# VEGETATION MANAGEMENT PLAN

**FOR:**

**Amtrak, National Railroad Passenger Corporation**

**Bay Colony Railroad Corporation**

**Fore River Transportation Corporation**

**Massachusetts Bay Commuter Railroad Company**

**Massachusetts Coastal Railroad**

**New England Central Railroad, Incorporated**

**Providence and Worcester Railroad Company**

**For railroad rights-of-way in the Commonwealth of Massachusetts**

**1 JANUARY 2011 – 31 DECEMBER 2015**

PRELIMINARY
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**PREPAIRED BY:**

**TEC ASSOCIATES**

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# I. SUMMARY OF RAILROADS COVERED BY THIS PLAN

## A. Railroads Operating Under this Plan

The railroad companies listed below have agreed to use this Vegetation Management Plan (VMP) for the next 5 years. Municipalities affected by this Plan, listed by railroad, may be found in Appendix A.

Amtrak, National Railroad Passenger Corporation
Bay Colony Railroad Corporation
Fore River Transportation Corporation
Massachusetts Bay Transportation Authority, Commuter Rail (Purple lines)
Massachusetts Bay Commuter Railroad Company
Massachusetts Coastal Railroad
New England Central Railroad, Incorporated
Providence and Worcester Railroad Company

## B. Variations from Basic Plan

Differences in company size and work procedures require minor variations in the basic plan. These variations occur in two areas; differences in personnel and different types of sensitive area markers. Appendix B provides details of specific variations for each railroad company.

# II. INTRODUCTION

This VMP has been prepared for the participating railroads by TEC Associates and shall apply to their rights-of-way within the Commonwealth of Massachusetts. It describes a variety of operational practices which include physical, chemical, and natural methods used to manage, control, and eradicate vegetation on railroad Rights-of-Way (ROW's). This VMP outlines and interprets the 5-year program for managing vegetation as per 333 CMR 11.00 Rights-of-Way Management, latest revision (Appendix C). The VMP addresses the major components of vegetation management including the rationale for the various techniques, the buffering and protection of sensitive areas, the application of Integrated Pest Management (IPM), and an overview of the railroad ROW system. Appendices include a listing of municipalities affected by the Plan, variations from the basic Plan for each railroad, the Rights-of-Way Management Regulations 333 CMR 11.00, the Preface to the Wetlands Protection Regulations 310 CMR 10.00 relative to rights-of-way management, and the most recent list of herbicides approved for use on sensitive areas of railroad ROW's dated August 2010, subject to revision.

To understand the complexities of the railroad ROW and the related problems, which arise in vegetation management and interfere with the operating railroad system, detailed descriptions and illustrations of the specific areas along the railroad ROW are provided in Section V. Knowledge of the role and function of each area along the ROW is necessary to assess and understand the particular type of vegetation management practice used in those areas.

The railroad ROW's are unique in that they are owned by the various railroad corporations and are constructed and operated in accordance with federal and state laws, regulations, and standards for a specific purpose, which benefits the public welfare. Railroad ROW's are similar to other ROW's in that they pass through a wide variety of both privately and publicly owned land. Railroad companies own their ROW's in fee, whereas electric and pipeline companies usually obtain easements which convey only specific use rights to the easement holder. The railroad ROW connects railroad facilities and can be divided into several distinct areas each of which have different uses and activities and different requirements for vegetation management.

A brief historical overview will demonstrate that today's railroad Vegetation Management Program represents great changes in the approach, techniques, and methods for vegetation management versus vegetation eradication of years past. These advances are the results of research and the progressive attitudes of the railroad companies to adopt an integrated approach to vegetation control.

Herbicides have controlled unwanted vegetation on railroad roadbeds and in railroad yards since the 1950's. These herbicides were often applied several times during the year. The rates for these pre- and post-emergent herbicides were listed as great as 100 lbs active ingredient (A.I.) per acre. The use of herbicides, however, has steadily declined. For example, in the early 1970's herbicides were applied to the areas adjacent to the roadbeds to control brush and related vegetation at rates of 25-77 lbs A.I. as per label instruction. Today, a mixture of the herbicide Roundup, used commonly for brush control, has been reduced from 6 lbs A.I. per acre in 1983 to 4 lbs A.I. per acre in current use. By 1980, the average rate of herbicides applied to railroad ROW's had decreased to below 10 lbs A.I. per acre. Harrison (1985) reports in the Generic Environmental Impact Report on Control of Vegetation on Utility and Railroad Rights-of-Way that in 1981, the average rate of herbicide application was 8.15 lbs A.I. per acre for the railroad ROW. Today's herbicide label rates for the railroad ROW now averages 3.0 lbs A.I. per acre for the most frequently applied herbicides in Massachusetts.

We must understand that the 10-fold decrease in herbicide use between 1950 and today was not driven by regulation or economics, but was the combined result of new herbicides, new application techniques, the effectiveness of annual control, and concern over possible adverse effects of chemicals used in our environment. The evolution of this VMP is the direct result of an awareness of our environment, the work of trained professionals, research, development, and implementation of scientifically sound programs based on an integrated approach to vegetation control.

This VMP outlines the railroad industry's 5-year plan to manage the various parts of the railroad ROW with respect to vegetation control. This document will explain in detail the goals and objectives associated with vegetation management on the railroad ROW. The VMP represents careful planning, programming, and decision making by a team of qualified professionals so that the general welfare and safety of railroad employees and the public is ensured to the extend allowed by the regulations, and that no unreasonable effects are caused to our environment.

## III. GENERAL STATEMENT OF GOALS AND OBJECTIVES

The purpose of this VMP is to establish the operations, procedures, and professional guidelines involved in the railroads' vegetation management program to control, eradicate, or manage vegetation that interferes with the ROW. This interference may potentially affect the safety of employees, passengers, the public, and the environment. This VMP provides the necessary information and basic operational procedures to inform municipalities, interested citizens, railroad employees, and contractors about the railroads' vegetation management program. The railroads' goals and objectives associated with vegetation management are to minimize the risk of unreasonable adverse effects on human health and the environment and to protect the safety of people making public passage on, performing work on, or living adjacent to the ROW.

Vegetation on railroad rights-of-way affects railroad safety both directly and indirectly. The benefits of proper vegetation control, however, are difficult to quantify because vegetation control is one of many tools railroads use to maintain tracks in a safe condition.

There are many ways that vegetation directly affects a railroad, and consequently public safety. The typical railroad roadbed consists of ballast on a graded and compacted earthwork section. The ballast supports the track. The earthwork section typically slopes downward to drainage ditches on each side of the track.

The entire railroad roadbed and adjacent area are designed to carry water away from the tracks. The ballast is the material between and under the ties. It consists of crushed stone or gravel and is compacted around and under the ties to support them vertically and laterally. Pore space in the ballast allows water to drain away from the ties and into drainage ditches, which carry it away from the track. Dirt falling from passing trains or washed and/or blown in can provide adequate seedbed areas for some plants. Plant seeds carried to the track area by the same mechanisms as the dirt can sprout and begin to develop. During plant development, fibrous root systems appear which expand through the ballast and accumulate additional dirt. The fibrous roots of most plants are continuously dying and renewing themselves adding decaying plant material to the accumulating dirt. This mixture of dirt and plant material holds moisture and provides a seedbed for new plants. The drainage capacity of the ballast is greatly reduced and moisture is retained around the ties contributing to their decay. During rain, the fouled ballast can retain enough moisture to become saturated. This results in a loss of support for the track both vertically and laterally leading to movement under the train.

In dry weather, vegetation within the roadbed is easily set on fire by sparks from steel brake shoes on steel wheels. The exhaust from diesel locomotives is another source of sparks, particularly as the throttle position is being increased or decreased. Track maintenance activities such as cutting, grinding, or welding rail are another ignition source. In order to minimize the potential for fires, the Commonwealth of Massachusetts requires by statute (Section 160 Chapter 235A) that railroads keep the full width of their rights-of-way clear of inflammable material including vegetation.

An additional problem occurs with the above ground portion of plants growing near the rails. Trains depend on friction between the steel rails and steel wheels for traction and braking. Anything that reduces friction between the wheels and rails can create dangerous problems. A light rain, which wets the track, can double or triple minimum stopping distances required, depending on the train's weight, speed, and the slope involved. Most plant tissues are immediately crushed between the wheel and rail, but release water and plant sap which acts as a lubricant just as rain does and may increase stopping distance by the same proportions.

Vegetation also creates unsafe footing for railroad employees, particularly train crews that may be at work at any hour and in any weather. The vegetation itself may be the hazard or it may conceal objects or areas of unsafe footing.

Visibility is important both for railroad personnel working on or near trains and for motorists crossing railroad tracks. Train engineers and other operating personnel must be able to see all types of railroad signals. These signals indicate the status of the traffic on the track ahead and indicate when whistles must be sounded as the train approaches a road crossing. Signs provide other types of safety information as well. Motorists must be able to see trains as they approach railroad crossings and employees must be able to visually inspect moving rail equipment. Locomotive engineers must be able to see around curves and see that switches and derails are in the correct position.

Federal laws require vegetation control to ensure proper functioning of signals and communication lines. Trees and plants short out electrical equipment and cause failure of communication systems and signals.

Vegetation on railroad rights-of-way indirectly affects railroad safety in a significant way. Vegetation itself is rarely the cause of a railroad accident or incident. Every year, however, an average of 875 accidents nationwide are caused by track, roadbed and structure defects according to Federal Railroad Administration (FRA) statistics. In 2009, the last year for which statistics were available, there were 655 railroad accidents caused by track and roadbed defects. This resulted in 24 injuries and 1 death to railroad employees and $102,208,340 in property damage. In 2009, 172 of the 655 accidents caused by track and roadbed defects involved trains carrying hazardous material. In these accidents, 379 cars carrying hazardous material were damaged resulting in 29 releases of hazardous material into the environment.

For the five-year period of 2005-2009 there were 29 train accidents caused by track and roadbed defects in the Commonwealth of Massachusetts. Included in these accidents were 53 hazardous material cars. Eighteen 18 of these cars were damaged and one car released hazardous material into the environment.

Of primary importance to the railroad industry is minimizing the frequency and severity of accidents and incidents. The primary method for controlling those caused by track and roadbed defects is the federally mandated weekly or twice-weekly visual inspections by a qualified track inspector. These inspections are normally done from a hy-rail vehicle supplemented when necessary by walking inspections of switches and other complicated track work. It is essential that the

railroad roadbed be kept weed free to provide the track inspector with unobstructed views of the track structure including rails, ties, and fasteners. Vegetation within the railroad roadbed increases the probability that a track or roadbed defect will go undetected resulting in greater potential for an accident or incident. For this reason, FRA regulations (CFR 49 Part 213.37) require that vegetation be controlled so as not to interfere with the track inspector's duties.

Vegetation in the roadbed hinders other methods of track inspection as well. Railroads employ electronic rail testing contractors to periodically test rails for internal defects. This testing is done by special rail cars that establish a magnetic field around the rail. Vegetation adjacent to the rails hinders this process and results in invalid tests. Other special rail cars measure track geometry such as surface, line, and gauge. The gauge measurement is done optically and is adversely affected by vegetation between the rails.

The Federal Government and Commonwealth of Massachusetts Government have recognized the importance of safety and have a variety of laws and regulations governing the condition of railroad ROW's.

Federal law requires railroads to control vegetation. Specifically 49 C.F.R. Subsection 213.37 states:

Vegetation on railroad property, which is on or immediately adjacent to roadbed, must be controlled so that it does not:

1. Become a fire hazard to track carrying structures
2. Obstruct visibility of railroad signs and signals
3. Interfere with railroad employees performing normal trackside duties
4. Prevent proper functioning of signal and communication lines
5. Prevent railroad employees from visually inspecting moving equipment from their normal duty stations

The Massachusetts Department of Telecommunications and Energy has broad regulatory authority over railroads. Railroad Safety Regulations 220 CMR 150.00 set forth regulations concerning track inspection, track maintenance, and track alterations.

The statutory and regulatory intent is specific: the safety of the railroad must be guaranteed through inspection, maintenance, and repair of the ROW. Maintenance and inspection require proper vegetation control. Clearly, the Commonwealth has intended each railroad within Massachusetts to maintain their ROW's, which includes but is not limited to vegetation management, or be in violation of law and regulations, and subject to liability and fines.

## IV. INTEGRATED PEST MANAGEMENT/VEGETATION MANAGEMENT

Integrated Pest Management, as performed by the railroads, involves careful planning, organizing, and implementing an overall program involving all operational departments and personnel, so that all possible techniques of vegetation control will be utilized. By identifying and coordinating the activities of other divisional and operational units such as repair, ballast replacement, construction, communication, and other ROW responsibilities, the railroad can control vegetation as an indirect benefit of their prime goal and function. Thus, unnecessary application of herbicides will be prevented. All non-chemical techniques and methods, which remove or control pest vegetation, will be identified and integrated into the overall VMP process and the scheduling for all Yearly Operational Plan (YOP) activities. Thus, no sector or area of the ROW will receive herbicide treatment if a routine or operational activity will remove the vegetation during the process. This operational procedure will further reduce the reliance on chemical control and the amount of herbicide applied each year.

The purpose of every VMP, railroad or other, is to address the various components of vegetation management. Whenever possible and wherever consistent with the ROW system, the railroad industry will implement an integrated approach to vegetation management by encouraging plant communities that hinder the development of target vegetation. This integrated vegetation management program utilizes physical and chemical methods to control vegetation. It addresses public, environmental, and economic concerns by minimizing the applications of herbicides. Due to the unique structure of the railroad ROW, different environmental areas such as road crossings and yards, require different levels of vegetation control and will be selectively managed based on the site and target species. A team of professionals comprised of roadmasters, engineers of track and vegetation control, and herbicide application specialists will develop annual Yearly Operational Plans that select those vegetation control methods which minimize risk for the general public and the environment. Over the 5-year period, the railroad industry will constantly monitor and evaluate the success of their program and integrate appropriate new methods in their YOPs consistent with the VMP. Procedures to monitor and evaluate the IPM program are described in detail in Section VIII. Operational Guidelines for Applicators Relative to Herbicide Use.

Federal laws require the maintenance of vegetation located on the roadbed and certain other areas. All vegetation will be eliminated from the following areas:

1. Ballast section
2. Ballast shoulder
3. Yards
4. Switches, signals, and signs
5. Highway grade crossings
6. Bridges, bridge abutments, and buildings
7. Off-track areas
8. Inside of curves

To date, no environmentally and economically feasible and safe alternatives to herbicides have been developed for use in areas of the right-of-way requiring total vegetation control. The Massachusetts Railroad Association has tested alternatives without success. These tests included a steam application, which required 7,000 gallons of potable water and several hundred gallons of diesel fuel for heating the water per mile. It resulted in partial control lasting about one week. In another test, an application of a fish by-product resulted in approximately ten percent control of target vegetation. No mechanical equipment has been developed that will operate in close proximity to the track components in the roadbed area. In 1996, Consolidated Rail Corporation built and tested a mowing machine for target vegetation growing in the roadbed and ballast. This machine was completely ineffective at removing vegetation below the top-of-rail height and fouled the ballast with clippings creating both drainage problems and a fire hazard. Finally the movement of trains, often at high speeds, would make manual weed control dangerous. As a result, the integrated approach to vegetation management in these areas is limited to the selective application of herbicides to target vegetation along with control obtained through track maintenance activity. The use of herbicides, however, continues to drop as the result of new technologies in application equipment. Spray booms are independently controlled according to left side, center, and right side allowing the operator to shut off the application to areas lacking target vegetation. Often, target vegetation in the track center is less dense then that on the sides. To control these areas of lighter vegetation, often extending the width of the ties, "half-rate" booms are being added adjacent to the "full-rate" booms and are used whenever possible. Normally, the full-rate booms are used at road crossings and around switches and special track work while the half-rate booms are used in all other areas. In another improvement, herbicide injection equipment is replacing the traditional method of tank mixing multiple herbicides. This allows the applicator to apply a specific herbicide only when that herbicide's target vegetation is present as opposed to a tank mixed application of all herbicides to all areas. When herbicide use is needed, the type and density of vegetation, site condition, and the time of year will be factors in determining the herbicide type, application rate, adjuvants, and application equipment. These factors will be selected to attain maximum control and minimize any unreasonable adverse effects. In railroad yards and on certain heavily vegetated areas of the ROW pre-emergent herbicides will be applied which may eliminate a post-emergent treatment that same year. Each herbicide treatment will be tailored to the specifics of the site, sensitive area proximity, vegetation, and local environmental factors. The specific details will be included in each YOP.

In areas, such as those adjacent to the ROW roadbed, where total vegetation control is not required, various selective vegetation control techniques are practiced. The goal and purpose of this integrated vegetation control approach will be to increase competition for light and growing space with desirable species by selectively eliminating woody species. Shrubs, grasses, and sedges are desirable species (non-target) which can be tolerated on the adjacent area and will be selectively managed. By selectively removing these target species by cutting or herbicide treatments, the non-target species will not be affected. If a target species capable of re-sprouting, is cut or mowed, a cut stump treatment will be applied to prevent sprouting and the need for further herbicide applications. In the above cases, the target vegetation is eliminated, and the desirable species such as grasses and

sedges will rapidly grow and fill the area due to the increased sunlight, water, and nutrients. The selective elimination of woody and brush species is site, species, and density dependent. The selection of technique will also take into consideration the preservation and enhancing of non-target desirable species. In no case would a pre-emergent herbicide be used in these areas.

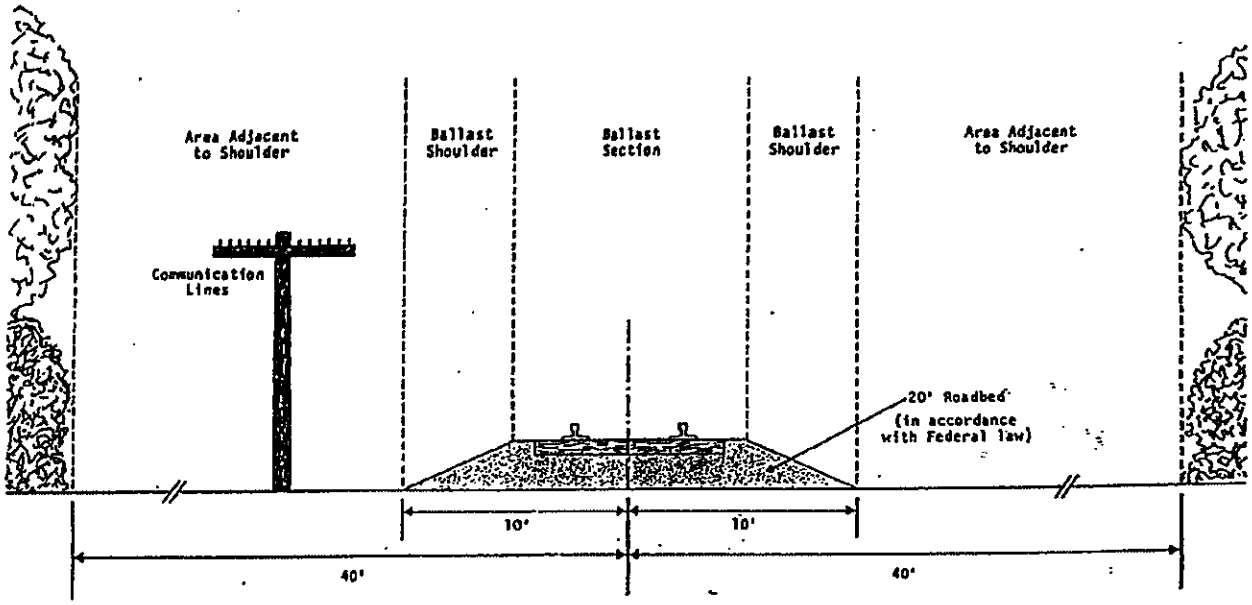
In certain adjacent areas of the ROW, branches and limbs of trees grow into or have the potential to move into the roadbed area striking trains or fouling overhead communication lines. In these cases, the tree will not be eliminated if a selective side trimming of the encroaching limbs can be made from an aerial lift mounted on hy-rail equipment, or on a truck. Selective side trimming, primarily by mechanical and occasionally by herbicidal means, will be done on a site by site basis according to the type and density of target vegetation present and its propensity to invade the roadbed area or foul communication lines. Trees and brush on the ROW, which act as a buffer between the adjacent property and ROW, will only be managed if they will interfere with the function and safety of the ROW. Selective vegetation management increases desirable vegetation, prevents erosion, and is aesthetically pleasing to adjacent property owners.

In summation, railroad's VMP is an integrated plant management program. The railroad's vegetation management programs do not rely on a fixed application schedule or eliminate all vegetation with herbicides in all areas. The ROW will receive a Vegetation Site Inspection monitoring the vegetation on the roadbed and adjacent areas. All operational and maintenance activities scheduled for that year will be identified for those sites. If those activities will control the vegetation on those sites, no other vegetation management activities will be contracted. On those areas, in which the vegetation will not be controlled by non-VMP activities an assessment will be performed to determine the most selective vegetation management approach (see Operational Procedure, Section VIII).

## V. MANAGEMENT REQUIREMENTS OF RAILROAD RIGHTS-OF-WAY

Concern for public and employee welfare, environmental protection, and safety is the primary reason for vegetation maintenance on the railroad ROW. Railroads are unique, among the various type of ROW's in their relationship to interstate commerce. Railroads carry a constant flow of raw material and finished products into, out of, and through the Commonwealth of Massachusetts. Railroads also provide commuter rail service and high-speed intercity passenger service on some routes. Major track segments have few alternate or duplicate routes and cannot be closed easily or for long periods of time for vegetation maintenance without major service disruptions. Vegetation maintenance must be scheduled around the normal schedule of rail traffic. Detailed planning and scheduling is required to accomplish vegetation maintenance activities within a narrow time window. This document reflects the railroads' continuing efforts to review and evaluate vegetation control practices. This effort has led to practices that allow the development of very low-growing vegetation on many areas adjacent to the shoulder (Figure 1).

**FIGURE 1**
**RAILROAD AREAS REQUIRING VEGETATION CONTROL**




## A. Roadbed

Figure 1 depicts a typical railroad ROW. The roadbed is a man-made structure which consists of the rail and ties, ballast, ballast shoulder, and its drainage system. The ballast and ballast shoulder are constructed of hard stone that supports the track. It distributes the load on the track evenly and drains water away from the roadbed. The roadbed drainage system is constructed to carry water draining out of the ballast away from the track. The roadbed portion of the ROW requires total vegetation control.

## B. Bridges

Open deck bridges, such as some over water, will not be treated. Roadbed approaches to bridges will be treated up to the abutment backwall, reduced as necessary to maintain required setbacks to sensitive areas. Stonework in bridge abutments and similar structures must be treated because plant roots can loosen and destroy mortar in cracks. The area under bridges will be maintained in low growing vegetation.

## C. Culverts

Culverts are generally constructed with steel pipe, concrete pipe, or stone and are normally placed at right angles to the track. Culverts which are not of sufficient length to extend beyond the roadbed spray pattern plus required buffer, or which are shallow to the roadbed and constructed of stone and could allow herbicide to enter a watercourse, will not be treated.

## D. Ditches

Drainage ditches must be maintained weed-free to permit the flow of water away from the ballast and track structure and maintain a stable roadbed. Ditches will be maintained by mechanical means and by herbicide applications when no water is present.

## E. R-O-W Area Adjacent to the Shoulder

Woody vegetation growing in areas adjacent to the shoulder will be managed to promote the growth of low growing shrubs. Targeted woody vegetation will be that which has the potential to block visibility or invade the roadbed and/or overhead communication lines. Target vegetation will include but not be limited to the following:

| | | |
|---|---|---|
| Ailantus | Black Walnut | Honey Locust |
| American Basswood | Buckthorn | Maple |
| American Beech | Butternut | Northern Catalpa |
| American Hornbeam | Cherry | Oak |
| Apple | Eastern Horphornbeam | Pine |
| Ash | Eastern Redcedar | Poplar |
| Aspen | Elm | Sassafras |
| Birch | Flowering Dogwood | Shadbrush |
| Black Locust | Hawthorn | Spruce |
| Black Tupelo | Hickory | Sumac |
| | | Vines |

Figure 1 illustrates typical areas on the railroad ROW area adjacent to the shoulder. These areas are generally between the roadbed and the edges of the ROW on either side. Shrubs in these areas provide a visual screen blocking the view of railroad traffic and serve to reduce the noise from rail traffic in adjacent areas. These areas may be maintained to include a wide variety of shrubs and herbaceous plants.

On the side of the ROW containing overhead signal and communication lines, low growing shrubs and most herbaceous plants will be maintained and encouraged in an effort to reduce the invasion of tall growing trees into these areas. Tall growing trees growing near overheard signal and communication lines must be controlled.

Low growing vegetation will be encouraged in areas containing underground communication or signal lines. In areas where above ground lines are present, low growing vegetation will be encouraged on the area opposite the lines. Shrubs in these areas provide a visual screen blocking the view of railroad traffic from adjacent landowners and reduce the noise from rail traffic in the adjacent land. Vegetation on the area adjacent to the shoulder must be controlled in the following situations.

1. Grade Level Road Crossings

   At grade level road crossings vegetation must be controlled to provide safe lines of sight between motorists and rail traffic.

2. Railroad Signals, Signal Cases, and Signs

   The area around railroad signals, signal cases, and signs will be maintained weed free providing a safe line of sight between the engineer and the signals or signs and to permit maintenance of this equipment.

3. Inside Curves

   In the area adjacent to the shoulder, on the inside of curves, low growing vegetation must be maintained to allow railroad employees on the trains to inspect trains as they move around the curves.

### F. Railroad Facilities

Railroad facilities include yards, buildings, fueling facilities, and off-track areas. Yards are areas with multiple tracks and switches where trains are assembled, disassembled, and equipment is stored. Buildings include offices, maintenance and repair buildings, and signal towers, usually within yards. Fueling areas are locations where locomotive fuel is stored and distributed. Off-track areas are locations that are not assessable from rail, such as auto-unloading sites.

Railroad facilities must be maintained weed free to allow safe and efficient operation, reduce fire hazards, and permit proper inspection of railroad track.

## VI. VEGETATION MANAGEMENT TECHNIQUES

The railroads' Vegetation Management Program is defined and limited by the construction of the privately owned ROW. The individual components of the railroad ROW as described in Section V, have two distinctly different vegetation management requirements. On the ROW roadbed and other specialized areas, no vegetation is permitted as per Federal and Massachusetts laws and regulations. On the adjacent areas of the ROW, certain woody, vine, and brush species must be selectively managed. Therefore, unlike other ROW's, the methods of railroad ROW management is limited to two basic vegetation control techniques and one indirect method. The two basic vegetation control techniques are herbicide applications and mechanical techniques. The indirect method includes any ROW operational activity that eliminates vegetation as a secondary benefit.

### A. Mechanical Equipment and Techniques

Mechanical control techniques are limited to woody and brush vegetation and will include only those target trees that interfere with the ROW. Mechanical techniques are used in the areas adjacent to the roadbed. Mechanical control

will remove unwanted woody vegetation in areas restricted for herbicide application. As stated prior, trees and brush interfere with communication lines, reduce visibility, and intrude into the track zone. Mechanical control is a solution to these problems.

Mowing is the mechanical process of cutting a woody target species with cutting heads. The cutting heads are mounted on hydraulic arms that greatly extend the lateral reach of the equipment. These machines can be mounted on off-track, on-track, or hy-rail equipment. Large machines are required for railroad application because of the wide range of conditions found on the ROW. On-track equipment has the advantage of not having to operate over rough terrain. Off-track equipment can work independently of train movement but production may be limited by the difficulty of moving over rough terrain. Off-track equipment also has the advantage of being able to operate under communication and signal lines. However, railroad safety guidelines may restrict the use of brush cutters within developed or recreational areas. Mechanical cutters, such as mowers, present certain safety problems that railroad personnel must take into consideration. Not only is brush cutting potentially hazardous to the general public, but the laborers are at a higher risk during work. In Massachusetts, the workers compensation rate for workers using cutting techniques is approximately three times that for herbicide applicators.

## B. Herbicide Application

Herbicides are pesticides used to control unwanted vegetation. Herbicides have been extensively applied on ROW's to control vegetation because of their specificity, range of target species, degree of control, economics, and application methods.

Herbicides are essential to eliminate vegetation on the ROW roadbed (the ballast/shoulder area). There is no known mechanical method for adequate vegetation control on the ROW roadbed as required by Federal and Massachusetts laws and regulations. The ballast and shoulder must be free and clear of all vegetation. This requirement necessitates that vegetation be removed down to and including the root system.

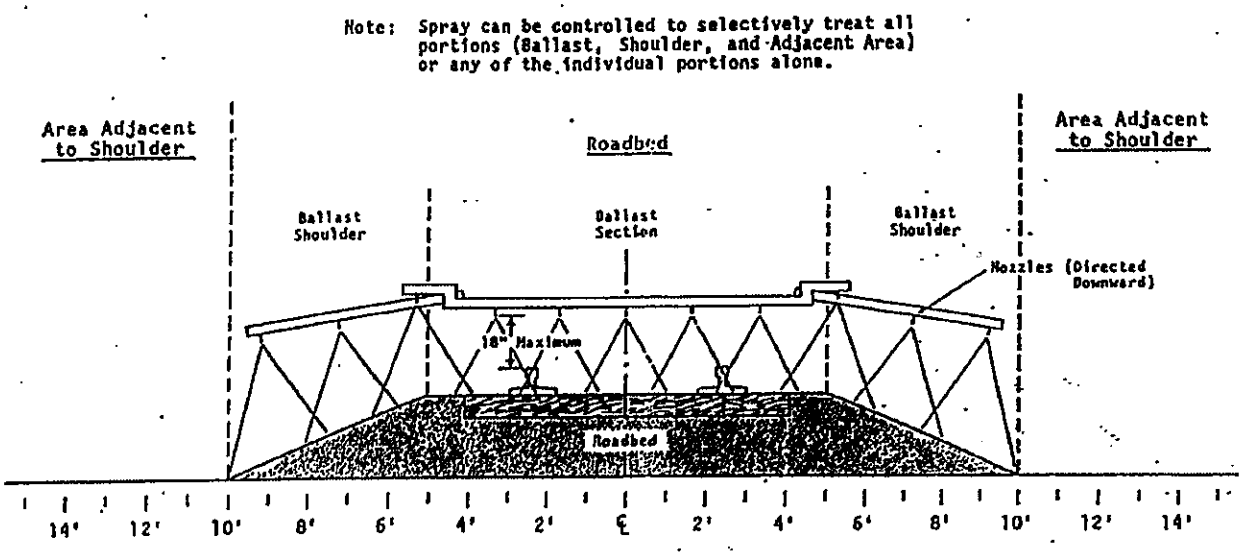
A herbicide control program can be modified into an integrated vegetation management approach depending on the area to be treated, target species, time of application, and category of herbicide. The two herbicide categories are pre-emergent herbicides, which the plant absorbs through developing roots before emerging from the ground and post-emergent herbicides, which the plant absorbs through foliage and other green portions, or through woody portions of the plant (i.e. bark, stem, roots)

Target species will be divided into two categories: weeds and brush.

1. Weed Control

The weed control program is designed to eliminate all vegetation located on the roadbed, around signs and signals, and in yards and other railroad facilities. Herbaceous vegetation is the primary cover type with a lesser number of shrubs and tree seedlings also present. A combination of pre- and post-emergent herbicides accomplishes the goal of complete vegetation eradication.

**FIGURE 2**




Pre-emergent Herbicide Program:

The pre-emergent herbicide program is directed primarily to the yards, and incorporates IPM to minimize the amount of herbicide used. This program is especially important with regard to employee safety because most employee activities take place within the yards. The scheduling of a main line or yard track section for a pre-emergent herbicide application will depend on a review of the previous year's vegetation density and control efforts and an estimate of vegetation density for the upcoming season.

Pre-emergent herbicide applications within the yards may be accomplished from a hy-rail spray truck. This on-track vehicle has the advantage of not having to operate over rough terrain. These hy-rail trucks have a rear-mounted boom located approximately 18 inches above the ground (Figure 2). Spray nozzles are equipped with a spring-loaded shut-off valve to prevent dripping when the pressure is turned off.

Herbicide sprayed from hy-rail trucks is applied at low pressure between 30 and 40 PSI. Low pressure as defined by CMR 333 11.02 shall be under 60 PSI.

In Massachusetts, pre-emergent herbicide applications to sites needing treatment will be climate dependent and favorable weather conditions are required. Traditionally, a pre-emergent treatment may begin in March.

Post-emergent Herbicide Program:

The post-emergent herbicide program is directed primarily toward vegetation eradication on the railroad ROW main lines and branch lines. These areas comprise the bulk of railroad's rights-of-way and accordingly, account for the greatest proportion of herbicide use.

Post-emergent herbicide application may begin in mid-May but is weather and target species dependent. All treated areas are later inspected and the effectiveness of the treatment is evaluated. If necessary, a second treatment is selectively applied to vegetated areas (see CMR 333 11.03(8)).

2. Brush Control

The brush control program is designed to control vegetation in areas adjacent to the shoulder through the selective use of post-emergent herbicides. The type of herbicide selected will depend on the species of target vegetation present. The application method will depend on the density of target vegetation and previous mechanical control methods. Shrubs and herbaceous vegetation in these areas will be maintained where possible.

There are several methods for the application of post-emergent herbicides to the target vegetation. The variety of methods allows the applicator to selectively apply the herbicide directly onto the target vegetation. These applications are described below:

Foliar:

Selective application of the herbicide to the foliage and or stem by a variety of low-pressure mechanical spray devises. This type of application is useful on busy, high speed rail lines where the work intervals between trains are too short for slower mechanical methods. The herbicides are applied under low pressure (30-40 PSI). Selective foliar application will not be used on vegetation over 12 feet in height, except for side trimming (333 CMR 11.03 (5)). Side trimming, when done with herbicides, is the selective application of the herbicide to target portions of a tree and avoids removal of the entire tree. During side trimming operations in residential areas, the railroads will utilize low pressure herbicide application techniques and appropriate adjuvant or agents to minimize the drift of herbicides. Experience indicates minimal drift occurs, usually within 5 feet of side trimming operations, when using low pressure applications and adjuvants.

Stem:

Selective application of the herbicide in a petroleum or crop oil base carrier to the lower portion of the main stem (trunk of a tree). The equipment for basal spraying is often a manual-pump apparatus.

Cut surface:

Application of a herbicide to the stump immediately after a cutting procedure which may include mowing. Traditionally, the herbicide is manually painted or squirted directly onto the cut stump surface.

3. Summation:

Post-emergent herbicides applied to control woody vegetation in the adjacent areas will begin mid-May and may continue throughout the year on selective sections of the ROW as part of the railroad's vegetation control program. Stem and cut surface treatments are effective year round. As in weed control, all treated areas are later inspected and evaluated. If further treatment is needed, a post-emergent herbicide is selectively applied to unwanted vegetation. Every consideration will be taken to minimize herbicide use while guaranteeing the overall safety of the ROW system.

The beneficial effects of herbicide applications on the ROW system cannot be overlooked for several reasons. The registration of herbicides specifically labeled for use on ROW's by the EPA and Commonwealth of Massachusetts based on risk analysis is further support for their continued use. When applied by a Massachusetts certified applicator (in the category Right-of-Way Pest Control) according to label direction and in accordance with all Federal and State laws and regulations including an approved VMP and YOP, a herbicide selected from the Department of Agricultural Resources (DAR)/Department of Environmental Protection (DEP) recommended list is expected to have no unreasonable adverse effects to the general public and the environment. Many mechanical techniques present real danger and risk to both the public and workers. As stated before, no adequate mechanical method is available for controlling vegetation found on the ROW roadbed and other areas which must be kept free of all vegetation. Public and employee safety begins with the Federal and state mandated requirements to visually inspect the entire ROW. Herbicides provide the most reliable and generally safe method to prevent and remove weeds that inhibit said inspections. Worker safety statistics demonstrate that significantly more workers will be injured or killed when using manual or mechanical cutting instead of herbicides. Mechanical cutting also results in property damage to abutters caused by flying limbs and debris.

Since herbicides are available in a wide variety of dry and liquid forms, the railroad may select the most efficacious herbicide for that particular site and target vegetation. Thus, the target plant may be selectively eradicated while minimizing impacts on non-target, desirable species. Limited, selective application of herbicides minimizes the chance of unreasonable adverse effects to the public and the environment.

The applicator controls the pressure, selects the proper nozzle, and has absolute control at which speed the vehicle will travel the ROW.

The applicator is constantly monitoring the environment. If the weather conditions change, such as high wind, rain, temperature inversion, etc., the applicator will stop immediately.

Massachusetts Regulation 333 CMR 10.14 requires the applicator to keep daily records of herbicide spraying operations. The records include herbicide/adjuvant mixture components and proportions, equipment, rate of application, the exact location of treated and non-treated track and adjacent areas, date of application, trade name of product and EPA registration number, applicator name, and target pest.

In summation, highly trained licensed professional applicators, assisted by on-site railroad personnel, will apply herbicides chosen from the state recommended list [333 CMR 11.04 (1) (d) as applicable] specific for the target vegetation and site. By using state-of-the-art equipment and specific adjuvants, the applicator will efficiently and economically manage the vegetation on the ROW.

## VII. SENSITIVE AREAS

Sensitive Areas have been defined in the Commonwealth of Massachusetts Regulation 333 CMR 11.00. A copy of the regulations is included in Appendix "C". Sensitive areas include any areas within the ROW including No Spray Area, and Limited Spray Area as defined below.

No Spray Area, any area that is both within a Right-of-Way and within:

(a) any Zone I;
(b) 100 feet of any Class A Surface Water Source;
(c) 100 feet of any tributary or associated surface water body where the tributary or associated surface water body runs within 400 feet of a Class A surface water source;
(d) 10 feet of any tributary or associated surface water body where the tributary or associated surface water body is at a distance greater than 400 feet from a Class A surface water source;
(e) a lateral distance of 100 feet for 400 feet upstream, on both sides of the river, of a Class B Drinking Water Intake;
(f) 50 feet of any identified Private Well;
(g) 10 feet of any Wetlands of Water Over Wetlands;
(h) 10 feet of the mean annual high-water line of any river; and
(i) 10 feet of any Certified Vernal Pool.

Limited Spray Area, any area that is both within a Right-of-Way and within:

(a) any Zone II or IWPA;
(b) a distance of between 100 feet and 400 feet of any Class A Surface Water Source;
(c) a distance of between 10 and 200 feet of any tributary or associated surface water

body where the tributary or associated surface water body runs outside the Zone A for the Class A surface water source;

(d) a lateral distance of between 100 and 200 feet for 400 feet upstream, on both sides of the river, of a Class B Drinking Water Intake;
(e) a distance of between 50 and 100 feet of any identified Private Well;
(f) a distance of between 10 and 100 feet of any Wetlands or Water Over Wetlands;
(g) a distance of between 10 feet from the mean annual high water line of any river and the outer boundary of the Riverfront Area;
(h) a distance of between 10 feet from any Certified Vernal Pool and the outer boundary of any Certified Vernal Pool Habitat; and
(i) a distance of 100 feet of any Agricultural or Inhabited Area.

The most common types of sensitive areas encountered are areas within 100 feet of standing or flowing water or wetlands.

Those sensitive areas that have been delineated with permanent markers in the field include all areas listed above under No Spray Areas and Limited Spray Areas with the following exceptions: agricultural areas, inhabited areas, and areas of intermittent standing or flowing water such as in drainage ditches. These areas are considered readily identifiable in the field and are not delineated with permanent markers.

Within "sensitive areas" only a limited number of herbicides that have been approved for these areas by DAR and DEP can be applied. The current list of sensitive area approved herbicides is provided in Appendix E. Additionally, no herbicides, including those of which are approved for sensitive areas, can be applied within 10 feet of standing or flowing water.

## A. Identification and Location of Wells and Surface Water Supplies

The Commonwealth of Massachusetts, Department of Environmental Protection, Drinking Water Program has developed data and overlay maps highlighting public water supplies, aquifers, tributaries, and drainage basins for most of the State. Areas not covered are clearly identified.

Local sources of specific information included the Conservation Commission, Water Department, and Board of Health. Private wells on record in the DAR's Private Well Registry will be delineated. The identification and delineation of private wells in the Commonwealth of Massachusetts is an ongoing process. In addition to the registry a yearly written inquiry to the Board of Health in each municipality, regarding the existence of any new and/or omitted private wells, is included in the Yearly Operation Plan mailing.

Prior to field delineations topographic maps were marked identifying the locations of public wells and water supplies. The specific locations were obtained from MassGIS overlay maps provided by the DEP and the Division of Water Supply.

## B. Identification and Delineation of Wetlands

The following definition and description is from the Wetlands Protection Act

Regulations 310 CMR 10.55 (2):

Definition, Critical Characteristics and Boundary

1. Bordering Vegetated Wetlands are freshwater wetlands which border on creeks, rivers, streams, ponds and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The ground and surface water regime and the vegetational community which occur in each type of freshwater wetland are specified in M.G.L. c. 131, § 40.

2. The physical characteristics of Bordering Vegetated Wetlands, as described in 310 CMR 10.55(2)(a), are critical to the protection of the interests specified in 310 CMR 10.55(1).

3. The boundary of Bordering Vegetated Wetlands is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist. Wetland indicator plants shall include but not necessarily be limited to those plant species identified in the Act. Wetland indicator plants are also those classified in the indicator categories of Facultative, Facultative+, Facultative Wetland-, Facultative Wetland, Facultative Wetland+, or Obligate Wetland in the National List of Plant Species That Occur in Wetlands: Massachusetts (Fish & Wildlife Service, U.S. Department of the Interior, 1988) or plants exhibiting physiological or morphological adaptations to life in saturated or inundated conditions.

4. Areas containing a predominance of wetland indicator plants are presumed to indicate the presence of saturated or inundated conditions. Therefore, the boundary as determined by 50% or more wetland indicator plants shall be presumed accurate when:

   a. all dominant species have an indicator status of obligate, facultative wetland+, facultative wetland, or facultative wetland- and the slope is distinct or abrupt between the upland plant community and the wetland plant community;
   b. the area where the work will occur is clearly limited to the buffer zone; or
   c. the issuing authority determines that sole reliance on wetland indicator plants will yield an accurate delineation.

5. When the boundary is not presumed accurate as described in 310 CMR 10.55(2)(c)1.a. through c. or to overcome the presumption, credible evidence shall be submitted by a competent source demonstrating that the boundary of Bordering Vegetated Wetlands is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist. The issuing authority must evaluate vegetation and indicators of saturated or inundated conditions if submitted by a credible source, or may require credible evidence of saturated or inundated conditions when determining the boundary. Indicators of saturated or inundated

conditions sufficient to support wetland indicator plants shall include one or more of the following:

a. groundwater, including the capillary fringe, within a major portion of the root zone;
b. observation of prolonged or frequent flowing or standing surface water;
c. characteristics of hydric soils.

6. Where an area has been disturbed (*e.g.* by cutting, filling, or cultivation), the boundary is the line within which there are indicators of saturated or inundated conditions sufficient to support a predominance of wetland indicator plants, a predominance of wetland indicator plants, or credible evidence from a competent source that the area supported or would support under undisturbed conditions a predominance of wetland indicator plants prior to the disturbance.

The following field guides are valuable resources providing lists and descriptions of wetland plants in Massachusetts and the surrounding region. Helpful field guides include:

a. Field Guide to Wetland Plant Identification
b. Freshwater Wetlands: A Guide to Common Indicator Plants of the Northeast
c. Inland Wetland Plants of Connecticut
d. Massachusetts Wetlands Protection Act (MGL C.131.s.40)
e. Guide to Inland Vegetated Wetlands in Massachusetts
f. US EPA New England Plant Identification and Protection Laws
g. Wetland Plants of the State of Massachusetts

Small wetlands, variable wetland situations, and the specific boundary to any wetland must be determined in the field.

## C. Field Procedure

1. Preparation

Prior to doing the field work, appropriate field maps will be consulted to determine the general location of sensitive areas on the railroad ROW.

2. Boundary Establishment

The sensitive area boundaries, which are not readily identifiable in the field, will be established for these areas. All boundaries use minimum setback distances specified in the regulations. Boundaries are marked on the tracks using the marking system described in Appendix B for each railroad. Boundary markers are placed on the track at a point where the sensitive area intersects with the track plus the required setback distance. In most locations, the boundary marker was placed as much as 15 feet beyond the minimum in order to find the best, strongest, and most visible location for the marker.

The occurrence of standing water in man-made drainage ditches will not be used as a principal indication of wetlands. The four major indications are vegetation, topography, soils, and hydrology. (Hydrology of a site relates to the distribution and circulation of water on the surface and in the soil).

Vegetation and signs of obvious hydrology will be used to determine wetland boundaries according to the DEP Wetland Protection Act Regulations. Soils are helpful in verifying wetland boundaries, but will not be used as a determining factor in typical situations. Vegetation responds quickly to changes in soil moisture and drainage. Plants are more likely to indicate newly forming wetlands, or wetlands that are in the process of enlarging. Soils are useful as indications of long-term hydrologic conditions. They are especially useful for disturbed sites and drier wetlands lacking typical wetland plants.

Topographic depressions where water collects, or where the water table is close to the surface, usually allow the development of wetlands. The boundary of a wetland in a low, flat area surrounded by hilly terrain often corresponds to the "break" in the slope, or the point at which the land begins to flatten.

Once the boundary of a wetland has been established distances will be measured to establish appropriate no-spray and buffer zones. Permanent boundary markers will be installed along the ROW and color-coded in order to indicate the proper spray status of the area to the herbicide applicator.

3. Approval of Findings

The Conservation Commission of each municipality was given the opportunity to observe and inspect the wetland boundary markers. A request for a determination of applicability was filed with each conservation commission pursuant to the Wetland Protection Act regulations, 310 CMR 10.05 (3)a.2. Form 1 was accompanied by a map of the ROW indicating the location of the boundary markers on the track and type of delineation that was made. These determinations are effective for the duration of the VMP as specified in 310 CMR 10.05 (3)(b)(1).

Data relating to the following is submitted to the Conservation Commission in each town as part of the Yearly Operational Plan.

a. Maps, or updates thereof, locating the ROW and sensitive areas not readily identifiable in the field.
b. Herbicides proposed including application rates, carriers, adjuvants
c. Herbicide application techniques and alternative control procedures proposed
d. The company which will perform any herbicide treatment
e. Identification of target vegetation
f. Individual representing applicant supervising YOP
g. Flagging methods to designate sensitive areas on the ROW

h. Herbicide Fact Sheets as approved by the Department
i. Procedures and locations for handling, mixing, and loading of herbicide concentrates.

## D. Operational Strategies and Procedures

Vegetation control procedures within the railroad ROW will be made consistent with all state and Federal regulations.

The general vegetation control strategies will exclude the use of herbicides in any application that would result in drift to:

(a) any Zone I;
(b) 100 feet of any Class A Surface Water Source;
(c) 100 feet of any tributary or associated surface water body where the tributary or associated surface water body runs within 400 feet of a Class A surface water source;
(d) 10 feet of any tributary or associated surface water body where the tributary or associated surface water body is at a distance greater than 400 feet from a Class A surface water source;
(e) a lateral distance of 100 feet for 400 feet upstream, on both sides of the river, of a Class B Drinking Water Intake;
(f) 50 feet of any identified Private Well;
(g) 10 feet of any Wetlands of Water Over Wetlands;
(h) 10 feet of the mean annual high-water line of any river; and
(i) 10 feet of any Certified Vernal Pool.

On the railroad roadbed, no suitable alternative to herbicide vegetation control is currently available. On all other areas mechanical methods will be the initial treatment. In the years following mechanical vegetation control, herbicide treatments may be used to control target vegetation re-growth. The selection of the herbicide and method of application will depend on the type and density of target vegetation present. In the area adjacent to the shoulder where herbaceous and some low-growing, woody plants can be encouraged, selective cutting of tall-growing trees will be used as needed.

All notification procedures required by State regulations will be followed. Several days prior to scheduled maintenance activities, a railroad track inspector or other person familiar with the boundary marking system, and equipped with boundary maps and/or log sheets, will review the area scheduled for treatment to ensure all boundary markers are in place and visible.

All herbicide applicators working on the ROW will be accompanied by a railroad representative, equipped with the maps of the ROW and other required documents, and trained to observe the boundary markers and areas not readily identifiable in the field. A railroad company pilot vehicle will proceed approximately 1/4 mile ahead of the spray vehicle to alert the spray vehicle to the presence of persons on or adjacent to the ROW or any other pertinent conditions. The railroad representative may ride in the pilot vehicle or the spray vehicle in

order to best suit operating conditions. When moving into or out of no-spray areas, the worker in control of the spray vehicle, will be signaled by the railroad representative or by the pilot vehicle, to cease or commence spraying.

## VIII. OPERATIONAL GUIDELINES FOR APPLICATORS RELATIVE TO HERBICIDE USE

### A. Guidelines for Sensitive Areas

1. Site Review

On sites believed to need vegetation control a review of the vegetation conditions will be made. The review will be made by the track inspector or other person experienced in vegetation management. On the areas adjacent to the shoulder, the need for and type of control will be identified and the treatment required will be determined. The density and type of target species present will be noted in each area for use in developing a control strategy.

2. Office Procedures

All available information will be analyzed in the following way. Areas scheduled for construction or other activity that will relate to or eliminate the need for vegetation maintenance, at that time, will be identified. If the vegetation on these areas will be controlled or eliminated, they will be removed from further consideration in the program now being developed. Next, the sensitive areas delineated will be reviewed to ensure that appropriate measures have been taken to protect these areas. The treatment methods prescribed in each sensitive area buffer zone will be reviewed and, whenever possible, a mechanical or more selective herbicide application prescribed. No-spray areas will be reviewed as to the overall vegetation conditions occurring, and mechanical methods will be used to selectively remove or side trim trees leaning into the roadbed area. New and developing vegetation control techniques will be reviewed to determine whether or not a suitable alternative to herbicide applications has been developed for use on the roadbed in sensitive areas.

This analysis will provide the site specific information required in the YOP. The YOP will be developed and submitted to DAR for approval as per 333 CMR 11.06(1).

### B. Preparation for Herbicide Application

At least a 21-day notice prior to the scheduled application date, will be given to the Department of Agricultural Resources, Conservation Commission, Board of Health, Mayor, and local public water suppliers in each community following Massachusetts State regulations.

Prior to the scheduled application date, a qualified railroad employee will traverse the treatment area with the sensitive area maps and record to ensure that all boundary markers are in place and visible.

1. Basic Requirements

To protect the public welfare and eliminate adverse impacts on the environment, railroad herbicide application crews must have an operator who is licensed and certified in the Commonwealth of Massachusetts. Applicators must also have a licensed and certified Field Supervisor who reports daily to the railroad representative or other qualified railroad employee who is assigned to this task. The railroad is responsible for adherence to this VMP by railroad employees or their contractor. Applicators must follow all railroad safety regulations and all herbicide label directions.

a. Daily Field Report of Vegetation Control Activities

The daily field report of Vegetation control activities will be filled out each day by operators doing the work. The daily field report will include, but not be limited to:

- Date
- Vehicle and Equipment Numbers
- Track Name, Number, and Designation

Chemical Received

- Chemical Name
- Number of Containers
- Quantity lbs./gals.
- Chemical Left or Forwarded
- Vehicle Number
- Number of Containers
- Quantity lbs./gals.

Weather

| | | | | | |
|---|---|---|---|---|---|
| - Wind Velocity at time | 6am | 9am | 12pm | 3pm | 6pm |
| - Wind direction at time | 6am | 9am | 12pm | 3pm | 6pm |
| - Temperature at time | 6am | 9am | 12pm | 3pm | 6pm |
| - Rain (in inches) at time | 6am | 9am | 12pm | 3pm | 6pm |

Acres Treated

- Roadbed Area
- Area Adjacent to the Shoulder
- Mainline
- Sidings
- Branch
- Industrial Track
-Bridge
-Crossings

Daily Summary

- Beginning Time
- Ending Time
- Hours Treating
- Total Hours Reported
- Daily Beginning Odometer Reading
- Daily Ending Odometer Reading
- Contractor Person on Job (list each individual)
- Railroad Person on Job (list each individual)

Daily Summary of Chemicals Applied

- Name
- EPA Establishment No.
- EPA Registration No.
- Concentrate: gals/lbs.
- Mix Rate and Application Rate per Acre

Tank or Mix Number

- Chemical Name and Amount Added to Tank
- Water in Gallons or Inches of Depth
- Adjustments Names and Amount
- Location Where Water Taken

b. Herbicide Application Log

In addition to a daily Field Report, a Herbicide Application Log will be filled out. The herbicide log will include, but not be limited to:

- Time
- Mile Post and Location
- Spray Type and Meter Reading
- Gallons Per Mile
- Remarks: Spray Plan, City, Vegetation, Weather, etc.

2. Herbicide Application

The applicator will not handle, mix or load herbicide concentrate on a ROW within 100 feet of a sensitive area. Whenever possible, the applicator will handle, mix, or load herbicide while parked on a non-porous surface such as concrete or asphalt, but not within 100 feet of a sensitive area.

At the time of treatment, before the application begins, the herbicide applicator will review the sensitive areas, maps, and records with a qualified railroad employee. A pilot vehicle will proceed through the area approximately ¼ mile ahead of the spray vehicle to alert the spray vehicle of the presence of persons on or adjacent to the ROW or any other pertinent conditions. The railroad representative will alert the operator of the spray vehicle about the location of boundary markers or sensitive areas readily identifiable in the field so that the application can be regulated accordingly. In no-spray areas, as the

applicator passes the boundary, he will verify that no herbicide is deposited in the area with the assistance of another employee.

Water for mixing of herbicide will be obtained from ponds or streams using DEP approved anti-siphon devices or from public water supplies in accordance with 333 CMR 13.03 (15).

## IX. ALTERNATIVE LAND USE

The railroad will review and evaluate new and innovative alternative land uses on the ROW. Safety considerations preclude most alternative land uses on the railroad ROW. The size, weight, and speed of trains and their cargoes being transported are hazardous to any activity inside the ROW boundary. Even agricultural activities might interfere with the operation of the railroad by reducing visibility to inspect trains and impeding drainage away from the ballast area.

Some uses of the ROW that are compatible with railroad uses include construction and maintenance of electric distribution and transmission lines, telephone lines, and cable TV lines. Other uses that may be used on wider railroad ROW's are sewer and water lines and major pipelines.

Parties interested may submit alternative land use proposals for the railroad's consideration. A list of addresses for railroads participating in this plan may be found in Appendix B.

## X. REMEDIAL PLAN TO ADDRESS SPILLS AND RELATED ACCIDENTS

This remedial plan is offered as a guide to proper procedures for addressing pesticide accidents. Since every incident is different, applicators must weigh factors specific to the situation and use their own judgment to decide the appropriate course of action. Because applicators normally carry only small amounts of herbicides, the potential for serious accidents is relatively small.

Federal and state statutes establish emergency response procedures that must be followed by the companies and their contractors in the event of a spill or related accident. Under the Federal Environmental Pesticide Control Act, it is the applicator's legal responsibility to clean up pesticide spills resulting from their use and handling of the product. Applicators are liable for damages, subject to penalties, and obligated to clean up and decontaminate areas resulting from pesticide spills.

The Comprehensive Environmental Response, Compensation, and Liability Act 1980 (CERCLA) 42 U.S.C. §9601 et. seq., and the Federal Water Pollution Control Act (CWA) 33 U.S.C. §125 et. seq. are aimed at eliminating the accidental discharge of oil and hazardous substances into the environment, providing for the cleanup of such substances, and establishing responsibility for costs of cleanup. CERCLA and CWA are implemented by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) 40 CFR §300 et. seq.

Massachusetts General Laws Chapter 21E, the Massachusetts Oil and Hazardous Material Release Prevention and Response Act, Section 3 authorizes the Massachusetts Department of Environmental Protection (DEP) to act to secure the benefits of the CWA and CERCLA to the Commonwealth by promulgating and enforcing a Massachusetts Contingency Plan, 310 CMR 40.000, establishes standards and procedures for the discovery of discharges, notification of DEP, assessment of the problem, and implementation of appropriate remedial response actions, as set forth in 310 CMR 40.500.

The Farm Chemical Handbook (published by Meister Publishing Co., Willoughby, Ohio), U.S. Department of Transportation "1987 Emergency Response Guidebook" (available from UNZ and Company, Jersey City, New Jersey), herbicide labels, and material safety data sheets provide reference information for the chemicals being used. Applicators should carry equipment for emergency action including sand or other absorptive material, broom, shovel, and heavy-duty plastic bags or other leak-proof sealable container.

## XI. IDENTIFICATION AND QUALIFICATIONS OF INDIVIDUALS DEVELOPING THE PLAN

This 2011-2015 edition of the Vegetation Management Plan was edited and updated by Mr. Wayne Duffett, President of TEC Associates and Mr. Kyle Fair, of TEC Associates, a civil engineering firm located in South Portland, Maine. Mr. Duffett has a B.S. in civil engineering and is a licensed professional engineer in Maine, Connecticut, New York, and Pennsylvania. He has twenty-two years of experience with the Massachusetts Rights-of-Way Management regulations. Mr. Fair has a B.S. in civil engineering and is a licensed professional engineer in Maine. He has six years of experience with the Massachusetts Rights-of-Way Management regulations. Mr. Duffett and Mr. Fair assist eight railroads with their implementation and adherence with the regulations. Mr. Duffett also serves as chair of the Massachusetts Railroad Association's Maintenance-of-Way Committee.

This Vegetation Management Plan was originally written for Conrail in 1989 by Environmental Consultants, Inc. (ECI). Mr. Paul A. Johnston was the Project Manager. Mr. Johnston has a B.S. in Forest Resources Management and a M.S. in Silviculture from West Virginia University. Mr. Frank DeVilbiss, Engineer of Vegetation Control for Conrail, assisted Mr. Johnston with preparation of the Plan.

# APPENDIX "A"

## MUNICIPALITES AFFECTED BY THIS PLAN

## LISTED BY RAILROAD

## AMTRAK

| | | | |
|---|---|---|---|
| Attleborough | Dedham | Mansfield | Westwood |
| Boston | Foxborough | Sharon | |
| Canton | Longmeadow | Springfield | |

## PROVIDENCE AND WORCESTER RAILROAD

| | | | | |
|---|---|---|---|---|
| Auburn | Grafton | Millville | Seekonk | Worcester |
| Blackstone | Holden | Northbridge | Sutton | |
| Dudley | Hubbardston | Oxford | Uxbridge | |
| Gardner | Millbury | Princeton | Webster | |

## BAY COLONY RAILROAD

| | | | |
|---|---|---|---|
| Dartmouth | Medfield | Millis | New Bedford |

## FORE RIVER TRANSPORTATION

| | |
|---|---|
| Braintree | Quincy |

## NEW ENGLAND CENTRAL RAILROAD

| | | | | |
|---|---|---|---|---|
| Amherst | Erving | Monson | Northfield | Sunderland |
| Belchertown | Leverett | Montague | Palmer | |

## MASSACHUSETTS COASTAL RAILROAD

| | | | | |
|---|---|---|---|---|
| Barnstable | Fall River | Lakeville | Rochester | Wareham |
| Berkley | Falmouth | Middleborough | Sandwich | Westport |
| Bourne | Freetown | New Bedford | Taunton | Yarmouth |
| Dartmouth | | | | |

**MASSACHUSETTS BAY COMMUTER RAILROAD** (MBTA Purple Lines)

| | | | | |
|---|---|---|---|---|
| Abington | Concord | Leominster | Plymouth | Waltham |
| Acton | Dedham | Lincoln | Plympton | Wenham |
| Andover | E. Bridgewater | Littleton | Quincy | W. Bridgewater |
| Attleboro | Easton | Lowell | Randolph | Weston |
| Avon | Everett | Lunenburg | Reading | Westwood |
| Ayer | Fitchburg | Lynn | Revere | Weymouth |
| Bellingham | Franklin | Manchester | Rowley | Wilmington |
| Beverly | Halifax | Medford | Salem | Winchester |
| Billerica | Hamilton | Melrose | Salisbury | Woburn |
| Boston | Hanson | Middleborough | Saugus | |
| Boxborough | Haverhill | Milford | Scituate | |
| Braintree | Hingham | Milton | Shirley | |
| Bridgewater | Holbrook | Needham | Somerville | |
| Brockton | Hopedale | Newbury | Stoughton | |
| Cambridge | Ipswich | Newburyport | Swampscott | |
| Canton | Kingston | Norfolk | Tewksbury | |
| Chelsea | Lakeville | North Andover | Wakefield | |
| Cohasset | Lawrence | Norwood | Walpole | |

# APPENDIX "B"

**VARIATINS FROM BASIC PLAN**

1. **PERSONNEL**
2. **SENSITIVE AREA MARKERS**

## CONTACT PERSON FOR PARTICIPATING RAILROADS

1. **MR. JIM CISNEROS**
   AMTRAK NATIONAL RAILROAD PASSENGER CORPORATION
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   MASSACHUSETTS COASTAL RAILROAD
   3065 CRANBERRY HIGHWAY
   E. WAREHAM, MA

## SENSITIVE AREA MARKERS

Sensitive area markers presently in use may be one or any combination of the following:

a. Plates: Color coded metal plates nailed to the railroad ties

b. Paint: Paint applied to the web or base of the rails and ties

c. Posts: Color coded posts adjacent to the track

Sensitive area markers presently employed by participating railroads are as follows:

Amtrak: paint
Bay Colony Railroad: plates
Fore River Transportation: plates
Massachusetts Bay Commuter Railroad (MBTA Purple Lines): paint
Massachusetts Coastal Railroad: plates
New England Central Railroad: plates and/or paint
Providence & Worcester Railroad: plates

Additional details concerning sensitive area markers can be found in the Yearly Operational Plans issued by participating railroads.

# APPENDIX "C"

## 333 CMR 11.00 RIGHTS-OF-WAY MANAGEMENT

## 333 CMR 11.00: RIGHTS OF WAY MANAGEMENT

Section

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### 11.01: Purpose

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. Specific goals of 333 CMR 11.00 are to:

(1) Ensure that an Integrated Pest Management (IPM) approach to vegetation management is utilized on all rights-of-way covered by 333 CMR 11.00.

(2) Establish standards, requirements and procedures necessary to prevent unreasonable risks to humans or the environment, taking into account the economic, social and environmental costs and benefits of the use of any pesticide.

(3) Ensure ample opportunity for public and municipal agency input on potential impacts of herbicide application to rights-of-way in environmentally sensitive areas.

(4) Establish a mechanism for public and municipal review of rights-of-way maintenance plans.

### 11.02: Definitions

For the purposes of 333 CMR 11.00, unless the context clearly requires otherwise, the following definitions shall apply:

Agricultural Area includes, but is not limited to, actively cultivated gardens, greenhouses, orchards, fields, pastures, and other areas under cultivation or agricultural management.

Applicant, any person representing any federal, state or local government or agency, utility, railroad or pipeline, that intends to maintain a right-of-way in the Commonwealth by application of herbicides.

Associated Surface Water Body, as identified on the most current available maps prepared by the Department of Environmental Protection, any body of water that is hydrologically connected to a Class A surface water source.

Ballast, the coarse gravel or crushed rock on which the ties, tracks and switching, signaling and communication devices of a railroad are laid.

Broadcast, any non-selective herbicide application technique which results in application to all vegetation within a target area.

Certified Vernal Pool, a confined basin depression, certified and mapped by NHESP pursuant to the provisions of 310 CMR 10.57(2)(a)5. and 6., which, at least in most years, holds water for a minimum of two continuous months during the spring and/or summer, and which is free of adult fish populations.

11.02: continued

Certified Vernal Pool Habitat, that vernal pool habitat which has been certified and mapped by NHESP pursuant to the provisions of 310 CMR 10.57(2)(a)5. and 6. or, in the event that such habitat has not been mapped, the area extending 100 feet horizontally outward from the boundary of any Certified Vernal Pool.

Class A Waters, waters which are designated as a source of public water supply, as defined in 314 CMR 4.05(3)(a).

Class B Drinking Water Intakes, intakes to Class B waters suitable as sources of public water supply with appropriate treatment, as defined at 314 CMR 4.05(3)(b) and as identified on the most current available maps prepared by the Department of Environmental Protection.

Department, the Department of Agricultural Resources.

FIFRA, the Federal Insecticide, Fungicide and Rodenticide Act, Public Law 92-516.

Foliar Treatment, any technique which applies herbicide to leaves of target vegetation.

Inhabited Area, any area where people generally live, work or gather, including, but not limited to, any residence, school, hospital, park or recreational facility.

Interim Wellhead Protection Area (IWPA), for public water systems using wells or well fields that lack a Department of Environmental Protection-approved Zone II, an interim wellhead protection area, as that term is defined in the Massachusetts drinking water regulations, 310 CMR 22.02, and as identified on the most current available maps prepared by the Department of Environmental Protection, shall apply. Generally, this is a ½- mile radius for sources whose approved pumping rate is 100,000 gallons per day or greater. For smaller sources, the radius in feet is determined by multiplying the approved pumping rate in gallons per minute by 32 and adding 400.

Limited Application Waiver, a waiver from the requirements of 333 CMR 11.05 and 11.06, granted at the Department's sole discretion pursuant to 333 CMR 11.03(14), when the reason for the application is emergency public health or safety or when the application is for one time only.

Limited Spray Area, any area that is both within a Right-of-Way and within:

(a) any Zone II or IWPA;
(b) a distance of between 100 feet and 400 feet of any Class A Surface Water Source;
(c) a distance of between ten and 200 feet of any tributary or associated surface water body where the tributary or associated surface water body runs outside the Zone A for the Class A surface water source;
(d) a lateral distance of between 100 and 200 feet for 400 feet upstream, on both sides of the river, of a Class B Drinking Water Intake;
(e) a distance of between 50 and 100 feet of any identified Private Well;
(f) a distance of between 10 and 100 feet of any Wetlands or Water Over Wetlands;
(g) a distance of between ten feet from the mean annual high water line of any river and the outer boundary of the Riverfront Area;
(h) a distance of between ten feet from any Certified Vernal Pool and the outer boundary of any Certified Vernal Pool Habitat; and
(i) a distance of 100 feet of any Agricultural or Inhabited Area.

Low Pressure, pressure under 60 pounds per square inch (psi).

Maps, United States Geological Survey maps of scale 1:25,000 or other maps, as determined by the Department, which are of such accuracy and scale to provide sufficient detail so that sensitive areas can be delineated.

NHESP, the Natural Heritage and Endangered Species Program within the Massachusetts Division of Fisheries and Wildlife.

11.02: continued

No-spray Area, any area that is both within a Right-of-Way and within:
(a) any Zone I;
(b) 100 feet of any Class A Surface Water Source;
(c) 100 feet of any tributary or associated surface water body where the tributary or associated surface water body runs within 400 feet of a Class A surface water source;
(d) ten feet of any tributary or associated surface water body where the tributary or associated surface water body is at a distance greater than 400 feet from a Class A surface water source;
(e) a lateral distance of 100 feet for 400 feet upstream, on both sides of the river, of a Class B Drinking Water Intake;
(f) 50 feet of any identified Private Well;
(g) ten feet of any Wetlands or Water Over Wetlands;
(h) ten feet of the mean annual high-water line of any river; and
(i) ten feet of any Certified Vernal Pool.

Person, an individual, association, partnership, corporation, company, business organization, trust, estate, the Commonwealth or its political subdivisions, administrative agencies, public or quasi-public corporation or body, or any other legal entity or its legal representatives, agent or assignee, or a group of persons.

Person Aggrieved, any person who, because of an act or failure to act by the Department may suffer an injury in fact which is different either in kind or magnitude from that suffered by the general public and which is within the scope of the interests identified in 333 CMR 11.00. Such person must specify in writing sufficient facts to allow the Department to determine whether or not the person is in fact aggrieved.

Private Well, any private drinking water supply identified by the local Board of Health, the well owner or the Department of Agricultural Resources.

Private Well Registry, a registry of private wells located within 100 feet of a right-of-way which is maintained by the Department of Agricultural Resources. Homeowners must notify the Department by completing a registration form which is available directly from the Department or online at the Department website.

Public Water Supplier, as defined at 310 CMR 22.02(1), any person who owns or operates a public water supply system.

Public Ground Water Source, a source of water for a Public Water Supply System, as that term is defined in the Massachusetts drinking water regulations at 310 CMR 22.02.

Right(s)-of-way (ROW), any roadway, or thoroughfare on which public passage is made and any corridor of land over which facilities such as railroads, powerlines, pipelines, conduits, channels or communication lines or bicycle paths are located.

Rights-of-way Advisory Panel, a panel established to advise the Department on issues relating to 333 CMR 11.00 and to fulfill specific functions as detailed within 333 CMR 11.05 and 11.11.

River, a river as defined at 310 CMR 10.04 and as identified on the most current available maps prepared by the Department of Environmental Protection.

Riverfront Area, a riverfront area as defined at 310 CMR 10.58(2) and as identified on the most current available maps prepared by the Department of Environmental Protection. In general, this term shall mean the area between the mean annual high-water line of a perennially flowing river and a parallel line 200 feet away.

Selective Application, any application of herbicides, in such a manner that the delivery to the target vegetation is optimized and delivery to non-target vegetation and the environment is minimized.

11.02: continued

Sensitive Areas, as defined in 333 CMR 11.04, 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.

State-listed Species, any species on the Massachusetts list of Endangered, Threatened, and Special Concern Species as described in the Massachusetts Endangered Species Act (M.G.L c. 131A; 321 CMR 10.02).

State-listed Species Habitat, the Estimated Habitats of Rare Wildlife (310 CMR 10.59 and 10.37) and the Priority Habitats for State-listed Species (321 CMR 10.02) as shown on the most recent edition of the Massachusetts Natural Heritage Atlas prepared by NHESP.

Stem Treatment, any technique including, but not limited to, stump, basal, stem, injection, banding, frill, or girdle and any other technique which delivers herbicide at low pressure to the stump, base or stem of the target vegetation.

Surface Water Source, any lake, pond, reservoir, river, stream or impoundment designated as a public water supply in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00, as identified on the most current available maps prepared by the Department of Environmental Protection.

Target Vegetation, any plant species which has the potential to interfere with the operation and safety of the right-of-way.

Touch-up Application, any limited application of herbicides following an initial treatment, which is necessary to achieve the desired vegetation control.

Tributary, as identified on the most current available maps prepared by the Department of Environmental Protection, any body of running, or intermittently running, water which moves in a definite channel, naturally or artificially created, in the ground due to a hydraulic gradient, and which ultimately flows into a Class A surface water source, as defined in 314 CMR 4.05(3)(a).

Vegetation Management Plan (VMP), a long term management plan for the applicant's right-of-way system which describes the intended program for vegetation control over a five year period.

Vernal Pool, *see* Certified Vernal Pool.

Water Over Wetlands, the ocean or any estuary, lake or pond as defined at 310 CMR 10.04.

Wetlands, any of the following areas as defined in 310 CMR 10.02(1)(a), (b), (c) and (f):

(a) Any bank,
any freshwater wetland,
any coastal wetland,
any beach,
any dune,
any flat
any marsh,
or any swamp;

bordering on

the ocean
any estuary
any creek
any river
any stream
any pond
or any lake

(b) Land under any of the water bodies listed in 333 CMR 11.02: Wetlands(a); and
(c) Land subject to tidal action.

11.02: continued

Wetlands Determination, a written determination of the boundaries of Wetlands and boundaries of areas within 100 feet of Wetlands in accordance with the regulations of the Department of Environmental Protection (DEP) at 310 CMR 10.05(3)(a)1. and 2. 310 CMR 10.03(6)(b) requires applicants not eligible for a public utility exemption to submit these determinations with their VMPs if they will apply herbicides within 100 feet of wetlands and will not submit a Notice of Intent under M.G.L. c. 131, § 40, the Wetlands Protection Act. In order to obtain a Wetlands Determination, the applicant should submit a request to the conservation commission on maps of a scale that will enable the conservation commission or Department of Environmental Protection to find and delineate the boundaries of Wetlands and buffer zones within the vicinity of the right-of-way herbicide management area. To be considered "valid", the Wetlands Determination should be made no sooner than six months immediately prior to the submission of the Vegetation Management Plan. The Wetlands Determination shall cover the period of the Vegetation Management Plan only and shall expire at the end of the five year period of that Vegetation Management Plan.

Yearly Operational Plan (YOP), the yearly operational plan which describes the detailed vegetation management operation for the calendar year consistent with the terms of the long term Vegetation Management Plan.

Zone A, as identified on the most current available maps prepared by the Department of Environmental Protection, the protective land area for a Surface Water Source, Class A water source, Tributary, or Associated Surface Water Body defined in 310 CMR 22.02 as:

(a) the land area between the Class A surface water source and the upper boundary of the bank;

(b) the land area within a 400 foot lateral distance from the upper boundary of the bank of a Class A surface water source, as defined in 314 CMR 4.05(3)(a); and

(c) the land area within a 200 foot lateral distance from the upper boundary of the bank of a Tributary or Associated Surface Water Body.

Zone I, as identified on the most current available maps prepared by the Department of Environmental Protection and as defined at 310 CMR 22.02, the protective radius required around a public water supply well or wellfield. For public water system wells with approved yields of 100,000 gallons per day (gpd) or greater, the protective radius is 400 feet. Tubular wellfields require a 250 foot protective radius. Protective radii for all other public water system wells are determined by the following equation: Zone I radius in feet = (150 x log of pumping rate in gpd) –350.

Zone II, as identified on the most current available maps prepared by the Department of Environmental Protection and as defined at 310 CMR 22.02, the aquifer recharge area for a public water supply well or wellfield.

11.03: General Provisions

(1) No person shall use an herbicide for the purpose of clearing or maintaining a right-of-way unless appropriately certified by the Department, or licensed by the Department and working under the on-site supervision of an appropriately certified applicator.

(2) No person shall use an herbicide for the purpose of clearing or maintaining a right-of-way except in accordance with a Vegetation Management Plan (VMP) and a Yearly Operational Plan (YOP) as approved by the Department. The YOP shall be available at the work site at all times during herbicide applications and be made available to the Department and municipal officials including the Conservation Commission and Board of Health upon reasonable request.

(3) No person shall handle, mix or load an herbicide concentrate on a right-of- way within 100 feet of a sensitive area.

(4) The perimeter of any sensitive areas which are not readily identifiable on the ROW shall be identified with a clearly visible marker system, consistent with the VMP, prior to any herbicide application.

11.03: continued

(5) No foliar application of herbicides shall be used to control vegetation greater than 12 feet in height except for side trimming.

(6) No herbicide shall be applied when the wind velocity is such that there is a high propensity to drift off target and/or during measurable precipitation, and no person shall apply herbicides in such a manner that results in drift into any No-spray Area.

(7) No person shall apply herbicides by aircraft for the purpose of clearing or maintaining a right-of-way.

(8) No touch-up applications shall be carried out except under the following conditions:
(a) Touch-up applications must occur within 12 months of the initial application.
(b) All applicable public notification procedures of M.G.L. c. 132B, § 6B, as outlined in 333 CMR 11.07(1) and (3), are followed.
(c) No more than 10% of the initially identified target vegetation on the applicant's right-of-way in any municipality may be treated and the total amount of herbicide applied in any one year shall not exceed the limits specified by the label or Yearly Operational Plan.
(d) The Department may impose such additional restrictions or conditions on the use of herbicides as it deems necessary to protect public health and the environment.

(9) The Department will maintain mailing lists of individuals and groups desiring to obtain notices on various aspects of the Program.

(10) No person shall apply any herbicide identified as a Potential Ground Water Contaminant pursuant to 333 CMR 12.00 to a right-of-way.

(11) No person shall use an herbicide for the purpose of clearing or maintaining a right-of-way unless that person has obtained the most current available map of public ground water sources from the Department of Environmental Protection.

(12) No person shall use an herbicide for the purpose of clearing or maintaining a right-of-way unless that person has done one or more of the following:
(a) obtained a current list of identified Private Wells within 100 feet of the right-of-way from the Board of Health, or
(b) obtained a current list of all private wells, within 100 feet of the right of way from the Department of Agricultural Resources private well registry; or
(c) followed an alternative Private Well identification method outlined in an approved YOP.

(13) The applicator shall provide any employee of any state agency, or authority as defined in M.G.L. c. 3, § 39, when such employee is, within a right-of-way, using pesticides, supervising the use of pesticides, or present during the use of pesticides, with personal protective equipment and clothing. Applicators should note that other federal or state laws or regulations pertaining to pesticide applications may require this personal protective equipment to include protections according to Material Safety Data Sheets (MSDS's), the product label, and any other supporting technical data supplied by the manufacturer.

(14) Notwithstanding the provisions of 333 CMR 11.03(2) or other provisions of 333 CMR 11.00, the Department may, at its sole discretion, issue Limited Application Waivers to applicants wishing to apply herbicides to clear or maintain rights-of-way without VMPs or YOPs, but only under the following conditions:
(a) The applicant must demonstrate either:
1. that the application will not occur more than once in a five-year period unless a VMP and a YOP are prepared and all other requirements of 333 CMR 11.00 are met; or
2. that the application is necessary to protect public health or safety.
(b) The applicant must still adhere to all public notification requirements established at 333 CMR 11.07(1) and (3).
(c) The applicant must provide the Department with a letter establishing the concurrence of the chief elected official or board of selectmen of the municipality where the application is to be made.

11.03: continued

(d) The applicant may only use herbicides on the Department's "Herbicides Recommended for Use in Sensitive Areas List."
(e) If the application could impact Wetlands, the Department recommends that the applicant send a copy of its application for a Limited Application Waiver to the Department of Environmental Protection's Division of Wetlands and Waterways no less than 21 days before the proposed application.
(f) It should be noted that, with certain exceptions for public utilities, wetlands regulations at 310 CMR 10.03(6)(b) currently require Wetlands Determinations prior to any application within 100 feet of a Wetland.

Limited Application Waivers shall be issued solely at the Department's discretion, and the Department may impose such additional restrictions or conditions on the use of herbicides as it deems necessary to protect public health and the environment.

11.04: Sensitive Area Restrictions

(1) General. In any sensitive area:
(a) No more than the minimum labeled rate of herbicide for the appropriate site, pest, and application method shall be applied.
(b) Herbicides shall only be applied selectively by low pressure, using foliar techniques or basal or cut-stump applications, or other method approved for use by the Department.
(c) No person shall apply herbicides for the purpose of clearing or maintaining a right-of-way in such a manner that results in drift to any area within ten feet of standing or flowing water in a wetland; or area within 400 feet of a public drinking water supply well; or area within 100 feet of any Class A surface water used as a public water supply; or area within 50 feet of a Private Well.
(d) Only herbicides specified by the Department as acceptable for use in sensitive areas pursuant to the Cooperative Agreement executed between the Department of Agricultural Resources and the Department of Environmental Protection on July 1 and 2, 1987, or future amendments thereto, shall be used in sensitive areas. Applicants proposing to use an herbicide which has been registered for use on rights-of-way but has not yet been evaluated pursuant to the provisions of the Cooperative Agreement may request that such herbicides be evaluated pursuant to said provisions. For an herbicide that has been evaluated pursuant to the provisions of the Cooperative Agreement, applicants proposing to use such herbicide in a manner inconsistent with the terms and conditions of use imposed in the guidelines may request a modification or waiver of such terms or conditions. A request for such modification or waiver shall provide a detailed rationale for use, with all relevant data including but not limited to environmental fate, efficacy and human health effects of the proposed herbicide. Such herbicides and/or uses shall be subject to the evaluation standards adopted by the Departments of Agricultural Resources and Environmental Protection in the Cooperative Agreement.
Commentary. Applicants not eligible for the public utilities exemption from the Wetlands Protection Act outlined at 310 CMR 10.03(6)(a), who wish to apply pesticides registered for use in Massachusetts to rights-of-way, may choose to apply herbicides determined to be suitable for use in sensitive areas in accordance with the provisions of the Cooperative Agreement mentioned above or, alternatively, such applicants may proceed pursuant to the provisions of 310 CMR 10.00 as authorized by M.G.L. c. 131, § 40.
(e) The Department may impose such additional restrictions or conditions on the use of herbicides within or adjacent to sensitive areas as it determines necessary to protect human health or the environment. Such changes may be proposed by a municipal agency or individual during the public comment period.
(f) In the event of a question or dispute as to which setback applies to a sensitive area, the most restrictive setback shall apply.

(2) Water Supplies.
(a) Public Ground Water Sources.
1. No herbicides shall be applied within a Zone I.
2. No herbicides shall be applied within a Zone II or IWPA unless:

11.04: continued

a. A minimum of 24 months has elapsed since the last application to the site; and
b. Herbicides are applied selectively by low pressure, using foliar techniques or basal or cut-stump applications.

(b) Class A Public Surface Water Sources, Associated Surface Water Bodies, Tributaries and Class B Drinking Water Intakes.

1. No herbicides shall be applied within 100 feet of any Class A public surface water source.

2. No herbicides shall be applied within 100 feet of any tributary or associated surface water body located within the Zone A of a Class A public surface water source, or within ten feet of any tributary or associated surface water body located outside of the Zone A of the Class A public surface water source.

3. No herbicides shall be applied within a lateral distance of 100 feet for 400 feet upstream of any Class B Drinking Water Intake.

4. No herbicides shall be applied within a distance of between 100 feet from any Class A surface water source and the outer boundary of any Zone A, or within a distance of between ten feet and the outer boundary of the Zone A for any tributary or associated surface water body located outside of the Zone A of a Class A surface water source, or within a lateral distance of between 100 and 200 feet for 400 feet upstream of a Class B Drinking Water Intake, unless:

a. A minimum of 24 months has elapsed since the last application to the site; and
b. Herbicides are applied selectively by low pressure, using foliar techniques or basal or cut-stump applications.

(c) Private Wells.

1. No herbicides shall be applied within 50 feet of an identified Private Well.

2. No herbicides shall be applied within a distance of between 50 feet and 100 feet of an identified Private Well, unless:

a. A minimum of 24 months has elapsed since the last application to the site; and
b. Herbicides are applied selectively by low pressure, using foliar techniques or basal or cut-stump applications.

(3) State-listed Species Habitat.

(a) Any person proposing to apply an herbicide within any State-listed Species Habitat who does not have a current Yearly Operational Plan approved in writing by the Division of Fisheries and Wildlife pursuant to 321 CMR 10.14(12), shall submit all necessary materials required for review pursuant to 321 CMR 10.18.

(b) The management of vegetation within existing utility rights-of-way shall be exempt from the requirements of 321 CMR 10.18 through 10.23, provided that the management is carried out in accordance with a Yearly Operational Plan approved in writing by the Division of Fisheries and Wildlife, pursuant to 321 CMR 10.14(12).

(c) No person shall apply an herbicide within State-listed Species Habitat unless the application is approved by the Division of Fisheries and Wildlife pursuant to 333 CMR 11.04(3)(a) and (3)(b), and such approval is submitted to the Department.

(4) Wetlands, Waters Over Wetlands, Riverfront Areas, and Certified Vernal Pools.

(a) No herbicide shall be applied on or within ten feet of a Wetland or Water Over a Wetland, within ten feet of the mean annual high-water line of any River, or within ten feet of any Certified Vernal Pool.

(b) No herbicide shall be applied on or within a distance of between ten feet and 100 feet of any Wetland or Water Over a Wetland, within a distance of ten feet from the mean annual high-water line of any River and the outer boundary of any Riverfront Area, or within a distance of ten feet from any Certified Vernal Pool and the outer boundary of any Certified Vernal Pool Habitat unless:

1. A minimum of 12 months has elapsed since the last application to the site; and

2. Herbicides are applied selectively by low pressure, using foliar techniques or basal or cut-stump applications.

(c) Notwithstanding 333 CMR 11.04(4)(a) and (b), public utilities providing electric, gas, water, telephone, telegraph and other telecommunication services (and other applicants, if consistent with all relevant provisions of the Massachusetts Wetlands Protection Act and its regulations in effect at the time of application) may apply herbicides on or within ten feet of a Wetland in accordance with the following conditions:

11.04: continued

1. Submission of a study, the design of which is subject to prior approval by the Departments of Agricultural Resources and Environmental Protection, evaluating impacts of the proposed vegetation management program utilizing herbicides on or within ten feet of Wetlands, and comparing those impacts to those which would result if only non-chemical control methods were used in these areas. The study must detail vegetation management practices and use patterns specific to those used by the type of entity submitting the study; and

2. A finding by the Department, after consultation with the Rights-of-way Advisory Panel, that the proposed vegetation management program utilizing herbicides on or within ten feet of Wetlands will result in less impacts to the Wetlands than mechanical control.

3. Notwithstanding the above, no herbicides shall be applied on or within ten feet of any standing or flowing water in a Wetland.

(5) Inhabited and Agricultural Areas. No foliar herbicide shall be applied within 100 feet of any Inhabited Area or any Agricultural Area unless:

(a) A minimum of 12 months has elapsed since the last application to the site; and

(b) Herbicides are applied selectively by low pressure, using foliar techniques or basal or cut-stump applications.

11.05: Vegetation Management Plan (VMP)

(1) General.

(a) Unless otherwise specified by the Department, all VMPs should be submitted by the applicant no later than September 1st prior to the calendar year of the proposed first year of maintenance. All approved VMPs shall be effective for a five year period unless otherwise modified, or revoked by the Department.

(b) The VMP shall be presented on forms and/or format approved by the Department.

(2) Requirements. The VMP shall include, but not be limited to, the following:

(a) General statement of goals and objectives of the VMP.

(b) Identification of target vegetation.

(c) Intended methods of vegetation management and rationale for use, including vegetation control techniques, equipment proposed for use, timing of applications and alternative control procedures.

(d) Discussion of justification for proposed herbicide applications, including a description of the alternative control methods considered and the reasons that they were rejected.

(e) Methods, references and sources for identifying sensitive areas and control strategies proposed for sensitive areas. Applicants should note that the Department of Environmental Protection regulations at 310 CMR 10.03(6)(b) require Wetlands Determinations for applicants that are not eligible for a public utility exemption.

(f) Operational guidelines for applicators relative to herbicide use.

(g) Identification and qualifications of individuals developing and submitting a plan.

(h) A detailed description of the IPM Program, showing how it will minimize the amount and frequency of herbicide application.

(i) Description of alternative land use provisions or agreements that may be established with individuals, state, federal or municipal agencies that would minimize the need for herbicides, including the rationale for accepting or denying any reasonable request made by any individual.

(j) Description of a remedial plan to address spills and related accidents.

(k) For state agencies and authorities as defined in M.G.L. c. 3, § 39, a description of the applicant's policy to eliminate or, if necessary, reduce the use of pesticides for any vegetation management purpose along roadways, and a demonstration that, for the proposed application, the costs of non-chemical vegetation control significantly outweigh the benefits.

(3) Public Notice, Review and Comment.

(a) Upon receipt of the proposed VMP, the Department shall schedule and hold appropriate regional public hearings affording all interested parties the opportunity to comment, both at the hearings and in writing to the Department, on the proposed plan.

11.05: continued

(b) At least 21 days prior to the public hearings, the Department shall publish notice of the hearings in the Environmental Monitor and regionally located newspapers, and send notice to municipalities covered by the plan and to the appropriate mailing list. The notice will include locations where copies of the VMP can be reviewed.
(c) The public shall have no less than 45 days, starting from publication of the *Environmental Monitor* notice, to comment upon proposed VMPs, unless the Department extends the comment period for good cause.
(d) Wherever a chief elected official, Board of Health or Conservation Commission in a municipality covered by the proposed VMP requests a copy of the proposed plan, the applicant shall, at least 21 days prior to the end of the public comment period, respond to this request. The response must either include a copy of the proposed VMP, or an Internet address where the VMP may be viewed and a note that a hard copy will be provided promptly upon further request.

(4) Disposition of VMP.
(a) 25 copies of the proposed VMP shall be submitted to the Department. The Department shall distribute copies of the proposed VMP to each member of the Rights-of-way Advisory Panel. The Department may, at its sole discretion, allow electronic presentation of the VMP in *lieu* of some or all of the 25 copies that would otherwise be submitted pursuant to 333 CMR 11.05(4).
(b) Within 30 days of the end of the public comment period unless extended for good cause, the Rights-of-way Advisory Panel shall review the VMPs and recommend in writing to the Department approval, denial or modification of each VMP; if necessary, the Advisory Panel may request additional information from the applicant.
(c) Within 21 days of the end of the Rights-of-way Advisory Panel review period, unless extended by the Department for good cause, the Department will notify the applicant and the Advisory Panel in writing one of the following:
1. request for additional information or modification;
2. denial of VMP; or
3. approval of VMP.

(d) The VMP may be modified, withdrawn or amended by the applicant through a written request sent by certified mail to the Department.
(e) Resubmission of a denied VMP, updating of a VMP, or a significant amendment to an approved VMP shall be processed according to 333 CMR 11.05.
(f) The applicant must send a copy of the approved VMP, or an Internet address where the VMP may be viewed and a note that a hard copy will be provided promptly upon further request, to the chief elected official, Board of Health, and Conservation Commission in each municipality covered by the plan.

(5) Time for Action. Non-action by the Department on a VMP within the time specified in 333 CMR 11.05 does not constitute approval of the submitted plan. In the event that the Department fails to notify the applicant of a decision within the time specified in 333 CMR 11.05(4)and upon written request from the applicant, the Commissioner must issue a finding within ten days of receipt stating the reason for the delay and providing an estimated completion date.

11.06: Yearly Operational Plan (YOP)

(1) General.
(a) The applicant is responsible for the accuracy and completeness of all information submitted with the YOP. The YOP shall be consistent with the objectives of the VMP and shall describe the intended operational program for that calendar year.
(b) The YOP shall be presented on forms and in a format approved by the Department.

(2) Requirements. The YOP shall include but not be limited to the following:
(a) Maps locating the rights-of-way and sensitive areas not readily identifiable in the field;
(b) Herbicides proposed including Environmental Protection Agency (EPA) Registration numbers, application rates, carriers and adjuvants;
(c) Herbicide application techniques and alternative control procedures proposed.
(d) The name, address and phone number of the company which will perform any herbicide treatment;

11.06: continued

(e) Identification of target vegetation;
(f) The name, address and phone number of the individual representing the YOP applicant;
(g) Description of methods used to flag or otherwise designate sensitive areas on the right-of-way;
(h) Herbicide Fact Sheets as approved by the Department; and
(i) Procedures and locations for handling, mixing and loading of herbicide concentrates.

(3) Public Notice, Review and Comment.
(a) Upon submittal of the YOP for approval, the Department will publish a notice in the *Environmental Monitor*. Said notice shall be provided by the applicant and shall include the information on the municipalities through which the rights-of-way pass, a brief description of the intended program, and the procedure for public review and comment. The Department shall send notification of the publication to the applicant and the appropriate mailing list.
(b) Upon submittal of the YOP to the Department, the applicant shall provide by certified mail under separate cover to the Board of Health, Conservation Commission, chief elected municipal official, and where applicable, the Massachusetts Water Resources Authority and Massachusetts Department of Conservation and Recreation, a copy of the proposed YOP (or an Internet address where the proposed YOP may be viewed and a note that a hard copy will be provided promptly upon request) and the *Environmental Monitor* notice for the municipality or municipalities in which the herbicide treatment is proposed. Community water suppliers shall receive electronic information or a one page notification by mail which provides details about where to receive more information. The applicant shall maintain copies of the packet sent to municipalities and certified mail receipts. The applicant shall make copies of the packet, certified mail receipts, and any further correspondence regarding hard copies of YOPs in *lieu* of Internet viewing, available to the Department upon request.
(c) The Department shall allow a 45-day comment period on proposed YOPs, unless extended for good cause, commencing with the publication of the notice in the *Environmental Monitor* and receipt of the proposed YOP and *Environmental Monitor* notice by each municipality.
(d) The Department may approve, deny or modify YOPs after the 45-day comment period has expired.

(4) Disposition of YOP.
(a) The applicant shall submit the YOP to the Department at least 90 days prior to the proposed commencement of application to allow completion of the comment and review period.
(b) The Department shall review the YOP to ensure that the YOP is consistent with the approved VMP. Any inconsistencies or deficiencies will be noted by the Department and returned with the YOP to the applicant.
(c) Where practical, the Department shall approve or deny the YOP within 90 days of receipt. The Department will provide notice of the decision to the applicant, municipal agencies and commentators in writing.
(d) The approved YOP in conjunction with the VMP shall govern the application of herbicide for a period not to exceed 12 months in accordance with other laws and regulations of the State and Federal governments and impose such conditions as necessary to minimize the risk of adverse effects on human health and the environment.

(5) Time for Action. Non-action by the Department on a YOP within the time specified in 333 CMR 11.06(4) does not constitute approval of the submitted plan. In the event that the Department fails to notify the applicant of a decision within the time specified and upon a written request from the applicant, the Commissioner must issue a finding within ten days of receipt stating the reason for the delay and providing an estimated completion date.

11.07: Public Notification

(1) At least 21 days in advance of application of herbicide to a right-of-way in any city or town, the applicant shall notify the Department, the board of health, and the local public water supplier and, by registered mail, the Mayor, City Manager or Chairman of the Board of Selectman, and the conservation commission in the municipality where the right-of-way lies. The notice shall include the following information: the approximate dates on which such herbicide application shall commence and conclude, provided however, that said application shall not commence more than ten days before nor conclude more than ten days after said approximate dates; the method and locations of application; a Department-approved Herbicide Fact Sheet on the active ingredient(s) of the herbicide(s) used; the EPA registration number(s) for the herbicide(s) used; the name, title, business address and phone number of the certified commercial applicator or licensed applicator, or the contractor, employer or employees responsible for carrying out the application. Where specific information required for this notice is already contained in the current YOP that is on file with the local official, the applicant may incorporate the appropriate pages of the YOP by reference in its notice to that official, indicating that these pages are also directly available from the applicant upon request.

(2) This public notice may run concurrently with the public notice and comment period in 333 CMR 11.06(3), provided that the notice is distributed at least 21 days prior to the herbicide application, and that, prior to the herbicide application, the public notice and comment period has closed and the Department has granted YOP approval without modifications. When the Department's final approval requires modifications or application dates are selected after YOP approval, separate notice under 333 CMR 11.07(1) is required.

(3) At least 48 hours prior to the application referred to in 333 CMR 11.07(1), the applicant must publish a conspicuous notice in at least one newspaper of general circulation in the city or town where the right-of-way lies. The notice must appear in the local section of the newspaper and measure at least four by five inches in size. The notice shall contain the following information: the method and locations of pesticide application; the approximate dates on which the pesticide application shall commence and conclude, provided that the applications shall not commence more than ten days before nor conclude ten days after said approximate dates; a list of potential pesticides to be used; a description of the purpose of the application; and the name, title, business address and phone number of a designated contact person representing the applicant from whom any citizen may request further information. The notice should apply only to the calendar year in which the notice is published. Upon request the notice must be made available to the Department.

11.08: Notice of Modification and Revocation

(1) The Department may suspend approval of any VMP or YOP, by written notice to the applicant and applicator, halting the application of herbicide to that right-of-way of the YOP. After 21 days if the applicant does not request a hearing, the Department may revoke or modify the VMP and YOP, if it finds:

(a) that the terms, conditions of restrictions thereof, are being violated or are inadequate to avoid unreasonable adverse effects on the environment or on human health; or

(b) that the applicant has made a false or misleading statement or has not provided information requested by the Department or Rights-of-way Advisory Panel; or

(c) that the applicant has violated any provision of the Massachusetts Pesticide Control Act or FIFRA, or any regulations, standards, orders or license issued under either.

(2) Upon notice of revocation or modification, the applicant may modify the YOP by written request to the Department. Applications to modify the YOP shall be submitted in the manner set forth in 333 CMR 11.06 and disposed of in the manner set forth in 333 CMR 11.06. The Department may waive all or part of the requirement if it determines that the proposed changes do not significantly change the terms of the approved YOP.

11.09: Right-of-appeal

Any person aggrieved by the decision of the Department to approve, deny, modify or revoke a VMP or YOP may request an adjudicatory hearing. The request for a hearing must be received by the Department within 21 calendar days after receipt of the decision. The request should state clearly and concisely the facts of the proceeding, the reasons the decision is alleged to be inconsistent with 333 CMR 11.00 and the relief sought by the adjudicatory hearing. The adjudicatory hearing before the Pesticide Board shall be conducted in accordance with the informal rules of adjudicatory proceeding as set forth in M.G.L. c. 30A.

11.10: Penalties

Any person who violates any provision of 333 CMR 11.00 shall be subject to the criminal and civil penalties set forth in M.G.L. c. 132B, § 14.

11.11: Rights-of-way Advisory Panel

(1) A Rights-of-way Advisory Panel shall be established to advise the Department on issues relating to 333 CMR 11.00 and to fulfill specific functions as detailed within 333 CMR 11.00.

(2) The Department shall request that the following members participate on the Rights-of-way Advisory Panel: the Commissioners/Secretaries or his/her designee of the Department of Environmental Protection, the Department of Public Health, and the Executive Office of Transportation; and a representative, respectively, from each of the following, all to be appointed by the Department Commissioner: the Massachusetts Association of Conservation Commissions, the Massachusetts Association of Health Boards, the Massachusetts Department of Conservation and Recreation, and an Environmental Advocacy Organization Representative, a member of the University of Massachusetts Extension who is well versed in weed science and Integrated Pest Management of weeds, a representative of the Massachusetts Railroad Association, a representative of a utility company and a commercial pesticide applicator.

(3) Non-agency representatives shall remain on the panel for a term of five years. Any member absent from two or more consecutive meetings may be removed from the Advisory Panel at the discretion of the Commissioner of the Department, and a replacement requested from the representative agency, industry group, or association.

(4) The Advisory Panel shall meet at least once each year, and shall hold further meetings upon the request of the Department of Agricultural Resources or at the request of any two members of the Advisory Panel.

(5) All Advisory Panel members shall serve without compensation.

REGULATORY AUTHORITY

333 CMR 11.00: M.G.L. c. 132B.

NON-TEXT PAGE

# APPENDIX "D"

**310 CMR 10.00**

**PREFACE TO WETLANDS REGULATIONS**

**RELATIVE TO RIGHTS-OF-WAY MANAGEMENT**

## PREFACE TO WETLANDS REGULATIONS RELATIVE TO RIGHTS OF WAY MANAGEMENT

### 1987 REGULATORY REVISION

In 1983, the Massachusetts Pesticide Control Act, M.G.L. c. 132B, was amended to require notification of conservation commissions prior to application of herbicides on rights of way. Many commissions became aware for the first time that application of herbicides on rights of way may result in alteration of wetlands and, with the exception of exempt utilities, may require action under the M.G.L. c. 131, § 40. On July 18, 1986, the Department issued a final decision after adjudicatory hearing in DEP Hearing Docket Nos. 83-28 and 83-35 (Clinton and Leverett) finding that the application of specific herbicides by the railroads to track and ballast within 100 feet of wetland areas would alter those wetlands and was therefore subject to jurisdiction under M.G.L. c. 131, § 40, requiring the filing of Notices of Intent with the local conservation commissions.

The Department of Food and Agriculture (DFA) initiated a Generic Environmental Impact Report (GEIR) evaluating alternatives for rights of way management. A technical advisory task force of environmentalists, agencies and rights of way managers assisted in the GEIR preparation and, based on results of the study, recommended to the Secretary of Environmental Affairs a framework for a coherent state-wide rights of way regulatory program. DFA published draft regulations to implement this program in 1986 and received extensive public commentary. Final regulations, 333 CMR 11.00, became effective on July 10, 1987.

The DFA regulations require persons proposing to apply herbicides to rights of way to first receive approval of a five year Vegetation Management Plan (VMP) and Yearly Operating Plan (YOP). These regulations identify certain "sensitive areas", including wetlands and public and private surface and groundwater supplies, where the application of herbicides is, in most instances, prohibited, and areas adjacent to the sensitive areas where use of herbicides is curtailed.

DEP worked closely with DFA to include provisions which give maximum protection for water supplies and provide protection for wetlands at least equal to that provided under the M.G.L. c. 131, § 40 and 310 CMR 10.00. To eliminate duplicate review under M.G.L. c. 131, § 40, DEP has adopted changes to the wetlands regulations which allow herbicide applications on rights of way in accordance with the DFA regulations without filing a Notice of Intent under the M.G.L. c. 131, § 40. However, non-exempt applicants will still be required to file a Request for Determination of Applicability to the appropriate conservation commission to establish boundaries of wetlands on or near the right of way. Specifically, these regulations presume that work performed in accordance with a VMP and YOP, as may be required under DFA regulations, will not alter an area subject to protection under M.G.L. c. 131, § 40.

During the public comment period on its proposed regulations, the Department identified several issues of major concern. After consideration of all comments, the Department has determined that, except for minor points of clarification and the addition of an automatic expiration date, no further changes in the regulations are warranted at this time. A discussion of these issues follows.

A. Presumption vs. Limited Project. Several commentators suggested that conservation commissions should retain the authority to review each herbicide application on rights of way through the usual Notice of Intent process. These regulations create a presumption that herbicide application carried out in accordance with an approved VMP and YOP under the DFA regulations will not alter wetlands and that the filing of a Notice of Intent is therefore not required. This procedure was established pursuant to the recommendation of the GEIR task force which states:

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The regulations which provide for approval of Vegetation Management Plans by the Department of Food and Agriculture should be conditioned on review and approval by the Department of Environmental Protection (DEP) of those portions of the Plans that deal with wetlands. The DEP should be required to certify to the DFA that these portions of the Plans will result in compliance with the substantive and procedural provisions which protect the interests of the M.G.L. c. 131, § 40. If the regulations are so drawn, activities under a Plan approved by DEP would not constitute an alteration of wetlands as defined under 310 CMR 10.00.

Since the DFA regulations provide that DEP is a member of the VMP advisory panel which reviews and makes recommendations on the approval of VMPs, the GEIR task force recommendations have been fully implemented. Therefore, the Department has determined that it would be duplicative to require the filing of individual Notices of Intent in each municipality for each application of herbicides to rights of way.

B. Adequacy of Setback from Wetlands. The DFA rights of way regulations prohibit application of herbicides on or within ten feet of wetlands and strictly limit herbicide application from ten feet to 100 feet of wetlands. Many commentators questioned the adequacy of these setback requirements and suggested that a 50 or 100 foot no spray zone would be more appropriate. Several commentators suggested that the proposed setback requirements were inconsistent with the Department's adjudicatory hearing decision in the Clinton and Leverett cases.

The no spray zone surrounding wetlands is necessary for three reasons: to compensate for mapping errors, to compensate for applicator errors and to assure that herbicides will not migrate into wetlands after application on the adjacent uplands. During the public comment period, the Department received no evidence demonstrating that the ten-foot setback established in the DFA regulations will not be adequate. The DFA regulations establish a procedure for selecting a limited number of herbicides that may be applied in the limited spray zone (from 10 to 100 feet from wetlands) which is adjacent to the no spray zone. Herbicides that will be selected for use in these limited spray zones under the DFA regulations are those which available data demonstrate will not migrate further than ten feet.

The applicators have argued that they can maintain a level of accuracy in mapping of wetlands and in application of herbicides to assure that herbicides will not be inadvertently applied within ten feet of wetland areas. The Department is not convinced that these claims are unreasonable; however, in order to confirm their accuracy, the Department has included in the final regulations an automatic expiration date two years from the effective date, which is coterminous with the expiration date of the DFA regulations. During the two-year effective period of these regulations, the Department expects applicators to conduct studies monitoring herbicide application operations and to submit a report concerning impacts of herbicide application on wetlands under these new regulations detailing the accuracy of wetlands mapping, the accuracy of herbicide application, and the extent of herbicide migration. The results of this study will provide a basis for recommendations by the Department for amendments to the DFA regulations and a decision on reauthorization of these amendments to the Department's wetland regulations.

Finally, the Department does not find the setbacks requirements established in the DFA regulations to be inconsistent with its decision in the Clinton and Leverett cases. In that decision, the Department assumed a worst-case analysis in terms of an herbicide known to be highly mobile which was applied to the track and ballast areas adjacent to wetlands. The Department found, based on the particular facts of these cases and the particular herbicide proposed for application that there would be a migration of that herbicide into the wetlands from application within the 100-foot buffer zone that would be sufficiently concentrated to cause alterations of the wetlands plants. However, the DFA rights of way management regulations set up a procedure for identification of herbicides which are relatively immobile and which are preapproved for application on the buffer zone in order to avoid alteration of wetlands plants. Furthermore, guidelines for application of the selected herbicides will also be established. Finally, no herbicides may be applied within ten feet of

10.00: continued

wetland areas. In light of the strict controls placed on application of herbicides within the 100-foot buffer zone under the DFA regulations, the Department finds that adoptions of the proposed regulatory scheme is fully consistent with its previous adjudicatory hearing decision in the Clinton and Leverett cases.

C. Impacts of Herbicides Application on Wildlife Habitat. The Department is currently developing regulations under M.G.L. c. 131, § 40 to protect wildlife habitat. The effective date of these regulations is November 1, 1987. One commentator expressed concern regarding the impact of herbicide application on wildlife habitat in wetlands, and particularly on the habitat of rare, "state-listed" wildlife species. As discussed above, the Department has determined that the DFA regulations provide for protection of wetlands from alterations due to herbicide application. However, the 0FA regulations do not include floodplains in their definition of wetlands, although those regulations do prohibit herbicide application within 10 feet of any standing or flowing surface water. Beyond that, there is no specific protection of wildlife habitat, including rare species, in floodplain areas.

The Department is concerned that the DFA regulations do not specifically address protection of wildlife habitat in floodplains, in particular those rare, "state-listed" wildlife species. Therefore, as a member of the VMP advisory panel, the Department will review VMPs for potential effect on wildlife habitat and specifically will recommend disapproval of any VMP that will have an adverse effect in areas mapped by the Natural Heritage and Endangered Species Program as habitat of any rare, "state-listed" wildlife species. Furthermore, the Department expects applicators to incorporate into the previously discussed two-year monitoring study a section detailing the effects of herbicide application on wildlife habitat in floodplains and on the habitat of rare, "state-listed" wildlife species. The Department will use the results of this study as the basis for recommending any amendments to the DFA regulations and a decision on reauthorization of these amendments to the Department's wetlands regulations.

# APPENDIX "E"

**HERBICIDES APPROVED FOR USE ON SENSITIVE AREAS OF RAILROAD RIGHTS-OF-WAY, AS OF AUGUST 2010, SUBJECT TO REVISION.**

# RIGHTS-OF-WAY SENSITIVE AREA MATERIALS LIST



| **Active Ingredient**<br>*Use Restrictions* | **Product Names** (EPA #)<br>*Registrant* | |
|---|---|---|
| **Glyphosate**<br>*Lowest Labeled Rate for all Glyphosate products* | **Round Up Pro (524-475)**<br>*Monsanto* | **Accord SP (62719-322)**<br>**Glypro-Plus (62719-322)**<br>**Accord Concentrate (62719-324)**<br>*Dow AgroSciences* |
| | **Razor (228-366)**<br>**Razor-Pro (228-366)**<br>**Riverdale AquaNeat Aquatic Herbicide (228-365)**<br>*Nu Farm Americas* | |
| | While Accord Concentrate, Rodeo, Glyphosate VMF and Aquaneat all have aquatic uses, approval for their use as sensitive materials does NOT mean that they can be used for aquatic weed control, or directly applied to water, as part of a rights of way management program. Products are subject to the no-spray and limited spray provisions of 333 CMR 11.04. | |
| **Metsulfuron Methyl**<br>*Lowest Labeled Rate for all Metsulfuron Methyl Products** | **Escort (352-439)**<br>**Escort XP (352-439)**<br>*EI Dupont* | **Riverdale Patriot Herbicide, (228-391)**<br>*Nu Farm Americas* |
| **Sulfometuron Methyl**<br>*Lowest Labeled Rate for all Sulfometuron-Methyl Products** | **Oust XP (352-601)**<br>*EI Dupont* | **Riverdale Spyder Herbicide, (228-408)**<br>*Nu Farm Americas* |
| **Metsulfuron Methyl**<br>**Sulfometuron Methyl**<br>*Lowest Labeled Rate** | **Oust Extra (352-622)**<br>*EI Dupont* | |
| **Ammonium Salt of Fosamine**<br>*Lowest Labeled Rate** | **Krenite S (352-395)**<br>*EI Dupont* | |
| **Imazapyr**<br>*3 pints/acre every 3rd year OR*<br>*2 pints/acre every other year*<br>*for all Imazapyr Products* | **Arsenal (241-346)**<br>**Arsenal Powerline** (241-431)<br>**Arsenal Railroad Herbicide (241-273)**<br>*BASF* | **POLARIS HERBICIDE** (241-346-228)<br>**POLARIS RR HERBICIDE** (241-273-228)<br>*NU FARM AMERICAS* |
| **Triclopyr, Butoxy Ethyl Ester**<br>*The lowest of the following rates:*<br>*1. Between 10 feet and 50 feet of the resource: Lowest labeled rate* or 0.5 pints per acre*<br>*2. Between 50 feet and the boundary of the limited spray zone: Lowest labeled rate* or 3 pints per acre* | **Garlon 4 (62719-40)**<br>*Dow AgroSciences* | **Riverdale Tahoe 4E Herbicide, (228-385)**<br>*Nu Farm Americas* |

***This list is subject to revision and is represents those materials approved for use as of August 2010**

*** Lowest labeled rate:** the minimum labeled rate of the pesticide product for the appropriate site, pest and application method

**Disclaimer:** The Massachusetts Department of Agricultural Resources (MDAR) makes no endorsement of any companies, organizations, persons, products, trade or brand names referenced in this Rights of Way Sensitive Area Materials List ("the list"). Active Ingredients on the list are reviewed pursuant to a Cooperative Agreement between MDAR and the Massachusetts Department of Environmental Protection. Only environmental fate and toxicological data, including eco-toxicological data, are reviewed when evaluating an active ingredients suitability for inclusion on the list. Inclusion on the list does not represent any endorsement by MDAR as to the efficacy of the active ingredient for rights-of-way vegetation management.