively for long term vegetation management. As a combined integrated approach, they complement one another in terms of effectiveness and environmental responsibility. The methods listed above will be chosen by Wilmington DPW personnel familiar with the right of way, based on a variety of factors including, but not limited to public/employee safety, location, environment, and terrain. The control method will be chosen on a case by case basis to attempt to achieve a long term, low maintenance, sustainable vegetation management program.

Similar to the Wilmington School Department's working IPM, the goal of the IRVMP is to minimize the use of chemical controls where applicable, through minimizing areas of application, quantity of chemicals, and frequency of applications. Chemical control techniques within the right of way shall

**Town of Wilmington Department of Public Works
Vegetation Management Plan**

be limited to dangerous intersections, roadways with high traffic volume, and primary roads in Wilmington where safety of motorists and town maintenance employees precludes the use of mechanical methods, and also where access to target vegetation by mechanical means is restricted.

Over the 5-year period, the Department of Public Works will monitor and evaluate the success of the program and integrate appropriate new and alternative methods into the VMP and Yearly Operational Plans (YOP).

TABLE 1 - SUMMARY OF CONTROL METHODS
Source: Mass Highway Vegetation Management Plan 2009-2013

TARGET	CONDITIONS	CONTROL METHODS
Grasses	Where terrain and traffic conditions allow	Mechanical (mowing)
Grasses And Low Growth	Under guardrail; or Pavement Cracks; or Joints Where: -Traffic volumes and speeds pose a hazard to motorists and maintenance employees or contractors	Chemical (low volume foliar treatment)
Low Growth	-Terrain allows; and -species are not persistent or invasive	Mechanical (mowing)
Low Growth	-Terrain prevents mowing; and -Species are not persistent or invasive	Mechanical (hand cutting)
Low Growth	Terrain prevents mowing, species are persistent and invasive	Chemical (low volume foliar treatment)
Low Growth	Poison Ivy that is -in ROW; and -within thirty (30) feet of pavement, or any town structure or appurtenance	Chemical (low volume foliar treatment)
Tall Growth	-Individual trees or branches	Mechanical (selective trimming)
Tall Growth	-Plants >12 feet; or -Terrain too steep; and -Species are not persistent or invasive	Mechanical (hand cutting)
Tall Growth	Plants >12 feet; and -Species are persistent and invasive	Chemical (cut-stump treatment)

JUSTIFICATION OF HERBICIDE USE

Many of the species growing on roadsides, under guardrails, at dangerous intersections and along traffic islands are invasive and persistent, and cannot be adequately controlled without at least partial chemical treatment. The DPW has yet to encounter a community, through its network of peers, which has had success with vegetation management by eliminating the use of herbicides altogether. Attempts at full mechanical control over the past several years in Wilmington have been unsuccessful due to the growth rate and volume of target vegetation. The responsible use of herbicides is a vital component of a successful VMP which will be decided after careful identification of target vegetation and consideration of the safest, most efficient, and most economical control method.

HERBICIDE APPLICATION METHODS

Wilmington DPW will utilize the two methods of herbicide application presented in the Mass Highway Vegetation Management Plan for 2009-2013, foliar treatment and cut stump treatment.

Foliar Treatment is the application of water-diluted and drift controlled herbicides to fully developed leaves, stems, or blades of a plant. Proposed foliar treatment used shall be low pressure, below 60 psi at the nozzle, with a normal working pressure of 40 psi for application at volumes of less than 50 gallons/acre. Low pressure nozzles will be used to produce the largest possible droplet size and a drift control agent shall be added at the rate recommended on the label to keep spray drift to an absolute minimum. Areas include roadside, in pavement cracks, traffic islands perimeter, around drainage structures, sign posts and under and around guardrails. Applications will be made in accordance with manufacturer's recommendations.

For vegetation over 12 feet in height which cannot be effectively controlled by foliar treatment, mechanical means will be used along with possible cut stump treatment. It is not expected that this type of herbicide treatment will be used frequently within the limits of Wilmington right-of-ways as much of the target vegetation is under 12 feet in height. However, when cut stump treatment is utilized, a portable pressurized container or hand-paint method will be used to apply the herbicide to the freshly cut stump. Applications will be made in accordance with manufacturer's recommendations.

IDENTIFYING AND PROTECTING SENSITIVE AREAS

According to 333 CMR 11.04, sensitive areas are defined as "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". These include, but are not necessarily limited to: public groundwater supplies, public surface water supplies, private drinking water supplies, surface waters, wetlands, rivers, inhabited areas and agricultural areas.

Some sensitive areas can be identified in the field during application. For those that are not easily identified (public groundwater supplies, private water supplies, public surface water supplies), the Wilmington DPW will be using the following resources:

1. Massachusetts Department of Environmental Protection (DEP) Water Supply Maps (1:25,000); delineating the perimeter of public watersheds and the location of public wells.
2. Massachusetts DEP Wetland Conservancy Maps (scale 1:1,000).
3. Municipal maps and records.
4. Regional Planning Agency maps and records.
5. U.S. Fish and Wildlife Service National Wetlands Inventory Maps, available from the University of Massachusetts, Cartographic Information Research Services in Amherst. Conservancy Program & Ortho Photo and Information - Massachusetts DEP (1:5000).
6. Identification of public and private well locations will be requested in writing from the Board of Health in each community where herbicide applications are proposed.
7. National Heritage and Endangered Species Program.

For areas that are easily identifiable in the field (surface waters, wetlands, rivers, agricultural areas), Wilmington DPW will be using the following identification methods:

1. Consultation with Wilmington's GIS data layers and Mass GIS spatial data maps
2. Consultation with wetlands maps on file with Wilmington's Planning and Conservation Office.

Herbicide application crews will be provided with a map of the area they are treating so that a "best effort" assessment may be made to determine the location of sensitive areas, as well as to re-survey areas that have been previously treated to determine if re-treatment is necessary. The Town's GIS department will work to refine the maps based on field observations and consultations with the Town's Conservation Agent. A copy of the Yearly Operational Plan will also be provided to the crew.

The Wilmington DPW will assign a qualified point person in advance of the main herbicide application operation to identify no spray boundaries and appropriate buffer zones, and also to provide supervision on adherence to boundaries. Pavement markings will be made to be identified by the treatment crew. This redundancy will help insure that only the appropriate areas are treated.

SENSITIVE AREA RESTRICTIONS

TABLE 2 – SENSITIVE AREA RESTRICTION GUIDE

Source: Mass Highway Vegetation Management Plan 2009-2013

<u>SENSITIVE AREA</u>	<u>NO-SPRAY ZONE</u>	<u>LIMITED USE ZONE</u>	<u>WHERE IDENTIFIED</u>
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 foliar techniques or by 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 application; selective, low pressure foliar techniques or by cut-stump applications.	YOP Maps and identify on site
Public Ground Water Supply	Within 400 feet (Zone I)	Zone II or IWPA (Primary Recharge Area): 24 months must elapse between applications; selective, low pressure foliar techniques or by cut-stump applications.	Maps
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, low pressure foliar techniques or by cut-stump applications.	YOP Maps and Identify on site
Agricultural & Inhabited Areas	N/A	0 - 100 feet: 12 months must elapse between application; Selective low pressure foliar techniques or by cut-stump applications.	Identify on site.
State Listed Species Habitat: No application within habitat area except in accordance with a Yearly Operational Plan approved in writing by the Division of Fisheries and Wildlife.			YOP Maps

OPERATIONAL GUIDELINES FOR HERBICIDE APPLICATORS

Applicators including Wilmington maintenance employees (and potentially contractors) who apply herbicide to roadside rights of way must hold a valid Massachusetts Pesticide Applicator's License with on-site supervision by an individual that holds a Massachusetts Pesticide Commercial Certification in Rights-of-Way (Category 40). In addition, applications will be selective in order to meet certain weather requirements.

To increase effectiveness and to reduce the risk of the herbicide running off or overdrifting, herbicide will not be applied during rainfall or excessive wind. If foliar applications are interrupted by unexpected rainfall, the treatment will not resume until the rain ends and active leaf runoff has ceased.

The spraying equipment will be calibrated for low-pressure foliar application to maintain a pressure not to exceed 60 psi at the nozzle. A spray controller will also be used in order to deliver a consistent flow rate of approximately 40 gallons / acre.

MITIGATION MEASURES

Ongoing monitoring of treatment effectiveness will be a part of the Town's VMP. An inventory of all roadsides will be taken, with information on the prevailing type of vegetation, terrain, highway condition and control method will be included. The goal of the overall plan will be to establish an easily maintainable, stable plant population that will not interfere with vehicles or pedestrians, while exercising the most sustainable and environmentally friendly control method to efficiently and cost effectively control the target vegetation.

Monitoring record keeping to track the details of each application session including specific route treated, the control method, who the applicator was, the weather, the amount of material used, and how long the treatment took. Chemically treated areas shall be monitored after the necessary translocation period of the herbicide to determine the effectiveness of the applications and to monitor any off target injury and migration of the spray solution.

ALTERNATIVE LAND USE OPTIONS

The Town of Wilmington DPW will review and evaluate new and innovative alternative land uses within its ROW, where applicable and feasible. 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 since the land is currently being used or maintained and does not meet the types of target vegetation defined in the VMP.

REMEDIAL PLAN TO ADDRESS SPILLS AND RELATED ACCIDENTS

All mixing and loading of herbicides will occur at the storage facility in amounts of herbicide necessary to carry out that day's work. This will minimize waste and the need of excess handling. The spray vehicle will be equipped with a clipboard log of the herbicides on board, a bag of

adsorbent, plastic bats, a broom and a shovel in case of a minor spill. The Town of Wilmington remedial plan follows the plan specified in Mass Highway's Vegetation Management Plan for consistency of roadways within Town.

Major Spills

Major spills involve reportable quantities of hazardous materials as defined by the Department of Environmental Protection (DEP) 320 CMR 40.000. Related accidents include fire, poisoning and automobile accidents. The following protocol will be followed for major spills and accidents:

1. Administer proper first aid and call an ambulance and/or Massachusetts Poison Information Center in cases involving injury due to poisoning.
2. Call the police and/or fire department in cases involving automobile accidents or fire.
3. Avoid breathing fumes of burning herbicides.
4. Put out all sources of fire. Do not light flares, cigarettes, etc. which can ignite certain herbicides.
5. If possible, control the spill by stopping the leak or source of spill.
6. Confine the spread of liquids with a dike composed of soil or other absorptive materials.
7. Call ChemTrec, Massachusetts Pesticide Bureau or chemical manufacturer for assistance (see phone listing below) if unable to handle the spill or the material is unfamiliar.
8. Notify the DEP if water bodies are contaminated, and for releases or threatened releases of reportable quantities of hazardous material.
9. Notify the District Hazardous Material Coordinator.
10. Clean up spill:
 - a. If the spill occurs in a public location, isolate the spill areas and deny unauthorized entry until cleanup is complete.
 - b. Absorb spilled liquids with sand, absorptive clay, spill control gel, vermiculite, pet litter, sawdust or other absorptive material. Wear proper protective clothing and equipment.
 - c. Sweep or shovel contaminated absorbent into a leak proof, sealable container for proper disposal.
 - d. Dry herbicides, such as dust, granular and pellets can be directly swept or shoveled into leak proof sealable containers without absorptive materials.

- e. Neutralize contaminated area with hydrated lime, sodium hypochlorite (bleach), or soapy water. Never mix bleach and ammonia base products or a poisonous gas will result.

6) Dispose of contaminated material at an approved location.

Minor Spills

Minor spills involve less than reportable quantities of hazardous materials.

1. In case of contact with herbicides, wash with plenty of soap and water. Administer proper first aid and see a doctor, if necessary.
2. Change clothing which has absorbed herbicides.
3. Clean up spill (Same as above for major spills).

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

- Herbicide label
- Herbicide MSDS sheet
- Herbicide Manufacturers

Dow (517) 636-4400
Dupont (800) 441-3637
Monsanto (314) 694-4000
American Cyanamid Co. (201) 835-3100
Massachusetts DFA - Pesticide Bureau (617) 626-1700
Massachusetts DEP Incident Response Unit (888) 304-1133
ChemTrec (800) 424-9300
Massachusetts Poison Control Center (800) 682-9211
Massachusetts Department of Public Health
Bureau of Environmental Health Assessment
Environmental Toxicology Program (617) 624-5757

Wilmington Department of Public Works (978) 658-4481
Wilmington Public Safety (Police / Fire) (978) 658-5071

HERBICIDE ALTERNATIVES

The Town of Wilmington will continue to monitor its own VMP to determine effectiveness and progress, and will also work with other municipalities and state agencies within the local network to learn about advancements in vegetation management which may reduce or eliminate herbicide use. As is understood from the Mass Highway VMP, the agricultural industry put considerable effort in researching herbicide alternatives, but there is no accepted and proven practice available which

completely eliminates the use of herbicides from a successful IVMP. Wilmington will continue to consider updates to the VMP as strides are made in the industry.

EVALUATION AND RECOMMENDATIONS

The evaluation goals of the Town of Wilmington VMP will be the same as the goals of the state's VMP on Wilmington's state roadways, in order to provide consistency between vegetation management work within Town.

On an annual basis, The Town of Wilmington will evaluate the vegetation management program for effectiveness, environmental responsibility, and cost effectiveness. This evaluation will include reporting of control measures Town wide, as well as quantities of herbicides used and total area treated. The condition of the roadside will be evaluated. Finally, the evaluation will make recommendations including any possibilities for reducing mechanical and/or chemical controls. The Town of Wilmington will provide a copy of the evaluation report annually to the Pesticide Board.