

CENTRAL MAINE & QUEBEC RAILWAY VEGETATION MANAGEMENT PLAN

1. Introduction

The proceeding report is a VMP for the Central Maine & Quebec Railway within the state of Vermont. It describes a variety of operational practices which include physical, chemical, and natural methods, used to manage, control, and eradicate vegetation on railroads ROW's . This VMP outlines and interprets the long term program for managing vegetation on Rights-of-Way. The VMP addresses the major components of the overall procedures in vegetation management, including the rationale for the various techniques, the buffering and protection of sensitive areas, and an overview of the railroad ROW system.

To understand the complexities of the railroad ROW and the related problems which arise naturally in vegetation management and interfere with the operating railroad system. One will find detailed descriptions and illustrations of the specific areas 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 all owned by the various railroad corporations and are constructed as per 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, where as electric and pipeline companies usually obtain easements which convey only specific use rights to the easement holder. The railroad ROW's connects railroad facilities and can be divided into several distinct areas each of which have a different uses and activities and different requirements for vegetation management.

A 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 the railroad yards since the 1950's. These herbicides were often applied several times during the year. The rate for these pre-and post-emergent herbicides were listed as great as 100 lbs active ingredient (A.I.) Per acre. In the early 1970's, herbicides were applied to the adjacent areas to control brush and related vegetation at rates of 25-77 lbs. A.I. as per label instruction. During the past 5 years a mixture of the herbicide, Roundup, used commonly for brush control has been reduced from 6 quarts in 1983 to 4 quarts of concentrate in current use. By 1980, the average rate of herbicides applied to railroad ROW had decreased to below 10 lbs. A.I. per acre. Reports in the Generics Environmental Impact Report and 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 is now at 4.0 lbs. A.I. per acre or less for the most frequently applied herbicides.

We must understand that the 10-fold decrease in herbicide use between 1950 and 1980 was not driven by regulation or economics, but was the combined result of research and development, and concern over possible adverse impacts of chemicals on man and his environment. In the last eight years, the label rate of application for railroad ROW herbicides decreased another 3 fold. It should be noted that these products which the railroad industry has selected to apply on their ROW are several times more costly than other ROW herbicides. The evolution of this VMP is the direct result of an awareness of man and environment, highly trained professionals so that the general welfare and safety of railroad employees and the public at large are ensured, while at the same time, no unreasonably adverse effects are caused to man or the environment.

2. GENERAL STATEMENT OF GOALS AND OBJECTIVES

The purpose of this VMP is to establish the operations, processes, procedures, and professional guidelines involved in the railroad's overall vegetation management program to control, eradicate, or manage vegetation which

interferes with the ROW by causing a reduction in safety to passengers, property or personnel. This plan will document the how's and why's of vegetation management while ensuring no unreasonable adverse effects/risks to the general public and the environment by implementing an IPM approach into all phases. This VMP provides the necessary information, details, responsibilities, references, professional resources, and basic operational procedures to inform interested citizens, railroad employees, and contractors regarding the railroads' vegetation management program. Minimizing the risk of unreasonable adverse effects on human health, environment, and sensitive areas while guaranteeing the safety of all people making public passage or performing work on the ROW are the foundation of the railroads' goals and objectives associated with vegetation management.

To ensure safety, physical and visual access to each component of the railroad ROW is required. Only through direct visual inspection of all the components, such as the ballast, ties, spikes, plates, switches, rails, signs, gates, etc., which are located on the various sections of ROW, can the proper maintenance, repair, replacement, and safety of the system be accomplished. The Federal government has recognized the importance of safety and have a variety of laws and regulations governing the conditions of railroad ROW's.

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

- (a) Become a fire-hazard to track carrying structures
- (b) Obstruct visibility of railroad signs and signals
- (c) Interfere with railroad employees performing normal trackside duties
- (d) Prevent proper functioning of signal and communication lines
- (e) Prevent railroad employees from visually inspecting moving equipment from their normal duty stations

Federal law also requires vegetation to be controlled so it does not obstruct visibility of railroad signs and signals. 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 also indicate when whistles must be sounded as the train approaches a road crossing. Signs also 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.

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.

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 vegetation control management.

In general, vegetation control by railroads is essential to enable railroad employees to perform normal trackside duties. Vegetation holds moisture and can cause employees to slip or fall while moving rail equipment. Leaves and branches from ROW brush may strike employees leaning out of windows to visually inspect trains or while riding on the sides or rail cars during switching operations. Leaves and twigs may also enter and block engine intake vents. Vegetation can hide litter, rocks, and animals. Finally, it prevents the workers from seeing damaged, broken, or improperly adjusted track. All of these can cause dangerous, even life threatening accidents.

Railroad ROW vegetation is managed in order to:

- Maintain drainage of the track structure
- Maintain visibility for crossings, signals, signs, etc.
- Maintain the safety and health of railroad employees and residents of the of Vermont
- Improve working conditions

- Conform with Federal and State Laws
- Reduce the source of weed seeds to adjacent fields
- Prevent overgrowth of weeds in urban and suburban areas
- Improve the appearance of the railroad

The roadbed is the area supporting the track. Track carrying structures, such as bridges, support the weight of the train as it passes. Vegetation on or near wooden components can quickly weaken them beyond the point at which they are capable of supporting normal train traffic, thus causing accidents and derailments. Ties and other wood structures are usually treated with flammable wood preservatives. Even light fires can burn away wood preservatives and allow decay to penetrate and shorten the normal useful life of the wood.

The entire railroad roadbed and adjacent area are designed to carry water away from the tracks. The ballast is the area between and under the ties. It is constructed of large clean, crushed stone, compacted around the ties to support the track. Pore space within the ballast section allows water to drain away from the ties and into drainage ditches which carry water completely away from the track area. Dirt falling from passing trains, washed or blown in, or carried by animals can provide adequate seedbed areas for some plants. Plant seeds carried to the tracks area by the same mechanisms as the dirt can sprout and begin to develop. As the sprouts develop they produce fibrous root systems which expand through the ballast and begin to 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 allows the original plant to develop at a faster rate, provides a better seedbed for new plants, reduces drainage away from the roadbed area, and holds moisture near the ties. Reduced drainage and increased moisture around the ties and other wooden structures encourages decay and reduces the useful life of these structures.

Another 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 moving 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 trains

total 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.

3. INTREGRATED PEST MANAGEMENT/VEGETATION MANAGEMENT

Integrated Pest Management as performed by the railroads involves careful planning, organizing, coordinating 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 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. 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 long-term goal for every VMP, railroad or other, is to reduce the need for 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 which hinder the development of target vegetation. This integrated vegetation management program which utilizes physical, chemical and natural methods to control vegetation, will address public, environmental, and economic concerns by minimizing the applications of and reliance on herbicides. Due to the unique structure of the railroad ROW, different environmental areas on and along the ROW system will be managed selectively based on the site and the target species. Within a framework of IPM, a team of professionals will design and implement a program of vegetation management that selects those methods which minimize risk for the general public and the environment. The railroad industry will constantly monitor and evaluate the success of their program and integrate appropriate new methods in their VMP. Procedures to monitor and

evaluate the IPM program are described in detail.

Federal laws require the maintenance of vegetation location on the roadbed and certain other areas. This target vegetation will be totally eliminated from the following areas:

- Ballast section
- Ballast shoulder
- Yards
- Switches, signals, and signs
- Highway grade crossings
- Bridges, bridge abutments, and buildings
- Off-track areas
- Inside of curves

Since no other environmentally and economically feasible technique, method, or approach is available at this time, herbicides will be applied in an integrated approach. As per operational protocol, the specific vegetation, site, and time of year will be factors in the determination of herbicide type, the rate of application, the adjuvants, the application equipment, and application period. 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.

In areas, such as those adjacent to the ROW roadbed, where total vegetation control is not required, various selective vegetation control techniques are recommended. 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. Throughout the VMP, the term brush shall denote target species which interfere with the ROW system and must be controlled. Shrub shall denote a desirable species (non-target) which can be tolerated on the adjacent area and will be selectively managed. The selective elimination of woody and brush species is site, species, and density dependent. The selection and technique will also take

into consideration the preservation and enhancing of non-target desirable species. No 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 and the overhead communication lines. In these cases, the tree will not be eliminated if a selective trimming of those encroaching limbs can be made from an aerial lift mounted on hy-rail equipment, or on a truck. Selective trimming will be applied on a site by site basis according to the operational protocol. 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.

No vegetation control would be scheduled for any part of ROW which would be under construction and for the period of time immediately prior and after completion of the project. If selective trimming of trees on the ROW or the adjacent property was necessary, the personnel responsible for the implementation and overseeing of the VMP would be consulted and/or arrange the selective trimming or cutting.

In summation, the VMP of the railroad industry 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. Prior to spraying the ROW will receive a Vegetation Site Inspection. This report, monitoring the vegetation on the ROW roadbed and adjacent areas, will be assessed by trained professionals. All operational and divisional 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, and assessment will be performed to determine the most selective vegetation management approach.

4. MANAGEMENT REQUIREMENTS OF RAILROAD RIGHT-OF-WAY

Concern for public and employee welfare and safety is the principle reason for vegetation maintenance on the railroad ROW. Railroads are unique, among

the various types of ROW's in their relationship to interstate commerce. Railroads carry a constant flow of raw materials and finished products into, out of, and through the State of Vermont. 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 railroad's continuing efforts to review and evaluate vegetation control practices. This effort has led to practices which allow the development of very low-growing vegetation on many areas adjacent to the shoulder.

A. Roadbed

Figure 1 is an artists concept of an idealized 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 which 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.

B. Bridges

Open deck bridges, such as some over water, will not be treated. 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 down slope to a point at which native trees and shrubs can be allowed to develop fully without entering the bridge structure.

C. ROW Area Adjacent to the Shoulder

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. Vegetation maintenance on the area adjacent to the shoulder is suitable to several different methods of Integrated Pest Management (IPM). 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 overhead 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 land owners and also 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 motorist and rail traffic.

2. Inside Curves

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

3. 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.

5. VEGETATION MANAGEMENT TECHNIQUES

The Vegetation Management program of the railroad is defined and limited by the construction of the privately owned ROW. The individual components of the railroad ROW has two distinctly different vegetation management requirements. On the ROW roadbed and other specialized areas no vegetation is permitted as per Federal 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 are 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 which eliminates vegetation as a secondary benefit.

A. Mechanical Equipment and Techniques

Mechanical control techniques or mechanical cutting techniques are limited to woody and brush vegetation which will include only those target trees that will interfere with the ROW, etc. The mechanical techniques will be used in the areas adjacent to the roadbed. Mechanical control will remove unwanted woody vegetation in areas restricted for herbicide application. As stated, these trees and brush interfere with communication lines, reduce visibility, or intrude into the track zone. Therefore, mechanical cutting is a solution to these problems and others.

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 hi-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, local by-laws or railroad safety guidelines may restrict the use of brush cutters within developed or recreational areas. Mechanical cutters, such as mowers, present certain safety problems which the 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. The compensation rate for workers using cutting techniques is set well above herbicide applicators.

Cutting can be accomplished using chain saws, axes, and other hand tools; however, most railroad cutting is done using rotary-type hydraulic cutting equipment. In certain no-spray and buffer zones, target vegetation may be removed by manual cutting by a ground crew. It must be stated that the entire adjacent area could not be managed with this technique. Lack of skilled woodsmen, prohibitive costs, inaccessible areas, and time requirements are just a few of the factors which prevent the railroad from regressing to this outdated technique. Likewise manual removal or mowing of the ballast area are unacceptable because of logistic problems and inefficient vegetation control. Cutting heads are too large to fit between the rails and can only be used on the ballast shoulder. As discussed earlier, plants growing in the ballast quickly produce roots that prevent the flow of water away from the track area. Mechanical cutting of vegetation in the ballast area would only remove the plant tops. The roots will be left to resprout or if killed will continue to decay, accumulate additional dirt, and hold moisture. Cutting also allows the upper portion of the plant to decay on the site and add to the growing seedbed litter between the stones.

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 per Federal laws and regulations. The ballast and shoulder must be free and clear of all vegetation in order to ensure that train wheels do not slip. 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).

1. Weed Control

The weed control program is designed to eliminate all vegetation located on the roadbed and in the yards. Herbaceous vegetation is the primary cover type with a lesser number of shrubs and tree seedlings also present. Integrated use of pre-and post-emergent herbicides accomplishes the goal of complete vegetation eradication.

Pre-emergent Herbicide Program:

The pre-emergent herbicide program is used for yards, branches and main-line. The yard program is especially important with regard to employee safety because most employee activities take place within the yards.

Areas scheduled for the pre-emergent weed control treatments will be inspected in the summer or fall the year prior potential application in order to determine the population density and species composition of the target vegetation. This information allows numerical estimation of the spring target population. The track section may or may not be scheduled for a pre-emergent herbicide application depending upon population estimates. Pre-emergent herbicide applications within the yards, branch lines, and main line may be accomplished from a hi-rail spray truck. This on-track vehicle has the advantage of not having to operate over rough terrain. These hi-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 these hi-rail trucks is applied at low pressures between 30 and 40 PSI.

Pre-emergent herbicide applications to sites needing treatment will be climate dependent; favorable weather conditions are required. Traditionally, with favorable weather conditions, a pre-emergent treatment may begin in early June.

Post-emergent Herbicide Program:

The post-emergent herbicide program is aimed primarily toward vegetation eradication on the railroad ROW main lines and branch lines. Evaluation of treatment areas and execution of the program are conducted in the same manner as described for the pre-emergent herbicide program. Evaluation takes place in the summer or fall prior to potential treatment.

Post-emergent herbicide application may begin in early to mid July but is weather and target species dependent. Post-emergent treatments for all weed control activities will be completed unless extreme weather conditions interfere with the vegetation management program. All treated areas are later inspected and the effectiveness of treatment is evaluated.

Foliar:

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 on risk-benefit analysis is further support for their continued use. When applied by a certified applicator (in the category Right-of-Way Pest Control) according to label direction and in accordance with the Federal and State laws and regulations including an approved VMP a herbicide selected from an EPA registered products 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 general 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 devoid of all vegetation. Public and employee safety begins with the Federal and state mandated requirements to visually inspect the entire ROW system. Herbicides provide the most reliable and generally safe method to prevent and remove weeds which inhibit said inspections. The Worker Safety Statistics demonstrate that significantly more workers will be injured or killed when using manual or mechanical cutting instead of herbicides. Also,

herbicides prevent plants, plant roots and vines from fouling the roadbed ballast. These plants reduce and restrict water drainage from the roadbed. Thus, excess water accelerate the degradation and stabilization of roadbed.

Since the categories of herbicides are available in a wide variety of dry and liquid forms, the certified applicator 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 nontarget, desirable species. Limited, selective application of herbicides minimizes the chance of unreasonable adverse effects to the general public and environment. The applicator can also accurately deliver the herbicide to only the target vegetation through the use of adjuvants.

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 in complete control of the application process and constantly monitoring the environment. If the weather conditions change, such as high wind, rain, temperature inversion, etc., the applicator will stop immediately.

The EPA and state require the applicator to keep daily records of herbicide spraying operations. The records include weather conditions, herbicide/adjuvant mixture components and proportions, equipment, rate of application, adverse conditions, and the exact location of treated and non-treated track and adjacent areas.

In summation, the highly trained professionally certified applicators, under the guidance and supervision of on-site railroad personnel, will apply herbicides chosen 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.

6. SENSITIVE AREAS

Sensitive areas will be flagged and marked before application. Sensitive areas include any areas within the ROW including, but not limited to, the following areas:

- a. Within the primary recharge area of a public drinking water supply well
- b. Within two hundred feet (200) feet of any surface water used as a public water supply
- c. Within one hundred (100) feet of any appropriately marked private drinking water supply well
- d. Within fifteen feet (15) feet of any parallel water
- e. Within thirty feet (30) feet from waters edge

A. Identification and Location of Wells

Adjacent land owners will contact the Railroad of all adjacent water supplies. The Railroad will be in contact with property owners to identify locations and mark with flagging.

7. OPERATIONAL GUIDELINES FOR APPLICATORS RELATIVE TO HERBICIDE USE

A. FOR SENSITIVE AREAS

1. SITE REVIEW

On sites believed to need vegetation control a statistically significant review of the vegetation conditions will be made. The review will be made by qualified people to identify areas on the roadbed as requiring treatment. On the areas adjacent to the shoulder the need for and type of control will be identified and the specific treatment required will be determined on a site-by-site basis. Specific target species will be identified in each area.

The initial review and later monitoring and evaluation will include:

- Date of Review
- Mile Post and Location
- Vegetation Condition on Roadbed (Figure 1)
- Vegetation Condition on the Area Adjacent to the Shoulder (Figure 1)
- Remarks may include: Terrain, Community, Special or Unique considerations

The Analysis will include use of the daily field reports of vegetation control activities and the herbicide application log. The data analysis will document the effectiveness of each application and the duration of control.

2. Office Procedures

In the office, railroad employees will gather the following data:

- maps and data sheets from the site review
- maps and data identifying construction or other activities that may relate to or eliminate the need for vegetation maintenance at this time
- sensitive area delineation maps and records
- lists of approved herbicides and recommended rates and mixes

All available data 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.

B. Preparation for Herbicide Application

1. Notification

The applicant is required to publish a notice of its intent to spray a right-of-way once its application has been filed. A copy of the proposed publication must be filed with the Department prior to its being published. The ad must be published not less than 25 days nor more than 60 days before spraying is to start. The ad must be published for two (2) successive weeks in every county affected by the proposed spraying. Newspapers of record for each county are listed in Appendix B of Vermont's Regulations for Control of Pesticides. If the newspaper is daily, publications shall be made on Thursdays. The regulations require that the ad be at least two (2) columns wide by three (3) inches high.

The publication is required to contain the following information:

- (a) The name and address of the applicant
- (b) Identification of the ROW area(s) to be sprayed
- (c) Name(s) of the town(s) where the spraying will be done
- (d) Approximate date of the herbicide application
- (e) A statement that a permit has been requested from the Commissioner of Agriculture, Food and Markets
- (f) The method by which the herbicide is to be applied
- (g) The chemicals to be used
- (h) The name, address and telephone number of a person to contact for further information on the spray project
- (i) The address and telephone number of the Agriculture Department and a statement that identifies it as the agency to contact with questions or comments: and
- (j) A statement warning residents along the proposed spray area that waters and other environmentally sensitive areas near the spray area should be protected and that it is the resident's responsibility to notify the ROW contact person of any private water supplies near the right-of-way.

In addition to newspaper publication, the applicant is required to provide notification to residents via one of the following methods:

- (a) Radio announcements - three (3) spot messages per day on two (2) area radio stations during the two week period immediately prior to the commencement of spraying
- (b) Notification, via U.S. mail, to residents adjacent to the spray area, at least two weeks prior to spraying
- (c) A printed statement, hand-delivered, to residents adjacent to the spray area, at least ten (10) days prior to the commencement of spraying.

It is the applicant's responsibility to notify the Department of the option it intends to use and the dates that notice will be given. The content of the notice must be provided to the Department prior to actual notice being given.

2. 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 State of Vermont. 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
 - From
 - Chemical Name

- Number of Containers
- Quantity lbs./gals.

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

- Weather

| | | | | | |
|------------------------------|-----|-----|---------|-----|-----|
| - Wind Velocity at Time - | 6am | 9am | 12 noon | 3pm | 6pm |
| - Wind Direction at Time - | 6am | 9am | 12 noon | 3pm | 6pm |
| - Temperature at Time - | 6am | 9am | 12 noon | 3pm | 6pm |
| - Rain (in inches) at Time - | 6am | 9am | 12 noon | 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

- Contractor Person on Job (list each individual)
- Railroad Person on Job (list each individual)
- Daily Summary of Chemical: Applied

- Name
- EPA Establishment No.
- EPA Registration No.
- Concentrate: gal./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 Name and Amount

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

At the time of treatment, before the application begins, the herbicide applicator will review the sensitive areas, (in the vicinity of water or gardens), maps and records with a qualified railroad employee. A pilot vehicle will proceed through the area approximately 1/4 -mile ahead of the spray vehicle. As the pilot vehicle passes a sensitive area readily identifiable in the field, the operator will signal the spray vehicle, so that the operator may modify his operation appropriately, one side only or narrower spray application. 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 may be obtained, in accordance with local ordinances or regulations, from ponds and streams using tanks and hoses equipped with approved anti-siphon device to keep herbicide from flowing back into the source.

8. 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, and cable TV lines. Other uses that may be used on wider railroad ROW's are sewer and water lines and major pipelines.

9. REMEDIAL PLAN TO ADDRESS SPILLS AND RELATED ACCIDENTS

Contractor will be responsible for reporting any herbicide spills or related accident. Contractor will provide the railroad with a specific plan prior to spraying, which will include notifying the Vermont Department of Agriculture, Plant Industry Division in the event of any spill.

A. Spill Control and Cleanup

The Department of Agriculture, Food and Markets consider any release of herbicide that is not consistent with the label directions a spill that must be reported to the Pesticide Bureau and local officials. As soon as any spill occurs, immediate action must be taken to contain the spill and protect the spill area. The cause of the spill must be identified and secured.

Spill containment may be accomplished by covering the spill with absorptive clay or other absorptive material or, for large spills, building clay or soil dikes to impede spill progress. The spill area can be protected until proper cleanup can be accomplished by placing barriers, flagging or crew members at strategic location. If a fire is involved, care must be taken to avoid breathing fumes from any burning chemicals.

In the event of the occurrence of any spill, information on safety precautions and cleanup procedures will be gathered from the following sources:

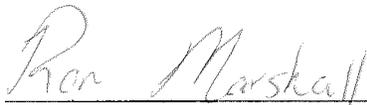
-Herbicide label

-Herbicide Material Safety Data Sheets

-Herbicide Fact Sheet (if available)

-Chem Trec 1 (800) 424-9300

-Local Community Chief of Police, Fire Chief, and Right-to-Know Coordinator



Ron Marshall

GM - Engineering

Central Maine & Quebec Railway

Effective January 20, 2015