VEGETATION MANAGEMENT PLAN
FOR
CSX TRANSPORTATION, INC.
2025 to 2029

Prepared for:

CSX Transportation, Inc.
500 Water Street
Jacksonville, FL, 32202

Prepared By:

Keith L. Morris
Environmental Consultant
622 Spring Street
Leeds, Massachusetts 01053
Tel: (413) 695-2767
Email: keithlmorris@comcast.net

File No. 24-019
Submitted: January, 2025

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 GENERAL DESCRIPTION OF CSX TRANSPORTATION, INC. 2

3.0 GOALS AND OBJECTIVES OF THE VEGETATION MANAGEMENT PLAN 3

4.0 INTEGRATED PEST MANAGEMENT TECHNIQUES 4

5.0 RIGHT-OF-WAY COMPONENTS AND JUSTIFICATIONS FOR HERBICIDE USE 4
- 5.1 ROADBED 4
- 5.2 DRAINAGE DITCHES 5
- 5.3 BRIDGES AND ABUTMENTS 5
- 5.4 SWITCH BOXES, SIGNALS, AND SIGNPOSTS 6
- 5.5 COMMUNICATIONS 6

6.0 IDENTIFICATION OF TARGET (NUISANCE) VEGETATION 6
- 6.1 WEEDS 6
- 6.2 BRUSH 6
- 6.3 TREES 7
- 6.4 VINES 7
- 6.5 DESIRABLE VS UNDESIRABLE VEGETATION 7

7.0 METHODS OF VEGETATON MANAGEMENT 8
- 7.1 VEGETATION CONTROL TECHNIQUES 8
- 7.2 HERBICIDE APPLICATION EQUIPMENT 8
  - 7.2.1 HY-RAIL EQUIPMENT AND USES 8
  - 7.2.2 FOLIAR APPLICATION 9
  - 7.2.3 STUMP TREATMENT 10
- 7.3 MECHANICAL EQUIPMENT 10
- 7.4 WEED CONTROL AS A SECONDARY BENEFIT 11
- 7.5 SELECTION AND TIMING OF HERBICIDE APPLICATIONS 11
  - 7.5.1 PRE-EMERGENT HERBICIDE PROGRAM 11
  - 7.5.2 POST-EMERGENT HERBICIDE PROGRAM 11
- 7.6 TOUCH-UP APPLICATIONS 12

8.0 METHODS FOR IDENTIFICATION OF SENSITIVE AREAS AND CONTROL STRATEGIES PROPOSED FOR SENSITIVE AREAS 13
- 8.1 REGULATORY DEFINITIONS OF SENSITIVE AREAS AND ASSOCIATED RESTRICTIONS 13
- 8.2 IDENTIFICATION, DELINEATION AND MARKING OF SENSITIVE AREAS 16

TABLE OF CONTENTS (Cont'd)

8.2.1 WETLANDS, WATERBODIES AND WATERCOURSES 16
8.2.2 PUBLIC WATER SUPPLIES AND AQUIFER RECHARGE AREAS 17
8.2.3 PRIVATE WATER SUPPLY WELLS 18
8.2.4 SENSITIVE AREAS READILY IDENTIFIABLE IN THE FIELD 18
8.3 SENSITIVE AREA MARKING SYSTEM 18
8.3.1 WETLAND, WATERCOURSES AND WATERBODIES 19
8.3.2 PUBLIC AND PRIVATE WATER SUPPLIES 20
9.0 OPERATIONAL REQUIREMENTS OF APPLICATORS 21
9.1 LICENSE REQUIREMENTS OF APPLICATORS 21
9.2 INSPECTIONS AND RECORD KEEPING 21
9.3 CONFORMANCE WITH REGULATORY NOTIFICATION REQUIREMENTS 21
9.4 APPLICATOR'S COMPLIANCE GUIDELINES 22
10.0 EMERGENCY AND CONTINGENCY PLANNING AND RESPONSE 23
11.0 ALTERNATIVE LAND USE PROVISIONS OR AGREEMENTS 24
12.0 QUALIFICATIONS OF PERSONS DEVELOPING THE PLAN 25

APPENDICES:

APPENDIX A - TRACK MAP
APPENDIX B - FIGURES
APPENDIX C – SENSITIVE AREA RESTRICTION GUIDE
APPENDIX D - REQUEST FOR DETERMINATION OF APPLICABILITY (FORM 1)
APPENDIX E - OFFICAL WETLAND BOUNDARY DETERMINATION (FORM 2)
APPENDIX F – APPLICATOR'S DAILY REPORT AND SPRAYING LOG
APPENDIX G - PESTICIDE BOARD REGULATIONS 333 CMR 11.00 AND MASSACHUSETTS WETLANDS PROTECTION REGULATIONS REGARDING RIGHTS-OF-WAY MANAGEMENT
APPENDIX H - EMERGENCY SPILL RESPONSE PLAN
APPENDIX I - RESUMES OF PERSONS PREPARING THE VEGETATION MANAGEMENT PLAN

1.0 INTRODUCTION

This document details a five (5) year Vegetation Management Plan (VMP) for Rights-Of-Ways of the CSX Transportation, Inc. of Jacksonville Florida. The VMP addresses the intended program to be carried out by the Railroad for the control of nuisance vegetation within their Rights-Of-Way (ROW) that may interfere with safe railroad operations. The plan includes: a statement of goals and objectives related to vegetation management; a description of the ROW; identification of components and vegetation categories targeted for control; the methods intended for control and management of vegetation; the rationale and justification for the proposed vegetation management techniques and herbicide applications; timing of herbicide applications; the operational strategies and requirements to be followed by the Railroad and application contractors; equipment used for vegetation control; the techniques used for identification of sensitive areas and control strategies for sensitive areas; Integrated Pest Management Techniques and alternative control techniques used to minimize the frequency of herbicide applications; emergency/contingency measures to be implemented to prevent, control, or clean up a possible spill of herbicides; alternative land use provisions; and the qualifications of the people preparing this plan.

2.0 GENERAL DESCRIPTION OF CSX TRANSPORTATION, INC,

CSX Transportation, Inc. is headquartered in Jacksonville, Florida. The Railroad manages ROW over approximately 205 miles through fifty-two (52) Massachusetts communities (Appendix A). A list of communities in which the Railroad has rights-of-way ownership, and therefore may be affected by vegetation management activities is as follows:

Andover	Auburn	Ayer	Becket
Berlin	Bolton	Brimfield	Brookfield
Charlton	Chelmsford	Chester	Clinton
Dalton	Devens	East Brookfield	Framingham
Groton	Harvard	Hinsdale	Huntington
Lancaster	Lawrence	Leicester	Leominster
Littleton	Lowell	Marlborough	Middlefield
Monson	Montgomery	Northborough	Oxford
Palmer	Pittsfield	Richmond	Russell
Southborough	Spencer	Springfield	Sterling
Tewksbury	Tyngborough	Warren	Washington
West Boylston	West Brookfield	West Springfield	West Stockbridge
Westfield	Westford	Wilbraham	Worcester

See Appendix A

3.0 GOALS AND OBJECTIVES OF THE VEGETATION MANAGEMENT PLAN

This VMP was prepared in the interests of safety and welfare of railroad personnel and the general public. These interests are protected by providing the Railroad with operational standards and procedures necessary to implement an effective vegetation management program, while providing municipalities and regulatory agencies, as well as Railroad employees, with the information necessary to monitor vegetation management activities for the insurance of a safe and healthy environment. The VMP describes methods utilized by the Railroad to control or eradicate vegetation growing adjacent to and within the roadbed using herbicides, mechanical equipment, proper planning and management practices, and Integrated Vegetation Management Techniques in order to minimize the amount of herbicide used. Such a need for vegetation control along the Railroad's ROW stems from regulatory statues governing the railroad industry's safe operation, and from a practical evaluation of the processes, which lead to the degradation of a roadbed. Although the Railroad currently only treats the ballast area, switch boxes, signals and signposts with herbicides, the railroad reserves the right to treat brush under communication lines after additional sensitive area delineation to allow for the expanded spray zone.

Pursuant to Article 49 Code of Federal Regulations (CFR) ss 213.37, railroads are required to control vegetation in order to alleviate the potential of fire, to provide railroad employees with unobstructed visibility of the track, and road bed components from their normal duty stations, and, during routine inspections, to allow clear visibility of signs and signals, the safe performance of normal duties of Railroad personnel, and to prevent damage to or malfunction of signal and communication lines. The Railroad will incorporate the proposed vegetation control techniques along with sound management, planning and record keeping practices in order to meet or exceed the safety requirements imposed by state and federal regulations. It is also the Railroads' intent to minimize the need for herbicide use as part of their vegetation management program.

Subject to approval of this VMP by the Massachusetts Department of Agricultural Resources (MDAR), the railroad will prepare on an annual basis a Yearly Operational Plan (YOP) that will provide specific information about the vegetation management program to be carried out for the specified year. This YOP shall contain all information required by the MDAR and will be submitted to the MDAR for its review, comment and subsequent approval. As per 333 CMR 11.06(3)(b), copies of the YOP or a web site where the YOP can be viewed will be submitted to the chief elected municipal official, Conservation Commission and Board of Health for each affected community listed in the YOP. The municipal officials and general public shall have 45 days, upon receipt, to review the YOP and submit comments to the MDAR. Following the review and comment period, the MDAR will provide the Railroad with formal notice of approval or denial of the YOP, or request modification as necessary.

4.0 INTEGRATED PEST MANAGEMENT TECHNIQUES

Integrated Vegetation Management Techniques (IVM) is the process of optimizing vegetation control by implementing best practices that minimize the amount of herbicides applied while still achieving the desired results. This includes the performance of a survey of the ROW with the goal of the elimination from its spray schedule those areas where undesirable vegetation is not present. The survey shall include the identification of the undesirable vegetation in order to select herbicides most suited for the control of those species. The survey shall also include identification and recording of areas adjacent to the roadbed section of the ROW where vegetative conditions are found to be favorable to the interests of the railroad. For example, grasses or other low growing herbs that occur within the roadbed are undesirable, whereas their occurrence in areas below the communication lines is tolerable as they do not interfere with the communication lines or obscure the vision of railroad personnel. Non-selective use of herbicides or mechanical means of vegetation control will be avoided in these areas. Additionally, the conditions, which appear to contribute to a lack of or abundance of favorable vegetation, will be noted, and efforts made to alter those conditions in order to achieve the desired conditions. Such conditions that may affect the presence or absence of undesirable vegetation include regional topography, drainage, availability of sunlight, nutrients, and in the case of the ballast, the potential for soil and detritus accumulation. The railroad will implement this integrated approach to vegetation management by encouraging plant communities that hinder the development of target vegetation.

5.0 RIGHT-OF-WAY COMPONENTS AND JUSTIFICATION FOR HERBICIDE USE

5.1-RAILBED

The railroad ROW is comprised of the railbed and the areas adjacent to the railbed. Components of the railbed are the steel rails and wooden ties that are supported on a bed of crushed traprock, known as ballast. The sloped sides of the ballast are referred to as the shoulder. See Appendix B for figures including a typical railbed layout. Vegetation growing within the railbed can cause several safety and functional problems for the Railroad. Excessive vegetation within the railbed can hinder visibility of the tracks and roadbed components during track inspections and normal operations. Vegetation may also present physical hazards to Railroad personnel while working alongside rail equipment such as boxcars and locomotives. Vegetation may cause personnel to trip, slip or fall, which could result in serious injury or death. Vegetation in the railbed can also result in the accumulation of soils and organic matter within the ballast section, which may inhibit drainage and weaken the structural integrity of the roadbed. As the height and density of the railbed weeds increase, they become crushed against the wheel of trains, thereby reducing the effectiveness of the braking system, which increases the risk of accidents. The term “weeds” as used in this plan refers to any vegetation growing within the railbed section of the ROW.

During dry months, weeds and brush can ignite from sparks created by the wheels and undercarriage of the trains. Brush fires may also be ignited along the railbed from external sources such as vandals, discarded cigarettes dropped by pedestrians or from passing motor vehicles. Since most wooden rail components such as the rail ties and trestle timbers are treated with creosote or other flammable wood preservatives, brush fires can easily accelerate, resulting in damage to the railbed components, communication lines and the disruption of the Railroad as a whole. Weed eradication in the early growth stage is essential, as growing root systems tend to assist in the accumulation of soil within the ballast, resulting in additional weed propagation. Based upon the aforementioned factors, weeds growing within the railbed shall be targeted for complete control by the use of herbicides.

5.2- DRAINAGE DITCHES

One of the most important components of the Railroad ROW is drainage ditches, which parallel the railbed on each side of the shoulder. Rapid drainage of stormwater away from the railbed is essential to maintain its structural integrity. If saturation of the ground below the railbed occurs, the weight of the trains could cause the railbed to sink into the underlying mud, which results in damage to the track sections and reduces the stability of the passing rail traffic, potentially resulting in a train derailment. For this reason the railbed is designed to allow for quick stormwater drainage. If the ballast is maintained free of weeds and soil, stormwater can pass easily through the railbed allowing the runoff to collect in the adjacent drainage ditches.

In areas where the drainage ditches are not kept free of sediments and nuisance vegetation (see Section 6.0), the ditches tend to pond water rather than promote free drainage. The problem is compounded by the fact that some drainage ditches have developed hydrophytic (wetland) plant communities. Where no direct hydraulic connection occurs between drainage ditches and viable wetlands, the ditches shall be maintained by selective application of herbicides or mechanical trenching equipment. No herbicides shall be applied when standing water is present. Treatment of ditches shall only occur during dry periods using only those herbicides, which have been recommended by the MDAR for use in sensitive areas.

5.3- BRIDGES AND ABUTMENTS

Wooden or steel railroad bridges generally do not have the capability to trap soils and allow for vegetative growth and therefore will not be treated with herbicides. Vegetation can grow between gaps and cracks and in stone abutments, footings, or foundations and loosen the stone, brick, or concrete. Vegetation growing in and around these structures will be maintained by both mechanical cutting and by selective herbicide application, as allowed, when mechanical means are not practical.

5.4- SWITCH BOXES, SIGNALS, AND SIGNPOSTS

Federal law (40 CFR 213.00) requires railroads to control vegetation around switch boxes, signals and signposts to allow for complete visibility by train engineers, inspectors, passing motorists, and pedestrians. Unless this task can be accomplished quickly and effectively by mechanical means, these areas will most often be controlled, as allowed, by herbicide application. Herbicides in these areas will be manually applied by the licensed applicator utilizing a hose with spray nozzle attached to the hy-rail vehicle. The area within a 10-foot radius of switches, signals and signposts will be maintained free of weeds.

5.5- COMMUNICATION LINES

The Railroad utilizes overhead communication lines that parallel the roadbed. The vegetation present in the areas below the communication lines must be maintained free of dense brush or trees to prevent damage and to allow access to the lines and associated poles for periodic and emergency services. Lines may become shorted out if contact is made with tree limbs or creeping vines. They may also be knocked down if struck by falling limbs or branches. Some nuisance vegetation, such as tree limbs or branches may be controlled effectively by mechanical pruning, however, other problematic vegetation, such as poison ivy, which may attach itself to the utility poles and continue to spread along communication lines, is better controlled by herbicides. Mechanical means of poison ivy removal may result in direct contact with the plant by the equipment operator, which could pose a risk to the health of the operator. In general, tree limbs will be pruned when they overhang or are near the point of direct contact (within 2 to 5 feet) with communication lines.

6.0-IDENTIFICATION OF TARGET (NUISANCE) VEGETATION

6.1-WEEDS

The term “weeds” as used in this plan refers to any vegetation growing within the roadbed section of the ROW. Weeds shall be targeted for complete eradication. Weeds frequently found within the railbed include grasses, sedges, forbs, tree and shrub seedlings, and creeping vines. Control of weeds within the roadbed can only be achieved cost effectively and efficiently through the discriminate use of herbicides.

Other types of vegetation growing outside of the roadbed includes:

6.2-BRUSH

The term “brush” as used in this plan refers to any low moderate height woody or non-woody vegetation growing in areas adjacent to the railbed. Brush present in areas adjacent to the railbed will be controlled whenever visibility of signals, signposts, crossings and adjacent rail lines are obstructed, and when encroaching upon

communication lines adjacent to the railbed. Vegetation along the inside of curves will be managed to provide the train's engineer with adequate visibility of track conditions, persons, animals or foreign objects present ahead of the train, and for observation of the train's performance

6.3-TREES

The term "trees" as used in this plan refers to any woody plant species, which are supported by a single stem or trunk, and are capable of reaching heights greater than 10 feet. Trees will be targeted for maintenance when limbs or branches encroach upon railroad bridges or the communication lines located adjacent to the railbed. Tree maintenance will occur when the trees or branches obscure the train engineer's vision of the roadbed components, signals, or road crossings. Tree maintenance will be achieved using mechanical cutting methods, followed by a stump treatment with herbicides when appropriate. No foliar treatment will be made to heights 12' or greater.

6.4-VINES

The term "Vines" as used in this plan shall refer to any creeping or climbing plants. Vines will be controlled through herbicide applications and mechanical cutting when they encroach upon communication lines, utility poles, signals, and the railbed components.

6.5-DESIRABLE VS UNDESIRABLE VEGETATION

"Desirable vegetation" refers to any vegetation, which does not interfere with railroad operations. Conversely "undesirable vegetation" is any vegetation, which due to its species characteristics, or location in the ROW, interferes in railroad operations. For example, grasses or other low growing herbs that occur within the railbed are undesirable, whereas their occurrence in areas below the communication lines is tolerable as they do not interfere with the communication lines or obscure the vision of railroad personnel. Shrubs and trees located along the outer limits of the ROW (usually 30 to 50 feet from the centerline of the railbed) provide an aesthetically pleasing visual barrier between the ROW and nearby residential areas. However, this type of vegetation may pose a visual obstruction at roadway crossings. As mentioned in Section 4, Integrated Vegetation Management Techniques will be utilized to minimize the use of herbicides.

7.0 METHODS OF VEGETATION MANAGEMENT

Before implementing a vegetation control program, the Railroad will periodically re-evaluate problematic areas along the ROW, and select the vegetation control methods(s) most suited to conditions encountered. Integrated Vegetation Management Techniques will be implemented. For areas where herbicides are deemed the suitable means of vegetation control, herbicide selection will be based upon its ability to control the undesirable vegetation present within the target area. The various vegetation control methods to be implemented along the Railroad's ROW are discussed in the following sections.

7.1-VEGETATION CONTROL TECHNIQUES

Vegetation can be controlled along the ROW by herbicide applications and mechanical means. However, both techniques have their advantages and limitations depending upon where, when, and how they are implemented. The only available technology feasible for complete eradication of vegetation within the railbed is through herbicide applications. Mowing or hand weeding around the track components would be an impractical, if not impossible task to accomplish successfully based upon the amount of time and manpower that would be required. Mowing would not remove the entire root system, resulting in regrowth of the plants in a short period of time. Herbicides are currently the most effective and practical means of obtaining total vegetation eradication within the roadbed. However, their use is restricted by weather conditions as well as by regulatory constraints that prohibit their use in certain designated sensitive areas (See Chapter 8.0).

Vegetation below communication lines, along inside curves, and at road crossings, will be managed using a combination of herbicide and mechanical control methods. The methods selected will be dependent upon the degree of vegetation control needed, the class and species of vegetation (desirable vs. undesirable, see Chapter 6.0), and sensitive area restrictions that may apply to the target area (see Chapter 8.0). Specific methods of vegetation control to be implemented along the Railroads ROW are discussed in Section 7.2.

7.2 HERBICIDE APPLICATION EQUIPMENT AND METHODS

7.2.1 Hy-rail Equipment and Uses

Hy-rail vehicles are trucks or utility vehicles that are equipped with roller wheels that lower onto the steel rails of the track allowing the vehicle to ride on the track. The hy-rail equipment allows for performance of herbicide applications to the ROW from the railroad tracks thereby alleviating the need for traversing rough terrain. The spray truck is equipped with a water tank, and a separate herbicide mixing tank. In addition to the spray vehicle, a hy-rail spotter vehicle, which is in radio contact with the applicator, will ride ahead of the applicator to assist in the identification of sensitive areas.

Hy-rail vehicles are equipped with spray booms that have a series of spray nozzles that apply a low-pressure (30 to 60 pounds per square inch) spray of herbicide directly to the roadbed from a height of approximately 18 inches above the ballast. The boom is also equipped with side spray guards that prevent drift of herbicide to non-target areas. The spray boom is controlled from within the cab of the spray vehicle. Multiple controls allow the applicator to direct the spray of herbicide to any portion or the railbed, or to the entire surface area. For example, if weeds are present in the center of the railbed, but the shoulder areas are free of vegetation, the applicator can selectively treat the center of the roadbed, thereby eliminating unnecessary herbicide application to the shoulders. The maximum width of the spray boom is variable depending upon hy-rail equipment used, but is generally between 16 and 20 feet. Some hy-rail spray vehicles are also equipped with spray hoses and extended nozzles that can by used to apply herbicides, via low pressure spray, to vegetation growing around switches, signals, and sign posts. The hy-rail equipment can also be affixed with extension booms capable of reaching drainage ditches and areas below communication lines.

To further control drift of herbicide, anti-drift agents are added to the herbicide solution. All herbicide applications shall be conducted by a certified applicator in the Commonwealth of Massachusetts.

7.2.2 Foliar Application

Foliar application refers to the application of herbicides to the leaves and stem of plants using a low-pressure spray. As mentioned above, hy-rail vehicles are equipped with spray booms that have a series of nozzles that apply a low-pressure spray applied at pressures between 30 and 60 PSI. Proper application of herbicides by low-pressure spray equipment allows for complete coverage of the target vegetation and the reduction of overspray or airborne drift, which can result from high-pressure spray equipment.

The method of herbicide application to the roadbed as described in the previous subsection is one method of foliar application performed as part of a post-emergent spray program. Selective foliar application may also be performed to control vegetation around signals, sign posts, switch boxes, or around buildings. As mentioned previously, all applications of herbicides shall be performed by a certified applicator with hose and sprayer either attached to the spray vehicle or small tank.

This method may also be used for side trimming trees to eliminate nuisance branches without destroying the entire tree. Side trimming using herbicides will only be performed when the Railroad's Vegetation Control Engineer or contractor determines the method to be more suitable that alternative control methods, such as hand pruning.

7.2.3 Stump Treatment

When mature trees are removed along the ROW, a stump treatment may be applied to the cut surface to prevent re-sprouting of the tree. The herbicide stump treatment can be "painted" onto the stump using a brush or applied by squirting the stump using a low-pressure spray. Trees to be removed shall be marked by personnel in the field prior to treatment.

7.3 MECHANICAL EQUIPMENT

Mechanical means of vegetation control is implemented along the Railroad ROW when the use of herbicides is prohibited, or when a combination of mechanical cutting and herbicide applications is found to be the most suitable means of achieving total pest control. Throughout the term of this VMP, the railroad shall work to incorporate Integrated Vegetation Management practices. Examples of this may include the introduction of grasses or low growing shrubs to control undesirable vegetation under communication lines.

Mechanical means of vegetation control will be limited to nuisance woody and brush species that are found to be interfering with railroad operations occurring in the areas adjacent to the railbed. No mechanical means of vegetation control is feasible within the ballast area of the roadbed.

Mechanical management of vegetation along the areas adjacent to the railbed is most frequently and effectively performed by the use of high-power mowing equipment. The mowing equipment is comprised of specialized cutting heads mounted on hydraulic arms which extend laterally, and are capable of reaching and pruning high branches or limbs which may obstruct communication wires, signals, bridges, or trestles, the view of personnel, passing motorists, and pedestrians. Mowing equipment can also be mounted on all-terrain vehicles to allow for movement and access through areas beyond the reach of hy-rail equipment.

Mechanical means of vegetation control may also be performed using chain saws and other hand tools, as well as portable weed cutters, when the use of rotary mowing equipment is not practical, and/or when selective vegetation management is desired. It is important to note that mechanical cutting equipment may pose a threat of risk to the health and safety of the operators as well as bystanders, especially if used by inexperienced persons. Therefore, only qualified individuals will use mechanical cutting and pruning equipment.

7.4 WEED CONTROL AS A SECONDARY BENEFIT

As part of the Integrated Vegetation Management, certain non-vegetation control activities may result in control or eradication of vegetation as a secondary benefit. Such activities may include periodic repair or replacement of rails, ties, or ballast. Scouring or retrenching drainage ditches will also eliminate weeds immediately adjacent to the roadbed and reduce the spreading of weeds via shoots, vines, or windblown seeds onto the roadbed. Trenching or other railroad maintenance activities other than herbicide applications may be subject to approval under Massachusetts Wetland Regulations, if performed in or within the regulated distance of a wetland.

7.5 SELECTION AND TIMING OF HERBICIDE APPLICATIONS

Selection of herbicides to be used in a given season will be dependant upon the timing of the application, the location of the target area with regard to sensitive area boundaries, and the species of nuisance vegetation present within the ROW. An evaluation of vegetation density and species identification along the roadbed of the main lines and branches will be made either during the late summer or fall proceeding the scheduled vegetation management season or during the early months of the growing season. Based upon the evaluation, the type of herbicide best suited for controlling observed nuisance vegetation will be selected.

7.5.1 Pre-Emergence Herbicide Program

The pre-emergence herbicide program involves the application of herbicides at the beginning of the growing season before weeds have emerged from the ground. The herbicide takes effect after the newly developed roots of seedlings absorb it. The pre-emergent program is restricted to highly problematic sections of the railbed. Pre-emergence herbicides selected will be highly immobile and have moderate residual presence in the soil after application. Only those herbicides that are on the MDAR's approved list for pre-emergent application shall be utilized.

Problematic railbed areas that are scheduled for treatment shall be inspected in the late summer or fall of the preceding year. The inspection shall estimate the density of the vegetation and identification of the target species. Herbicide selections shall be based on this inspection. The pre-emergence program will be scheduled for the spring. Herbicide application will not take place under frozen ground conditions.

7.5.2 Post-Emergence Herbicide Program

The post-emergent herbicide program involves the application of herbicides to the railbed from a hy-rail truck after the target vegetation has emerged from the ballast. A selective application to areas adjacent to the roadbed shall be manually applied by the licensed applicator using a hose and spray nozzle attached to the hy-rail vehicle. Herbicides that are absorbed through the roots, stems, or leaves of the target vegetation

may be used. The post-emergence program shall be performed after mid-May. No-post emergence herbicide applications shall occur after the end of the regional growing season. Ideally, the post-emergent program is most effective when performed within the time period from June through August, as most nuisance plant species have reached full emergence and can be readily targeted by the herbicide applicator.

7.6 TOUCH-UP APPLICATIONS

Following a post-application survey of ROW conditions, it may be necessary to perform touch-up applications of herbicides to densely vegetated areas during the same growing season. No more than 10% of the initially identified target vegetation on the ROW in any municipality may be treated during touch-up application and the total amount of herbicide in any year shall not exceed the limits specified on the label or the YOP (per 11.03 (8)(c)). Touch-up applications shall be performed using low pressure foliar or stem application methods. Touch-up applications will be performed within 12 months of initial treatment to a designated sensitive area.

8.0 METHODS FOR IDENTIFICTION OF SENSITIVE AREAS AND CONTROL STRATEGIES PROPOSED FOR SENSITIVE AREAS

8.1-REGULATORY DEFINITIONS OF SENSITIVE AREAS AND ASSOCIATED RESTRICTIONS

The Massachusetts Pesticide Board Regulations 333 CMR 11.00, defines sensitive areas for the purpose of implementing a vegetation management program involving the application of herbicides in any area within the ROW, including but not limited to the following, in which public health, environmental or agricultural concerns warrant special protection to further minimize risk of unreasonable adverse effects (See Appendices B, C, and the table below for "Sensitive Area Restriction Guide"):

(a) within the primary recharge zone of a public drinking water supply well;
(b) within 400 feet of any surface water used as a public water supply;
(c) within 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 200 feet, for 400 feet upstream, on both sides of the river, of a Class B drinking water intake;
(e) within 100 ft of any identified private drinking water supply well;
(f) within 100 feet of any standing or flowing water;
(g) within 100 feet of any wetland;
(h) within 100 feet of any agricultural of inhabited area;
(i) within a riverfront area;
(j) within certified vernal pool habitat.

The Massachusetts Pesticide Board Regulations establish restrictions pertaining to herbicide applications within designated sensitive area boundaries. The regulations further require the ROW owner to identify and delineate sensitive areas, which are not readily identifiable in the field, and to affix permanent markings to identify appropriate no spray and restricted spray setbacks. Those areas that are not considered to be readily identifiable in the field are (a) through (j) above. Agricultural and inhabited areas are generally readily visible from the ROW; therefore no permanent markings are required. It is important to note that "agricultural areas" includes, but is not limited to, actively grazed pastures, private gardens, animal pens and corrals, as well as active commercial food crop and non-food crop fields.

Each year that a YOP is prepared a copy shall be sent to the Natural Heritage and Endangered Species Program (NHESP) for their review. Any recommendations made by NHESP with respect to avoidance, minimization, or mitigation of impacts to endangered, threatened, or special concern species will be incorporated into the program.

Pursuant to 333 CMR 11.00, no herbicides shall be applied on or within 10 feet of standing or flowing surface water (other than surface water supplies), or within 10 feet of a wetland or certified vernal pool. Herbicides can be applied between 10 feet and 100 feet of the aforementioned areas and riverfront areas provided that 12 months has elapsed between applications. The herbicide must be applied selectively by low-pressure foliar techniques or stem application and the MDAR must have approved the herbicide for use in sensitive areas.

See "Sensitive Area Restriction Guide' below. No herbicides shall be applied within a Zone I of a public groundwater source, within 100' of any Class A public surface water source, within 100' of any tributary or associated surface water body where the tributary or associated surface water body runs within 400' of a Class A surface water source, or within 10' of any tributary or associated surface water body where the tributary or associated surface water body is at a distance
greater than 400' from a Class A surface water source, within a lateral distance of 100' for 400' upstream, on both sides of the river, of any Class B drinking water intake, and a 50-foot radius around a private well. Herbicides may be applied between 100 and 400 feet of a surface water supply or its tributaries provided that the herbicides are applied selectively by low-pressure foliar techniques. The herbicide used must be approved by the DAR for use in sensitive areas and the application can only occur once every 24 months. Also, herbicides may be applied within the primary recharge area of a public well (Zone II) provided that the herbicide is applied selectively by low-pressure foliar techniques. This herbicide must be approved by the DAR for use in sensitive areas at least 24 months must have elapsed from the last application.

No herbicides shall be applied within 100 feet of an agricultural or inhabited area unless the herbicide is approved for use in sensitive areas using low-pressure foliar techniques and a minimum of 12 months has lapsed since the last application.

Sensitive Area Restriction Guide (333 CMR 11.04)

Sensitive Area	No Spray Zone	Limited Use Zone	Where Identified
Wetlands and Water Over Wetlands	Within 10 feet (unless provisions of 333 CMR 11.04(4)(c) are followed)	10 – 100 feet; 12 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps and identify on site
Certified Vernal Pool	Within 10 feet	10 feet to the outer boundary of any Certified Vernal Pool Habitat; 12 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps and identify on site
Riverfront	Within 10 feet of	10 – 200 feet;	YOP Maps

Sensitive Area	No Spray Zone	Limited Use Zone	Where Identified
area	mean annual high-water mark.	12 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	and identity on site
Public Ground Water Supply	Within 400 feet (Zone I)	Zone II or IWPA (Primary Recharge Area); 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps
Public Surface Water Supply	Within 100 feet of any Class A public surface water source	100 feet to the outer boundary of the Zone A; 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps
	Within 10 feet of any tributary or associated surface water body located outside of the Zone A	10 feet to the outer boundary of the Zone A; 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	
	Within 100 feet of any tributary or associated surface water body located within the Zone A of a Class A public surface water source		
	Within a lateral distance of 100 feet for 400 feet upstream of any Class B Drinking Water Intake	Within a lateral distance of between 100 - 200 feet for 400 feet upstream of intake; 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	

8.2- IDENTIFICATION, DELINEATION AND MARKING OF SENSITIVE AREAS

8.2.1- Wetlands, Waterbodies, and Watercourses

The Massachusetts Wetlands Protection Act Regulation 310 CMR 10.02 (1) (a) – (f) define resource areas subject to protection under the acts as:

(a)	Any bank, any freshwater wetland, any coastal wetland, any beach, any dune, any flat, any marsh, any swamp any certified vernal pool	bordering on	The ocean any estuary any creek any river any stream any pond or any lake

(b) Land under any of the waterbodies listed above
(c) Land subject to tidal action
(d) Land subject to costal storm flowage
(e) Land subject to flooding
(f) Riverfront area

For the purposes of managing the Railroad's ROW, (a) through (c) above shall be afforded the same degree of protection and considered sensitive areas under Rights of Way Management Regulations 333 CMR 11.00.

The following are brief definitions of (a) through (c) above as defined in 310 CMR 10.00:

(a) Bordering Vegetated Wetlands- are freshwater wetlands, which border on creeks, rivers, streams, ponds and lakes. Types of freshwater wetlands include wet meadows, marshes, swamps, certified vernal pools, and bogs.
(b) Land Under Waterbodies and Waterways- consists of the land beneath any creek, river, stream, pond or lake.
(c) Land Subject to Tidal Action- means land subject to the periodic rise and fall or a coastal waterbody, including spring tides.

Land subject to coastal storm flowage (d) and land subject to flooding (e) are not defined as wetlands under 333 CMR 11.02.

Floodplains or Bordering Land Subject to Flooding are defined as "an area with low, flat topography adjacent to and inundated by floodwater rising from creeks, rivers, streams,

ponds or lakes. It extends from the banks of their waterways and waterbodies; where a bordering vegetated wetland occurs, it extends from said wetland". Floodplains may or may not meet the defining characteristic of a wetland and therefore may not be subjected to the herbicide application restrictions established in 333 CMR 11.00; unless standing water is present at the time of herbicide application.

Riverfront area (f) is defined as the area of land between a river's mean annual high-water line measured horizontally outward from the river and a parallel line located 200 feet away. Riverfront areas shall also be treated as sensitive areas under 310 CMR 11.00.

For each community in which the Railroad ROW is scheduled for treatment with herbicides, the wetlands, watercourses, and waterbodies within 100 feet of the ROW were located in the field by wetland specialists. Wetland boundaries were determined as described in 310 CMR 10.00.

The limits of the 10 foot no spray and the 100 foot "limited application" buffer zones were measured and marked on the roadbed with a color-coded marking system approved by the MDAR. This marking system will be discussed in section 8.3. The locations of these markings were drawn on a map of the ROWs and are located via GIS. These maps are carried in the spray vehicle and are located during herbicide application utilizing field markings and GIS technology.

Upon completion of the mapping a Request for Determination for approval of the wetland boundary was filed with each affected community. Determinations issued by the conservation commissions are valid for 5 years or the life of the VMP. See Appendix D and E.

8.2.2- Public Water Supplies and Aquifer Recharge Areas

Public water supplies for each of the affected communities are identified on a yearly basis by reviewing Groundwater Protection Atlas Overlays and Resource Priority Maps on the MassMapper website powered by MassGis. Public water supply information is also available from local health officials and water departments. Aquifer protection zone maps identify Zone II for public water supply wells. For those communities that have not delineated the Zone II recharge areas for their water supplies, the Zone II boundaries shall be considered the area within a one-half mile radius of the well head.

For each public water supply well identified within 400 feet of the ROW the well head was located in the field and a 400 ft. no spray zone was marked on the rail bed utilizing the approved color-coded marking system identified in section 8.3.

Public surface water supplies and their tributaries identified within 400 feet of the ROW were located in the field, and the 100-foot no spray and 400-foot restricted spray zones marked on the rail bed.

The 200-foot restricted spray areas of any tributary or associated surface water body which runs outside the Zone A of a Class A water source were also marked in the field, and the 200-foot restricted spray zone for 400 feet upstream of a Class B drinking water intake are also marked on the rail bed.

8.2.3 – Private Water Supply Wells

Pursuant to 333 CMR 11.00e, the MDAR shall request locations of private drinking water supplies located along the ROW from the Department of Conservation and Recreation and local Boards of Health. The Railroads shall consult with the DAR with regard to private well locations and accordingly locate any registered private wells in the field. The railbed was marked in the field as described in section 8.3 and the location of these wells referenced on ROW maps indicating sensitive areas.

8.2.4 – Sensitive Areas Readily Identifiable in the Field

Sensitive areas readily identifiable in the field include agricultural areas and inhabited areas as described in Section 8.1. Due to their visibility, these areas are not depicted on the maps of sensitive areas. During herbicide application, a sensitive area spotter vehicle will proceed along the ROW in front of the spray vehicle and provide warning via radio of any upcoming sensitive areas. The applicator shall abide by all spray restrictions established in 333 CMR 11.04(5) and incorporated into this plan.

8.3- SENSITIVE AREA MARKING SYSTEM

No spray areas are those in which herbicide spraying is prohibited. It includes track within 400 feet of a public water supply wetland, 100 feet from a public surface water supply, within 100 feet of any tributary or associated surface water body which runs within 400 feet of a Class A surface water source, within 10 feet of any tributary or associated surface water body which is at a distance greater than 400 feet from a Class A surface water source, a lateral distance of 100 feet, for 400 feet upstream, on both sides of the river, of a Class B drinking water intake, a 50-foot radius around a private well, and 10 feet from the edge of standing or flowing water, or wetlands, and within 10 feet of certified vernal pools and mean annual high water line of rivers.

Limited-spray areas are those in which spraying is restricted to one annual application of herbicides through a low-pressure foliar techniques. This includes track between 10 and 100 feet from the edge of standing or flowing water, or wetlands, between 10 feet of the mean annual high water line and the outer boundary of the Riverfront Area, between 10 feet and the limit of the outer boundary of Certified Vernal Pool Habitat, lengths of track within the primary recharge area around a public water supply wellhead, between 100-400 feet from the edge of a public surface water supply, a lateral distance of between

100-200 feet for 400 feet upstream, on both sides of the river, of a Class B drinking water intake, a distance of between 10-200 feet of any tributary or associated surface water body which runs outside the Zone A for a Class A water source, and between 50 and 100-foot radius around a private well. For water supply areas only, spraying is restricted to one application every other year of a herbicide approved by the MDAR through low-pressure foliar techniques.

Only herbicides on the MDAR's "Sensitive Area Material List" shall be used for application within sensitive areas.

Non-sensitive areas, which are upland areas and/or lengths of track without proximate sensitive areas do not require specific precautions or herbicide restrictions.

The limits of sensitive areas, no-spray areas, limited-spray areas and non-sensitive areas are marked in the field with permanent color-coded markers. These markers are reviewed yearly to insure visibility during spraying operations. Sensitive areas considered to be readily identifiable in the field (i.e. agricultural and inhabited areas) will not be marked. The markers will be one or any combination or the following:

- color-coded signs attached to posts
- color-coded signs attached to railroad ties
- color-coded painted rail sections.

8.3.1 Wetland, Watercourses and Waterbodies

Yellow - No Spray Zone. Represents a point on the railroad tracks that is a minimum of 10 feet away from an area subject to protection under Massachusetts Wetlands Protection Act (MWPA) 310 CMR 10.02 (1) (a)-(f) (bordering vegetated wetlands, streams, ponds, certified vernal pools, etc.)

Blue – Limited Spray Zone. Represents a 100-foot buffer zone from a resource area, or the limit of a 200 foot riverfront area. In restricted spray zones, only DAR recommended herbicides can be applied selectively by a low pressure (60 psi) foliar or stem application.

White – Sensitive area warning marker. This color indicates that the applicator is either entering or leaving a limited spray zone. For wetland areas, white markers are always adjacent to a blue tie.

It should be noted that a blue and yellow marker on the outside of the tie represents a no spray zone on that side only.

8.3.2 Public and Private Water Supplies

Purple- Limited spray area of Zone II of a public groundwater supply well or private well recharge zone or buffer zone of a public surface water supply. This color indicates that the applicator is in an aquifer recharge zone of a public groundwater well or the buffer zone of a public surface water supply as defined in 8.2.2 above. In this zone only DAR recommended herbicides can be applied by low pressure foliar or stem applications, with a minimum of 24 months between applications.

Yellow – No Spray Zone. Represents a point on the railroad tracks that is a minimum of 400 feet from public groundwater supply wellhead; 100 feet from surface water supplies; or 50 feet from a private drinking well.

White – Sensitive area warning marker. This color indicates that the applicator is either entering or leaving a restricted spray zone.

For public and private water supply herbicide application, white and yellow markers are always adjacent to a purple marker. Purple zones can only be sprayed once every 24 months.

9.0 – OPERATIONAL REQUIREMENTS OF APPLICATORS

9.1 – Licensing Requirements

No railroad personnel or contractor may apply or supervise the application of herbicides to the ROW unless they are certified by the MDAR in the category of Rights-of-Way Pest Control, pursuant to Massachusetts Pesticide Board Regulations 333 CMR 11.00.

9.2 – Inspections and Record Keeping

Several weeks prior to the application of herbicides the vegetation control engineer or other qualified personnel shall perform a review of the ROW in order to evaluate the need for herbicide treatment, and identify target vegetation. Conditions shall be noted on a form that asks for the following information:

The date and time of the review and the person conducting the review,

Location of the ROW, which includes the town the ROW is located in and the mile post where the vegetation is located.

A description of the density of the vegetation within the problem area and identification of nuisance species.

Type of herbicide previously applied and the date it was applied.

General condition of the area where the nuisance vegetation occurs.

All evaluation forms will be kept by the railroad and utilized in the development of the YOP.

For each day of herbicide application, the applicator shall complete a daily field report which shall include as a minimum, the location of the areas sprayed, date of application, weather conditions, equipment used, herbicides, carriers, and adjuvents used, quantities used, people on site, and the starting and completion time. Sample copies of a typical field report and spray log are included in Appendix F, courtesy of Railroad Weed Control, Inc. of Westfield, Massachusetts.

9.3 – Conformance with Regulatory Notification Requirements

The railroad shall comply with all regulatory requirements concerning notification to affected municipal agencies. At least twenty-one (21) days prior to commencing herbicide applications, the railroad, or its designated representative, shall submit written notification of the intended spray program and application date, to the senior ranking town or city official (Mayor, Town Manager, First Selectman, or Board of Selectman),

board of health, and conservation commission of each municipality. Formal notification shall be made by registered mail (as per Chapter 85 of Act of 2000), and include the approximate date and time of application. A copy of the MDAR approved YOP, or a website address which it can be viewed, and Environmental Monitor notice will be sent under separate cover (via certified mail) to the senior ranking town or city official, board of health, and conservation commission in each community.

Notification may coincide with the last 21 days of the YOP review and comment period, provided that all changes to the YOP, as requested by the MDAR, are made and that each municipality receives the revised YOP and sensitive area maps prior to commencing with the spray program. In addition, a public notice shall be printed in a widely circulated newspaper 48 hours prior to pesticide application. Appendix E includes reproduction of 333 CMR 10.00, Wetland Regulations pertaining to Rights-of-Way management.

9.4 – Applicators' Compliance Guidelines

Any applicators contracted to implement the herbicide management program to the ROW shall so do in accordance with all applicable state, federal, and local by-laws and will abide by the standards set forth in this plan and the YOP. The applicator will be thoroughly familiar with the contents of the VMP and YOP and shall carry a copy of the VMP and YOP at all times while performing herbicide application on the ROW.

The herbicide applicator shall abide by the sensitive area restrictions set forth in 333 CMR 11.00. During herbicide application, a railroad spotter vehicle shall proceed ahead of the spray truck and alert the applicator of any upcoming sensitive areas.

The herbicide applicator shall not handle, mix, or load herbicide concentrate on a ROW within 100 feet of any sensitive area. Water for mixing the herbicide may be obtained, subject to local ordinances, from ponds, lakes, or streams adjacent to the ROW, provided that tanks and hoses are equipped with DEP approved anti-siphon devices to prevent backflow or herbicides into the water source. Hoses and pumps utilized for filling the dispensing tank with water shall not be used for any purpose that could result in contact of the equipment with the herbicide concentrate or solution. Herbicide concentrate shall only be added to the dispensing tank after the tank is filled with water, at a location at least 100 feet from any sensitive areas. No cleaning or rinsing of tanks, nozzles or other equipment shall be performed within 100 feet of a sensitive area. Rinse water or excess herbicide mixture shall be disposed at an approved waste disposal facility.

Mixing and use of herbicides shall be consistent with the label instructions included on the packaging. Copies of sampling labels for herbicides and associated carriers and adjuvents shall be included as Appendices to each YOP. The herbicide applicator shall wear protective clothing and personal safety equipment when mixing, handling, loading or applying herbicides. Latex or nitrile rubber gloves as well as eye goggles should be worn during the mixing of herbicide concentrate.

10.0 EMERGENCY AND CONTINGENCY PLANNING AND RESPONSE

The herbicide applicator is experienced in the containment, cleanup, and reporting of any herbicide spills or related accidents. Application crews must carry with them at all times the following materials; a broom, shovel, heavy duty plastic bags, absorbent clay, activated charcoal, a suction system equipped with a hose adequate for picking up liquids, Material Safety Data Sheets and a list of emergency contact people and their phone numbers.

In the event of a spill, the applicator shall contain the release, as well as possible using the equipment and materials previously mentioned. Soil berms will be dug if necessary to contain the flow of the release. Absorbent materials and the suction hose will be used to pick up the released materials. Although the containment of the release is the first priority of the application crew, notification of the release to the Massachusetts Department of Environmental Protection Emergency Response Unit may be required within two (2) hours of the occurrence. Notification is dependent on the type and quantity of material released (e.g. reportable release of non-herbicide). The YOP shall include a complete list of federal, state, and local emergency contacts and telephone numbers.

Most commercial application contractors have developed guidelines of emergency procedures that must be followed by the application crew in the event of a release or related emergency. The applicators spill response and cleanup guidelines will be appended to the YOP.

In addition the Railroad has developed its own emergency response procedures to be followed in the event of any oil or hazardous materials release on Railroad property and ROW. A copy of this document is included in Appendix H and will be attached to each YOP.

11.0 ALTERNATIVE LAND USE PROVISIONS OR AGREEMENTS

The Railroad will take into consideration any requests by state or local officials and private citizens concerning protection of areas not already protected under 333 CMR 11.00. Such requests may include provisions for additional no spray setbacks for certain sensitive areas, or avoidance of vegetation removal in areas adjacent to the roadbed where vegetation may provide an aesthetic barrier between the ROW and abutting residences. Other examples may include the avoidance of herbicide applications at heavily used crossings, or near parks and recreation areas. Any such requests will be considered on a case-by-case basis. The requesting party must provide to the railroad evidence that:

- Herbicide applications or other means of vegetation control within the area of concern could reasonably jeopardize the welfare and/or safety of the public, or otherwise would create an unreasonable hardship to the concerned party.

- The vegetative conditions in the area of concern do not significantly interfere with railroad operations or present a safety hazard to railroad personnel or to the general public.

Any requests for special consideration should be made in writing and sent to:

CSX Transportation, INC
500 Water Street
Jacksonville, Florida 32202
Attention: Daniel Hampton

12.0 QUALIFICATIONS OF PERSONS DEVELOPING THE PLAN

The CSX Transportation, Inc. Vegetation Management Plan was prepared by environmental consultant Keith L. Morris of Leeds, Massachusetts. Mr. Morris was part of the team that developed the previous VMPs for Pan Am Railways, that is currently owned by CSX, that were approved in July 1992, June 1999, January 2005, April 2011, March 2016, and January, 2021. Since the approval of those VMPs, he has been responsible for the preparation and administration of each of the YOPs. His professional resume is included as Appendix I.

Herbicide handling, application, and record keeping requirement information for this plan were provided by RWC, INC. of Westfield, Massachusetts.