
*Massachusetts Department of
Transportation*

*Statewide
Highway Division*

Yearly Operational Plan

for

Vegetation Management

2010

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Program Purpose

In general, the purpose of the MassDOT Vegetation Management Program is to implement an integrated program that eliminates nuisance vegetation (such as Poison Ivy, weeds, etc.) under guardrail, barrier, cracks and curbing, bridge abutments, sign supports, and other highway appurtenances to increase the safety of pedestrians, traffic and MassDOT workers as well as preserve the integrity of the roadway. The goal is to choose the proper target vegetation and appropriate control techniques to minimize reliance upon herbicides.

MassDOT will file two Yearly Operational Plans for The Yearly Operational Plan for 2010 will include the following objectives: treatment of detrimental and nuisance vegetation on selected high-speed, high volume roadways, control of invasive vegetation in specific locations, such as in previously planted restoration areas and locations where invasive plants are problematic in terms of safety and visibility, and to remove specific invasive species identified as priorities species for control, such as Perennial Pepperweed, Japanese Knotweed and Mile-a-Minute.

Individual Supervising the Yearly Operational Plan (YOP)

The individual supervising the implementation and conditions of the YOP is:

Name and Title	<u>George Batchelor, Supervisor of Landscape Design</u>
Department	<u>MassDOT, Highway Division</u>
Address	<u>10 Park Plaza, Boston, MA 02116</u>
Phone Number	<u>(617) 973-7857</u>
Signature	<u>_____</u>

Contractor/Personnel Performing the Herbicide Treatments

As required by law, applicators to roadside rights-of-way must hold a valid license from the Massachusetts Department of Agricultural Resources.

Contractor	<u>Northern Tree Service</u>
Address	<u>PO Box 790, Palmer, MA 01069</u>
Phone Number	<u>800-232-6132</u>
Contact Person(s)	<u>Philip Cambo</u>
Contractor	<u>Vegetation Control Services Inc.</u>
Address	<u>2342 Main St., Athol, MA 01331</u>
Phone Number	<u>(800) 323-7706</u>
Contact Person(s)	<u>Harry Williston</u>
Contractor	<u>D'Angelo Brothers</u>
Address	<u>100 N. Conahan Drive, Hazelton, PA 182019</u>
Phone Number	<u></u>
Contact Person(s)	<u></u>
MassDOT Licensed Field Operator	<u>MassDOT</u>
Address	<u>668 South Ave., Weston, MA 02493</u>
Phone Number	<u>(617) 276-7142</u>
Contact	<u>Anthony Staffierie</u>

Target Vegetation

In general, target vegetation along roadways falls into one or more of the following categories: Hazard Vegetation, Detrimental Vegetation, Nuisance Vegetation, and Invasive Vegetation. From a roadside vegetation management standpoint, target vegetation will be one or more of the following types: grasses, low-growing shrubs and vines, and tall growth (trees). Consistent with the MassDOT 2009-13 Vegetation Management Plan, nearly all vegetation management on MassDOT roads will be by mechanical methods: mowing or cutting.

The 2010 YOP for MassDOT includes spraying of vegetation impacting guardrail, pavements and structures on high-speed high-volume roads in conditions not feasibly managed by mechanical means, as well as invasive vegetation

Target invasive species will include, but will not necessarily be limited to: Japanese Knotweed (*Polygonum cuspidatum*), Pepperweed (*Lepidium latifolium*), Black Locust, (*Robinia pseudoacacia*), Oriental Bittersweet (*Celastris orbiculatus*), Multiflora Rose (*Rosa multiflora*), and Autumn Olive (*Rhamnus cathartica*).

Vegetation Management Techniques

General roadway vegetation management will involve mechanical methods (mowing, hand cutting, selective trimming and mowing).

Emphasis will be given to the control tactic that addresses the vegetation problem in the most environmentally sound manner and in a way to minimize vegetation control in the long term. The method chosen for a given vegetation problem will attempt to achieve a long term, low maintenance vegetation management program through the encouragement of a stable herbaceous community.

Herbicide Application Methods

MassDOT will utilize the following methods of herbicide application: foliar spray, injection, and cut stem or cut stump methods.

Foliar treatments involve the selective application of approved herbicides and adjuvants diluted in water, to the foliage and stems of the target vegetation. 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. Previous studies and experience indicate minimal drift occurs when using low- pressure applications and adjuvants. The herbicide solution is applied to lightly wet the target plant.

For larger vegetation, mechanical methods may be used, followed by an application of an approved herbicide with a portable pressurized canister or manually painted on the freshly cut surface of the remaining stump (Cut Stump Surface Treatment).

Injection treatments will include stem perforation and injection. Cut stem application will involve cutting vegetation and applying herbicide into stem. Cut stump will involve wiping herbicide directly onto freshly cut stems.

Applications will take place when plants are in full leaf and actively growing or in accordance with the manufacturer's recommendations.

MassDOT proposes to use only those chemicals listed within the Sensitive Areas Materials List, with the Use Restrictions shown for sensitive areas, and with the label restrictions for all other areas.

Rights-of-Way Sensitive Area Materials

The Massachusetts Department of Agricultural Resources (Pesticide Bureau) approves materials for use within Sensitive Areas within rights-of-ways. The materials are listed on the Department of Agricultural Resources website. The current partial list compiled from the DAR List dated February of 2007, is shown below as Table 2.

Table 2 – Rights-of-Way Sensitive Area Materials List			
Trade Name, Registrant	EPA Reg. Number	Active Ingredient	Use Restrictions
Accord SP Dow Agro Sciences	62719-322	Glyphosate	Lowest Labeled Rate
Accord Concentrate Dow Agro Sciences	62719-324	Glyphosate	Lowest Labeled Rate
Razor NuFarm Americas	228-366	Glyphosate	Lowest Labeled Rate
Razor-Pro NuFarm Americas	228-366	Glyphosate	Lowest Labeled Rate
Riverdale Aqua Neat Aquatic Herbicide Nu Farm Americas	228-365	Glyphosate	Lowest Labeled Rate
Oust Extra EI DuPont	352-622	Sulfometuron Methyl (56.25%) Metsulfuron Methyl (15%)	Lowest Labeled Rate
Escort XP EI Dupont	352-439	Metsulfuron Methyl	Lowest Labeled Rate
Oust XP EI DuPont	352-601	Sulfometuron Methyl	Lowest Labeled Rate
Krenite S EI DuPont	352-395	Ammonium Salt of Fosamine	Lowest Labeled Rate
Arsenal BASF	241-346	Imazapyr	3 pints/acre every third year or 2 pints/acre every other year for all Imazapyr Products
Arsenal Railroad Herbicide BASF	241-273	Imazapyr	3 pints/acre every third year or 2 pints/acre every other year for all Imazapyr Products
Garlon 4 Dow Agro Sciences	62719-40	Triclopyr, Butoxyethyl Ester	The lowest of the following rates: Lowest Labeled Rate or 0.5 pints per acre within 10 feet; Lowest labeled rate or 3.0 pints within 50 feet
Riverdale Tahoe 4E Herbicide Nu Farm Americas	228-385	Triclopyr, Butoxyethyl Ester	The lowest of the following rates: Lowest Labeled Rate or 0.5 pints per acre within 10 feet; Lowest labeled rate or 3.0 pints within 50 feet

Flagging Methods used to Delineate Sensitive Areas Adjacent to the R.O.W.

Sensitive Areas are areas within rights-of-way in which public health, environmental or agricultural concerns warrant special protection to further minimize risks of unreasonable adverse effects. For the purpose of identification, sensitive areas are separated into two categories: areas that are and are not readily identifiable in the field.

Sensitive Areas that are readily identifiable in the field include surface waters, wetlands, rivers, and agricultural and inhabited areas. Sensitive areas that are not readily identifiable in the field include public groundwater supplies, public surface water supplies, and private water supplies.

For guardrail, curb and barrier spray, the following field markers shall be used: NO-SPRAY limits shall be indicated using BROWN signs at either end of the limits; SPRAY limits shall be BLUE; alternate-year spray zones shall be delineated with ½-BROWN – ½-BLUE delineator signs.

For invasive species treatment areas, spray limits will be flagged the using painted wood survey stakes, or landscape flags. ORANGE stakes will indicate limits of Spray area.

Table 3 - Sensitive Area Restriction Guide (333 CMR 11.04)

<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 and herbicides are applied selectively by 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, using foliar techniques or basal or 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 and herbicides are applied selectively by low pressure foliar techniques or by cut-stump applications.	YOP Maps
Riverfront Areas	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, using foliar techniques or basal or 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, using foliar techniques or basal or 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 Massachusetts Department of Fish and Game.		YOP Maps

IDENTIFYING AND PROTECTING SENSITIVE AREAS (Cont'd)

Table 3 (continued) - Sensitive Area Restriction Guide (333 CMR 11.04)

<u>SENSITIVE AREA</u>	<u>NO-SPRAY ZONE</u>	<u>LIMITED USE ZONE</u>	<u>WHERE IDENTIFIED</u>
Private Water Supply	Within 50 feet	50 – 100 feet 24 months must elapse between applications; Selective low pressure, using foliar techniques or by cut-stump applications.	In YOP well list and identify on site.
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 low pressure, using foliar techniques or basal 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 low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps
	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 low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps

Herbicide Handling, Mixing and Loading Procedures

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, activated charcoal, plastic bats, a broom and a shovel in case of a minor spill.

Major Spills and Related Accidents - For the purpose of this VMP, 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.

- a) Administer proper first aid and call an ambulance and/or Massachusetts Poison Information Center in cases involving injury due to poisoning.
- b) Call the police and/or fire department in cases involving automobile accidents or fire.
- c) If possible, control the spill by stopping the leak or source of spill.
- d) Confine the spread of liquids with a dike composed of soil or other absorptive materials.
- e) 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.
- f) Notify the DEP if water bodies are contaminated, and for releases or threatened releases of reportable quantities of hazardous material.
- g) Notify the District Hazardous Material Coordinator.
- h) Clean up spill:
 - 1) If the spill occurs in a public location, isolate the spill areas and deny unauthorized entry until cleanup is complete.
 - 2) Absorb spilled liquids with sand, absorptive clay, spill control gel, vermiculite, pet litter, sawdust or other absorptive material. Wear proper protective clothing and equipment.
 - 3) Sweep or shovel contaminated absorbent into a leak proof, sealable container for proper disposal.
 - 4) Dry herbicides, such as dust, granular and pellets can be directly swept or shoveled into leak proof sealable containers without absorptive materials.
 - 5) 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.

Emergency Information and Points of Contacts

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

Herbicide Label	Container
Herbicide Fact Sheets	Appendix D
Herbicide Manufacturers:	
Dow Agro Sciences-----	(517) 636 4400
EI DuPont-----	(800) 441-3637
Monsanto-----	(314) 694-4000
BASF-----	(800) 832-4357
MA Department of Agricultural Resources (DAR)	(617) 626-1700
MA Department of Environmental Protection (DEP) Incident Response Unit	1-888-304-1133
MA Department of Environmental Protection – Western Regional Office	(413) 784-1100
ChemTrec	(800) 424-9300
MA Poison Control Center	(800) 682-9211
Environmental Protection Agency Pesticide Hotline	(800) 858-7378
MA Department of Public Health, Bureau of Environmental Health, Environmental Toxicology Program	(617) 624-5757
Massachusetts Department of Transportation	
Boston Headquarters	(617) 973-7500
District 1 Headquarters (Lenox)	(413) 637-5700
District 2 Headquarters (Northampton)	(413) 582-0599
District 3 Headquarters (Worcester)	(508) 929-3800
District 4 Headquarters (Arlington)	(781) 641-8300
District 5 Headquarters (Taunton)	(508) 824-6633



Scope of Work

The proposed work for 2010 involves the application of herbicides to control target vegetation along state highways in accordance with the Rights of Way Management regulations (333 CMR 11.00) and Mass Highway's Vegetation Management Plan (VMP). Target vegetation along roadways for 2010 shall include weed vegetation affecting roadway structures, particularly guardrail, barriers and curbs, as well as invasive vegetation at selected locations.

Guardrail, barriers, and curbs. MassDOT will treat vegetation detrimental to guardrail, barriers and curbs on high-speed, high volume highways where vegetation control by mechanical means is not feasible.

Invasive vegetation. Some areas of MassDOT ROW have become heavily infested with invasive plant species. Targeted invasive plants include, but are not limited to, the following: Tree of Heaven (*Ailanthus altissima*), Japanese Knotweed (*Polygonum cuspidatum*), Multiflora Rose (*Rosa multiflora*), Oriental Bittersweet (*Celastrus orbiculata Thunbergi*), and Autumn Olive (*Elaeagnus umbellata*) and Russian Olive (*Elaeagnus angustifolia*), Pepperweed (*Lepidium latifolium*), and Black Swallowwort (*Cynanchum louiseae*).

For 2010 activities, primary target vegetation locations include areas behind guardrail and in medians.

Proposed Herbicide Locations by Route and Town

Below is a chart of the proposed spray locations organized by spray activity, route, followed by a series of maps in Appendices B and C.

<i>Guardrail, barrier, & curb</i>	
<i>Route</i>	<i>Municipalities</i>
DISTRICT 2	
I-91	Bernardston, Chicopee, Deerfield, Easthampton, Greenfield, Hatfield, Holyoke, Longmeadow, Springfield, West Springfield & Whately
I-291	Chicopee, Springfield
I-391	Chicopee
Route 33	Chicopee
DISTRICT 3	
Route 146	Worcester
I-190	Worcester
I-290	Worcester
DISTRICT 5	
Route 1	Foxboro, Walpole, Sharon, Norwood
Route 3	Plymouth, Kingston, Duxbury, Marshfield, Norwell, Pembroke, Rockland, Hanover, Hingham
Route 24	Avon, Berkley, Bridgewater, Brockton, Freetown, Raynham, Stoughton, Taunton, West Bridgewater
I-95	Attleboro, N.Attleboro, Mansfield, Foxboro, Norwood, Sharon, Walpole
I-295	Attleboro, North Attleboro

<i>Invasive species</i>	
<i>Route</i>	<i>Municipalities</i>
DISTRICT 3	
I-190	Lancaster
I-84	Sturbridge
I-290	Worcester
Route 146	Worcester
DISTRICT 4	
I-93	Andover, Methuen
Route 16	Arlington
Route 3	Braintree, Quincy
Route 2	Cambridge
I-95	Canton, Lexington, Lynnfield, Woburn,
I-495	Lawrence, North Andover, Tewksbury
Route 133	North Andover
Route 1	Salisbury
Route 113	Tyngsboro
Route 128	Weston
DISTRICT 5	
Route 18	Middleboro
Route 3	Plymouth