

Northwest Region, Area 1 Integrated Roadside Vegetation Management Plan

2014



**Washington State
Department of Transportation**

Maintenance Operations Division

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Summary

This plan explains the Washington State Department of Transportation's (WSDOT) policy and practice for maintenance of roadside vegetation for Maintenance Area 1 within the agency's Northwest Region. This area manages vegetation within approximately 210 miles of state highway corridor in Whatcom and northwest Skagit Counties. In addition to the Interstate 5 corridor between Burlington and the Canadian border, the area maintains State Route (SR) 9 throughout Whatcom County and all of SR 11 (Chuckanut Drive), 539, 542 (Mt. Baker Highway), 543, 544, 546, 547, and 548. A map of the area is included as **Figure 1** on the following page.

The primary objectives in maintenance of roadside vegetation within the area are in relation to safety of the highway users, preservation of the highway infrastructure, and control of legally designated noxious weeds where they occur on the right-of-way. Other considerations include protection and preservation of natural environment, preserving and enhancing the natural scenic quality of the roadside, and being a good neighbor to the many adjoining property owners. In all cases, roadside vegetation maintenance activities are planned and conducted in a way that discourages or eliminates unwanted vegetation and promotes desirable vegetation. This is the basic premise of Integrated Vegetation Management (IVM) and the foundation of the program.

This document and associated information management tools serve as the primary reference for maintenance of roadside vegetation in the area. Included is detailed information on policies and locations for planned routine maintenance practices, reoccurring weed infestations, sensitive areas, and other areas with special management considerations. Also included are guidelines and prescriptions for best management practices in dealing with roadside vegetation problems and opportunities. In effect, this plan supports WSDOT's compliance with state law (RCW 17.15) by implementing the principles of Integrated Pest Management for the management of roadside vegetation. It also supports WSDOT's long-range goals for the management of roadsides to:

- Create naturally stable, sustainable plant communities
- Improve effectiveness and efficiency in the control of weeds and unwanted trees and brush
- Reduce maintenance cost and herbicide use over time

This plan is organized around the major categories of roadside vegetation maintenance work. The major categories include: Zone 1 (or pavement edge maintenance), Routine Mowing, Noxious Weed Control, Nuisance Weed Control, Tree and Brush Control, and Special Maintenance Areas.

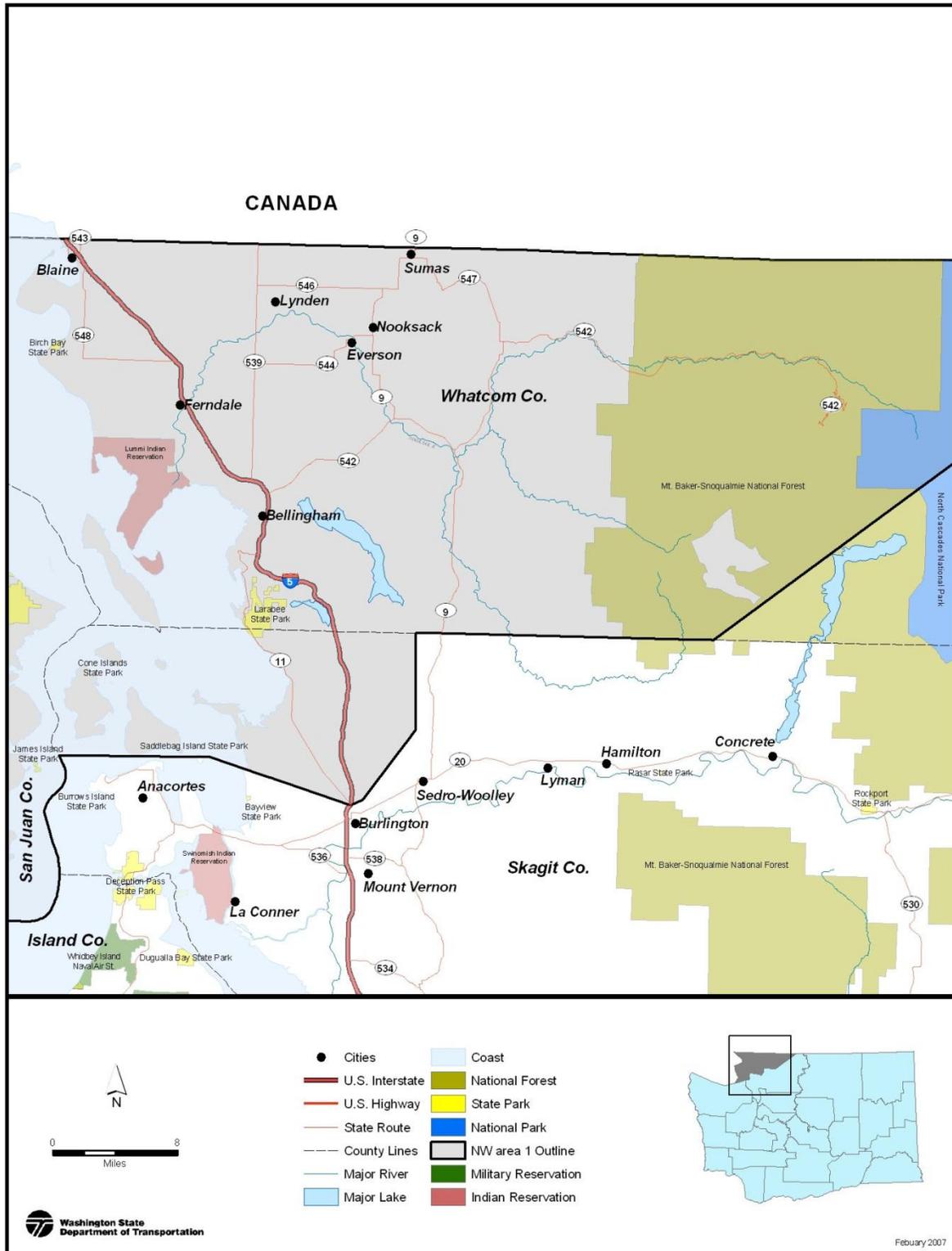
The management of roadside vegetation is a dynamic process and it is intended that this plan be continuously adapted over time based on input from a variety of sources. An integral component of the process is a database for recording IVM treatments for specific vegetation controls and locations, and to record information on follow up evaluation on these treatments. Annual area meetings will be held to discuss what is learned each year and refine the plan over time.

WSDOT is also requesting that local public and private entities with an interest in weed control and roadside vegetation management provide input on the plan and cooperate in efforts where appropriate. Additional copies of the draft plan are available online:

http://www.wsdot.wa.gov/Maintenance/Roadside/mgmt_plans.htm, hard copies can also be provided upon request. Please contact Tony Hernandez or Ray Willard at the numbers listed below for questions or comments:

Tony Hernandez
Superintendent, NW Region Area 1
hernana@wsdot.wa.gov
(360) 788-2500
3920 Airport Rd.
Bellingham, WA 98226-9159

Ray Willard
Roadside Maintenance Program Manager
willarr@wsdot.wa.gov
(360) 705-7865
PO Box 47358
Olympia, WA 98504-7358



Area Map
Figure 1

Roadside Management Considerations

The primary objectives for maintenance of roadside vegetation are to provide for safe highway operation and to comply with legal regulations for control of noxious weeds and protection of the environment. Overall WSDOT maintenance policy and procedures are defined in Chapter 6 of the [WSDOT Maintenance Manual](#) (M51-01, August 2014)
<http://www.wsdot.wa.gov/Publications/Manuals/M51-01.htm>

Visual Quality

It is also important to maintain appropriate visual standards in the appearance of the roadside. All maintenance activities should be conducted in a way that minimizes visual impacts such as wide spread “brown-out” from herbicides or shattered limbs from side trimming. Roadside should look as natural as possible throughout the year. Appropriate visual quality for roadsides throughout the state is defined in the [WSDOT Roadside Classification Plan](#) (November 2011)
<http://www.wsdot.wa.gov/Publications/Manuals/fulltext/M25-31/RCP.pdf>

Operational Zones

WSDOT roadsides are divided into several zones for the purposes of assigning management objectives, maintenance needs, and thresholds for triggering vegetation maintenance actions. Noxious weed species designated for control by state and county law are controlled throughout all zones. Not all management zones occur along all state highways. In some cases the narrow width of the right-of-way or adjoining land-use, limits the operational zones to Zone 1 and/or a narrow Zone 2 only. Roadside vegetation management zones are illustrated in **Figure 2** below and defined as follows:

Zone 1 – The Pavement Edge Zone is maintained in a manner and width necessary to address highway operational functions and safety, pavement preservation, guardrail maintenance, and stormwater management. Zone 1 may include a vegetation-free band adjacent to the pavement edge, particularly when guardrail is present, or may consist of desirable vegetation up to the pavement edge depending on site specific needs. Vegetation-free Zone 1 is maintained using non-selective soil residual herbicides. Routine annual mowing is required in most cases where vegetation is established up to the edge of pavement; periodic grading may also be required to prevent excess edge build up.

Zone 2 – The Operational Zone extends from Zone 1 to a width necessary to provide for safe errant vehicular recovery, site distance at corners, intersections and for regulatory signs, and to provide for other operational, safety, and environmental protection functions. Zone 2 is typically maintained through periodic mowing and trimming and through selective removal of undesirable trees and brush as needed.

Zone 3 – In areas with sufficient right-of-way width, a Buffer or Transition Zone extends from Zone 2 to the right-of-way line to provide a buffer or transitional area between the highway facility and adjacent land uses. This area is maintained selectively, and to the greatest degree possible as a self-sustaining plant community, to minimize erosion as well as the growth of weeds and undesirable trees and brush.

Roadside Maintenance Activities

All roadside maintenance activities are to be planned and conducted in a way that discourages or eliminates unwanted vegetation and promotes desirable vegetation. This is the basic premise of Integrated Vegetation Management. In every case it is essential that the results of maintenance activities are evaluated and adjusted as necessary to maximize efficiency and effectiveness, and to establish desirable plant communities that are as self-sustaining as possible. However, in some cases maintenance activities are planned and conducted on a regularly scheduled repeating basis, such as maintenance of a vegetation-free Zone 1 and/or routine mowing cycles where appropriate.

Routine Maintenance Activities – When vegetation maintenance activities are intended to keep the area of roadside being treated in an annually controlled condition, they are

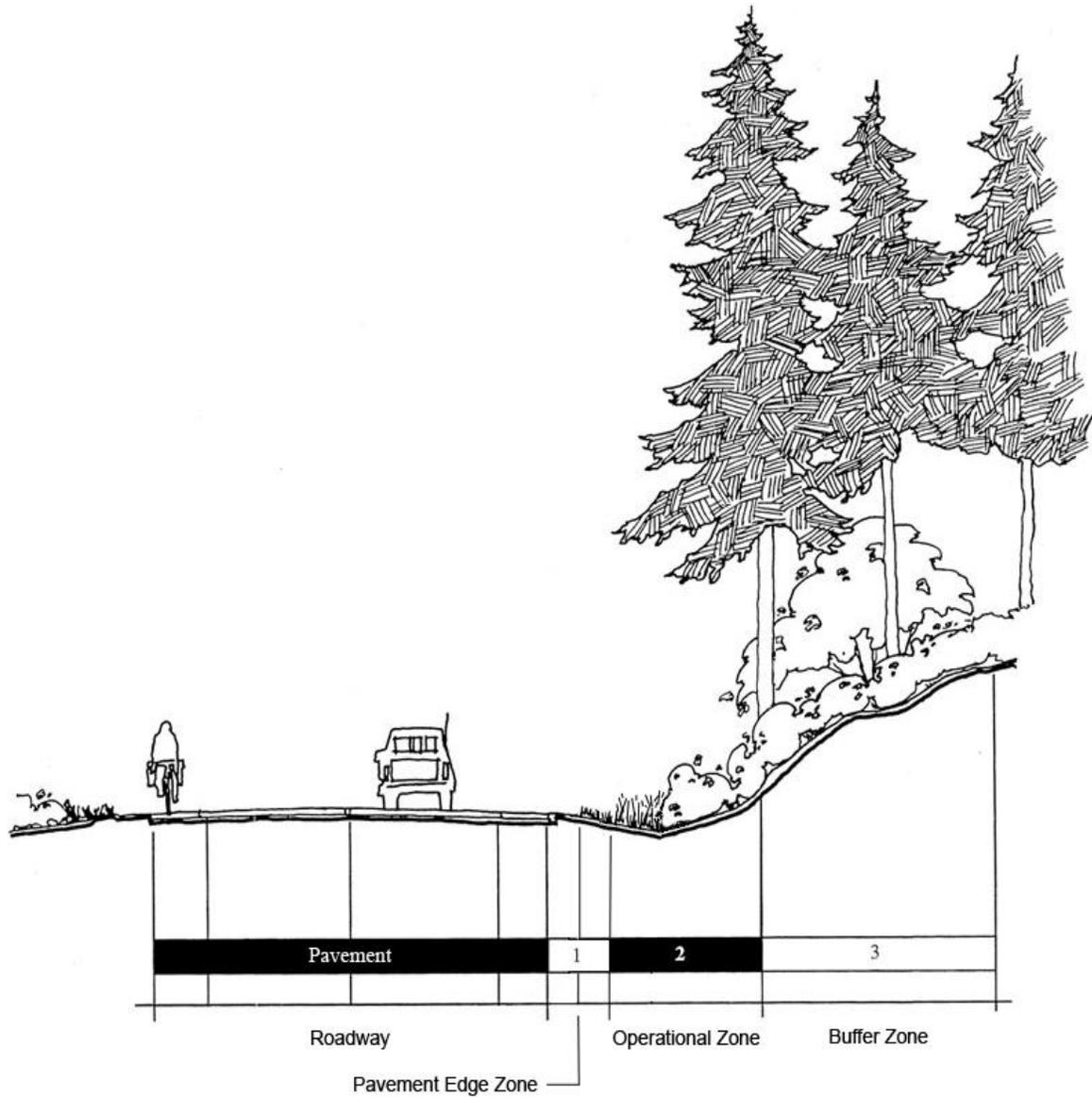
considered routine. This is more critical for areas of vegetated roadside near the travel lanes, edge of pavement, and around guardrails. This plan provides prescriptions and gives locations for routine maintenance activities including maintenance of Zone 1 and annual mowing.

Integrated Vegetation Management Activities – Although all activities are to be planned and conducted in accordance with the principles of IVM, many vegetation maintenance activities are intended to target a specific type or types of unwanted plants. By carefully planning and carrying out these target specific activities it is possible over time to establish desirable vegetation, which will prevent the re-infestation of unwanted plants. The process for determining and carrying out IVM actions is illustrated in **Figure 3** below. This plan provides information, locations, and gives prescriptions for selective control of weeds and other unwanted vegetation and the promotion and establishment of desirable vegetation. Further information and guidance on the application of IVM is available in the document Integrated Vegetation Management for Roadsides (WSDOT, July 1997). A copy of this document can be obtained by contacting the state roadside maintenance program manager.

Special Maintenance Areas – In some locations there are unique situations that require consideration in determining appropriate vegetation maintenance actions. Examples of these are: environmentally sensitive areas, areas with special neighbor concerns, areas where a higher level of maintenance is expected such as gateway interchanges or formally landscaped areas, or along highways that cross tribal or federal lands. This plan provides information and guidance on the locations and unique requirements or restrictions on maintenance activities in all of these situations throughout the area.

Herbicide Use – WSDOT has conducted independent research on herbicide risk from toxicity and environmental fate, based specifically on agency application methods and use rates. Findings from this research have been used to establish an approved palette of herbicides and application limits for state highways. A complete summary of herbicides approved for use on WSDOT rights-of-way is included in **Appendix B**.

For all planned herbicide applications made on US Forest Service land WSDOT will submit a Pesticide Use Proposal Form (see Appendix H) to the Forest Service R6 Pesticide Use Coordinator at the start of each season, or at least one week prior to any scheduled application. At the end of each season the WSDOT HQ Maintenance Office will submit a report outlining herbicide use performed for highway sections in each National Forest.



Pavement Edge Zone

Low Growing or Routinely Mowed Vegetation and/or Vegetation-Free Strip
 Maintained using mechanical and/or chemical methods for sight distance, stormwater drainage and filtration, noxious weed control, pavement preservation and roadside hardware maintenance.

Operational Zone

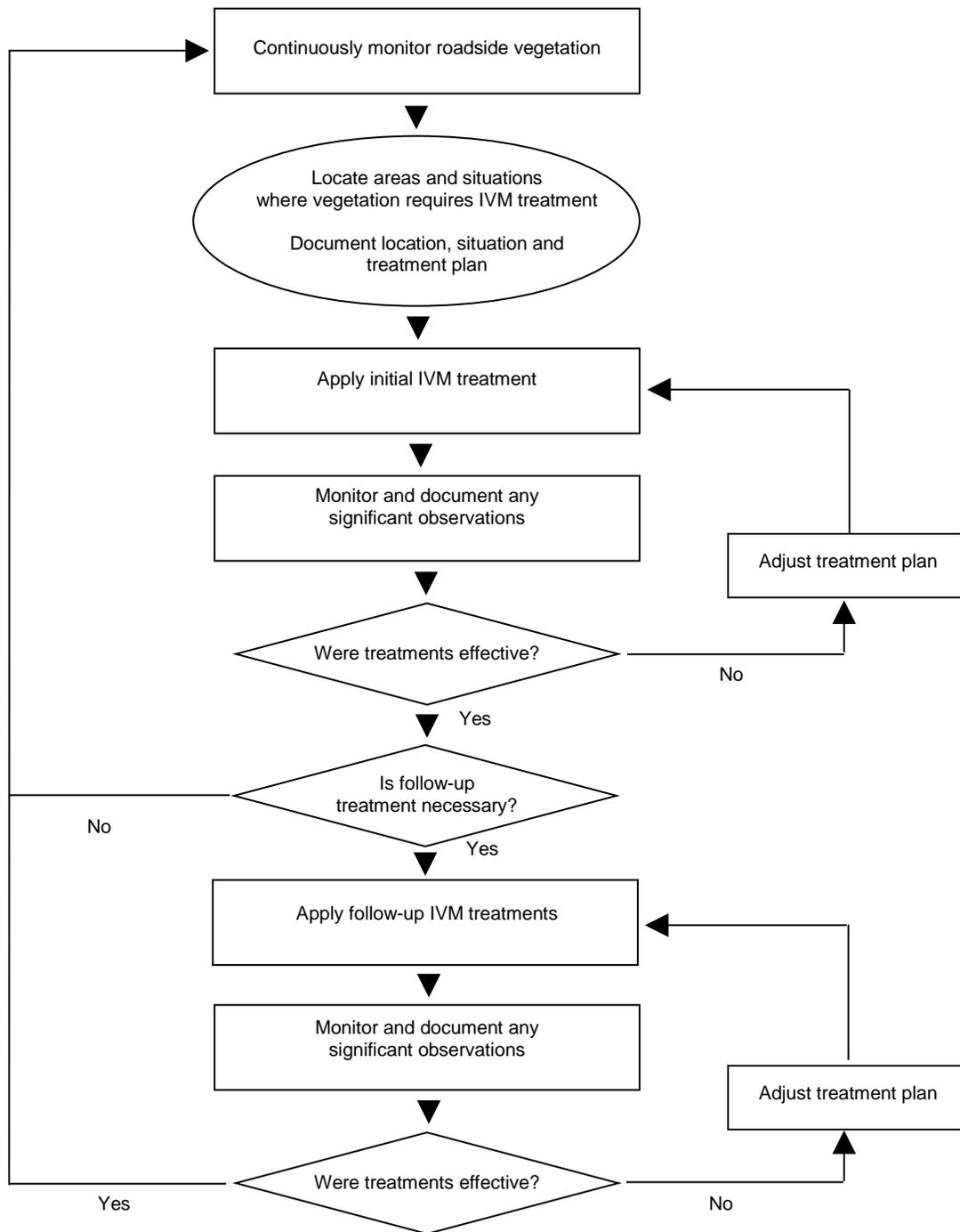
No Vegetation with Stem Diameter Greater than 4"
 Maintained using IVM techniques for sign visibility, sight distance, errant vehicle recovery and weed control.

Buffer Zone

Native or Naturally Occurring Vegetation
 Where adequate right of way exists, maintained using IVM techniques to encourage desirable, self-sustaining plant communities.

Typical Roadside Vegetation Management Zones

Figure 2



The IVM Decision-Making Process

Figure 3

Area IVM Goals - 2014

The purpose of this section is to identify the highest priority roadside vegetation management needs in Northwest Region, Area 1 and to describe in general the approach the area will take in addressing these needs in the coming years. Information here is presented in relation to the three major groups for roadside vegetation maintenance performance: Control of Vegetative Obstructions, Noxious Weed Control, and Nuisance Weed Control. This section is intended to supplement the information in the following section, ***Northwest Region, Area 1 – Roadside Vegetation Management Plan*** which details the guidelines and methods for accomplishing the work of roadside vegetation management along the highways within this maintenance area.

Control of Vegetative Obstructions

The work of this group of maintenance activities relates to the safety and operation of the highway and these items are considered **first priority** in terms of the overall roadside maintenance needs. Vegetation management goals in this category fall into two groups – Pavement Edge Maintenance/Zone 1, and Tree and Brush Control/Zone 2.

Pavement Edge Maintenance/Zone 1

415110 (Westside)

- All roads within Area 1, I-5, SR-11, SR-543 and SR-548 are maintained with an annual application of herbicides.
- Generally maintained at three feet, which may vary depending on the slope of the shoulder.
- Safety hardware such as guardrail and sign bases are included in the Zone 1 treatment.
- Areas that fall within water buffer areas are generally maintained by mechanical means or by using herbicides
- Areas controlled mechanically will be by tractor mounted flail and rotary mowers. The goal for mechanical mowing is once a year.
- When necessary removal of excessive sod build up will be scheduled, only if build up has an effect on the hydraulic flow of water off the roadway surface.

415120 (Eastside)

- SR-547,546,544,542,539 and 9 are maintained with an annual application of herbicides.
- Generally maintained at three feet, which may vary depending on the slope of the shoulder.
- Areas that fall within water buffer areas are generally maintained by mechanical means or by using herbicides.
- Areas controlled mechanically will be by tractor mounted flail and rotary mowers.
- The goal for mechanical mowing is once a year
- When necessary removal of excessive sod build up will be scheduled, if build up has an effect on the hydraulic flow of water off the roadway surface.
- SR-542 (U.S.F.S.) MP33-MP56 Zone 1 is only maintained around the base of the guardrail with the use of aquatic label glyphosate.
- Areas not treated with herbicide will be controlled by mechanical means.

Tree and Brush Control/Zone 2

Throughout NW Region, Area 1

- Tree and Brush control for all highways within area 1 will fall under the guidelines of section 2.4.1 in the Northwest region Area1 IVM Plan.
- We will target some of our larger infestations mainly Blackberry, Scotch broom, Alder, Douglas fir, cedar trees, Canada and Bull thistle.

- Cut Alders from MP 240 to MP 232 in the median and right shoulder treat stumps with Garlon 4A at a rate that is recommended on label.

Noxious Weed Control

Noxious weeds are those species legally designated by state and county regulations for required control by all property owners. Because laws are enforced with fines and/or control work and billing of property owners by county administration, work under this group is considered second priority after critical safety related locations have been addressed. Control of designated noxious weed species is typically carried out using herbicides or mechanical means on all highways throughout the area on an as needed basis. Herbicide applications will use at the rate recommended on the label. The general area-wide approach and areas of focused attention for 2014 include:

415110 (Westside)

I-5

- We will target noxious weeds by spot spraying from MP 231 to MP 276 starting when the weather allows.
- We will mainly target Wild Chervil, Poison Hemlock and using Escort and Telar DF, Tansy Ragwort with Milestone.
- In June, July and August we will mainly target Hawkweeds (orange, yellow, yellow devil and smooth), and Sulfur Cinquefoil with Milestone VM, for Knotweed we will use Habitat/MSO
- For Knotweed we will use Habitat/MSO.

SR 11, 543, and 548

- We will treat noxious weeds they occur throughout the year.

415120 (Eastside)

SR 542

- We will target noxious weeds by spot spraying using a portable tank from MP 2 to MP 33 when weather and schedule allows.
- We will mainly target Wild Chervil, Poison Hemlock, Tansy Ragwort and we will use Escort and Telar DF.
- Generally in June, July and August we will mainly target Hawkweeds (orange, yellow, yellow devil and smooth), and Sulfur Cinquefoil and we will use Milestone VM. For Knotweed we will use Habitat/MSO.

SR 9

- We will target noxious weeds from MP 66 to MP 96 when the weather allows.
- We will mainly target Wild Chervil, Poison Hemlock and we will use Escort and Telar DF.
- Also in May we will target Tansy Ragwort with Milestone, In June, July and August we will mainly target Hawkweeds (orange, yellow, yellow devil and smooth), and Sulfur Cinquefoil with Milestone VM.
- For Knotweed we will use Habitat/MSO

SR 539

- We will target noxious weeds from MP 2.5 to MP 15 starting in early May if weather allows.
- We will mainly target Wild Chervil, Poison Hemlock and we will use Escort and Telar DF.
- Also in May we will target Tansy Ragwort with Milestone.

- In June, July and August we will mainly target Hawkweeds (orange, yellow, yellow devil and smooth), and Sulfur Cinquefoil with Milestone VM. For Knotweed we will use Habitat/MSO.

SR 544,546 and SR 547

- We will treat when necessary.

SR 542 MP 34-57 (USFS)

- Our effort in 2014 will be to treat Herb Robert (geranium robertianum) which is growing throughout the corridor between, MP 34 and 46.
- WSDOT will continue cooperating with the Whatcom County Weed Board on their effort along the highway to control tansy ragwort by annual hand pulling efforts and treatment of Japanese knotweed with herbicide under a separate agreement between County and USFS.

Nuisance Vegetation Control

Nuisance vegetation control includes control/management of weed species that are recommended but not mandated by state and/or county law. It also includes work such as mowing of grass and weeds in areas where a more neatly maintained appearance is desired such as in gateway interchanges or highways in urbanized areas. Because nuisance vegetation control is lower priority after safety related and legally mandated activities, the location and work actions listed below may be postponed depending on availability of resources. For 2014, the overall approaches to control of nuisance vegetation and locations where focused efforts will be applied if time and resources allow include:

415110 (Westside)

I-5

- We will make our applications in late summer and early fall.
- Scotch Broom will be treated with a combination of mowing, herbicide treatment with Garlon 4A
- MP 258-276 treat Scotch broom with the use of the Brown Brush Monitor (brush cutter with the ability to apply herbicide).

SR 11, 543 and 548

- We will treat as necessary infestations of nuisance weeds as describe in section 2.3 of the IVM plan

415120 (Eastside)

SR 9,539 and 542

- We will target Blackberry and Scotch Broom mechanically and herbicides. We will make our applications in late summer and early fall.
- Scotch Broom will be mowed first then treated with Garlon 4A

SR 544, 546 and 547

- We will treat as necessary for nuisance weeds on these routes as they occur.

SR 542 MP 34-57 (USFS)

- We will treat as necessary for nuisance weeds on these routes as they occur.

Northwest Region, Area 1 – Roadside Vegetation Management Plan

1. ROUTINE MAINTENANCE ACTIVITIES

Roadside maintenance activities are considered routine when a regularly occurring cycle of treatment is required to keep vegetative growth from interfering with highway operational and maintenance objectives. Routine vegetation maintenance activities include maintenance of a vegetation-free band at the edge of pavement where required, certain types of mowing and trimming operations, and removal of trees that pose an identifiable threat to the highway or neighboring property.

1.1. Bare Ground Shoulder Maintenance (Zone 1)

In some locations/situations it is most efficient and effective to maintain a vegetation free band of shoulder rock along the edge of pavement, also referred to as bare ground shoulder maintenance. Annual herbicide applications are required where a vegetation-free condition is specified.

1.1.1. Guidelines

- A vegetation-free Zone 1 is maintained with the annual application of herbicides for all road shoulders in the area, except for shoulder edges with curb and/or sidewalk and on non-guardrail shoulders on SR542 within National Forest boundaries.
- Where maintained the vegetation-free band is 3' width or less.

1.1.2 Methods

- Herbicides being applied to Zone 1 include a mixture of non-selective, pre and post emergent products.
- Treatment prescriptions are listed in **Appendix A, Zone 1 Maintenance – Bare Ground Treatment**

1.1.3 Locations

- Delineation for vegetation-free Zone 1 maintenance can be found using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

1.2. Mowing/Trimming (Zones 1 and 2)

Regular mowing cycles are required in most locations where a vegetation-free Zone 1 is not maintained and grass is established up to the edge of pavement. Even in some locations where a vegetation-free Zone 1 is maintained, seasonal grass growth near the road edge is tall enough to interfere with traffic operations and safety. In addition, some locations, particularly on secondary highways with narrow rights-of-way, regular periodic side trimming is required to prevent growth of shrubs/brush or side branches on trees from interfering with traffic operations and safety.

1.2.1. Guidelines

- Routine annual mowing only occurs in designated areas on Interstate 5 and SR 543 adjacent to edge of pavement and in designated focus areas such as interchanges and landscaped areas adjacent to safety rest areas and in Blaine near the border crossing as described in **Section 3**.
- A detailed description of routine mowing patterns and timing is provided in **Appendix C, Routine Mowing Plan**.
- In all other areas mowing is only used as part of IVM treatments for weed and brush control as described below in **Section 2**.

- Annual mowing or trimming is also conducted as needed for select locations on secondary highways to preserve site distance at curves, intersections and any other highway entry points.
- There are also areas on certain designated highway sections that are annually mowed to prevent problems caused by drifting snow in winter months.
- Other areas that may be routinely mowed include grass areas in park and ride lots, narrow grass strips along highway infrastructures, and fence-lines adjacent to neighboring properties as deemed necessary by the Area Superintendent.

1.2.2.Methods

- On I-5, routine annual mowing areas are designated as either single pass or multiple pass.
- Single pass mowing consists of one pass up to the maximum width of mowing equipment (25' max.) but may be as narrow as 6' depending on mowing equipment and the presence of existing visual lines such as ditches.
- In areas designated as multiple pass mowing roadsides are mowed out from edge of pavement to the right-of-way line, the edge of shrub or tree lines, or across the entire median widths.
- See **Appendix A, Routine Maintenance Prescriptions, Zone 2 Maintenance**

1.2.3.Locations (location not included at this time)

- Single pass routine mowing occurs on all roadsides in the area, except for inaccessible steep slopes behind Jersey barrier or guardrail. Delineation for areas receiving routine multiple pass mowing can be found using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.
- **Appendix C, Routine Mowing Plan** describes mowing priorities, timing and limits on the I-5 and SR 534 corridors.

1.3. Hazard Tree Monitoring and Removal (Zone 3)

In areas where there is adequate right-of-way width to accommodate Zone 3 the main objective is to establish vegetation that requires as little maintenance as possible. Activities conducted are targeted selectively at removal of unwanted vegetation and preservation of desirable vegetation. However, large trees with health or structural problems can pose a significant threat to the highway, therefore both monitoring for the presence of potential hazard trees and removal when necessary are consider routine and ongoing roadside maintenance activities.

1.3.1. Guidelines

- Hazard tree removal is considered a routine maintenance activity because maintenance is constantly on the lookout for any trees that pose an imminent threat to the highway or traffic, and whenever hazard trees are identified they are routinely removed as soon as possible.
- Hazard trees may be dead, diseased, leaning, or structurally unsound. Best horticultural judgment will be used in evaluating trees that appear diseased or structurally unsound or are believed to pose a long-term threat to determine the best course of action.

- Another consideration in removal of trees is the contribution to shading in areas prone to frost and ice formation on the highway surface. When such areas are identified, the surrounding canopy may be thinned through selective removal of large trees on the right-of-way.
- In some cases trees threatening the highway may be growing on neighboring property. In these cases WSDOT has the legal right to remove the trees after informing and consulting with the neighboring property owner.

1.3.2. Methods

- Hazard trees are removed in such a manner to minimize damage and impact to the highway structure and other healthy trees and understory vegetation.

2. INTEGRATED VEGETATION MANAGEMENT ACTIVITIES

All roadside vegetation maintenance activities technically fall under IVM. IVM is a coordinated decision making process that uses the most appropriate vegetation management methods and strategy, along with a monitoring and evaluation system, to achieve long-term roadside maintenance goals and objectives in an environmentally and economically sound manner. Even routine activities should be evaluated for effectiveness and refined whenever possible to reduce annual maintenance requirements. However, for the following activities the ultimate goal is to eliminate and prevent the future growth of unwanted plants, and to promote and enhance desirable vegetation. Activities are planned and carried out using the decision making process diagrammed in **Figure 3** on page 8. The goal in utilizing the IVM approach is the establishment of stable, low maintenance native or naturalized plant communities on the roadside that are compatible with:

- Highway maintenance and safety objectives
- Preservation of environmental quality
- Weed control requirements
- The concerns of WSDOT's customers and neighbors

Long term, the use of the IVM approach can reduce the intensity and cost of maintenance as well as minimizing the need to use herbicides.

2.1. Integrated Vegetation Management Planning and Tracking Database

2.1.1. Guidelines

- An Integrated Vegetation Management Records database is available for use. This database is accessed through the same WSDOT network application as the Pesticide Application Records database.
- Any activities focused on treatment of a specific location and species infestation, or focused on treatment of any types of unwanted vegetation throughout the area will be documented with an initial IVM record outlining the long-term treatment plan. These same records will be updated over time whenever planned treatments are carried out, or when observations are made as to the success or failure of past treatments.

2.2. Noxious Weed Control

WSDOT defines noxious weeds as any species listed for mandatory control under state law (WAC 16-750) or by the local county codes. Other weed species that may be listed as noxious weeds on the state and county lists but not legally mandated for control are defined as nuisance weeds and managed as described under **Section 2.3** in this plan.

2.2.1. Guidelines

- Noxious weed control is a high priority for WSDOT because of state law requiring control of designated species. Transportation rights-of-way are high priority locations for control of noxious weed species within the state because they cross and link so many adjacent properties and land uses.
- Whenever possible designated noxious weed species and infestations locations will be documented and treated following plans as defined by IVM record forms in the database.
- Washington State Law classifies noxious weeds in three classes: A, B, and C. All Class A species are required control wherever they occur statewide. The law allows for individual county weed boards to designate individual Class B and C weeds for control within the counties depending on how widespread and potentially harmful they are at the local level.
- For NW Region, Area 1 the following weeds designated for control are known to exist on state highway rights-of-way in Whatcom and Northwest Skagit Counties:

Class A

Class A noxious weeds are non-native species with a limited distribution in the state. No Class A weeds are known to exist on WSDOT rights-of-way in this area.

Class B

Class B weeds are more widespread than Class A, with control mandated by law only if infestations are generally limited and the species are designated within the individual counties by the County Noxious Weed Control Boards. The following designated Class B species are known to exist on WSDOT right-of-way:

Common Name/Botanical Name	Whatcom	Skagit
Knotweed sp./Polygonum sp.	◆	◆
Knapweed sp./Centaurea sp.	◆	◆
Purple loosestrife/Lythrum salicaria	◆	◆
Wild chervil/Anthriscus sylvestris	◆	◆
Ragwort tansy, Senecio jacobae	◆	◆
Sulfur cinquefoil/Potentilla recta	◆	
Orange hawkweed/Hieracium aurantiacum	◆	◆
Smooth hawkweed/Hieracium laivigatum	◆	◆
Scotch broom/Cytisus scoparius		◆

Class C

Class C noxious weeds are widely established throughout Washington or may impact the agricultural industry. All Class C noxious weeds on state right-of-way in Whatcom and Skagit Counties in NW Region, Area 1 are managed as nuisance weeds and described in **Section 2.3**.

2.2.2. Methods

- Because noxious weed species are often difficult to control, herbicides treatments are often the primary, initial means of control.
- If infestations are limited to a few plants, hand pulling is also effective when the entire root system is also removed. Maintenance employees are encouraged to be aware of and look for new noxious weed occurrences, and to stop and pull these plants whenever possible.
- In conjunction with weed control treatments, a variety of other measures may be taken to promote natural vegetative competition through seeding, planting, and soil enhancement. The IVM Record and database are essential to the execution and success of these control measures.
- For recommended treatments specific to noxious weed species, see **Appendix A, IVM Prescriptions, Noxious Weed Control**

2.2.3. Locations

- Priority locations for control of designated noxious weed species in NW Region, Area 1 can be found using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

2.3. Nuisance Weed Control

For the purposes of this plan, nuisance weed species are defined as species listed as Class B and C weeds on the state noxious weed lists, but not required for mandatory

control within individual counties. Nuisance weed control, while not required by state law, provides many positive benefits to the overall condition of the roadside, enhances ecological function by maintaining and enhancing native plant communities, reduces the potential for continuing spread of weed infestations, and enhances visual quality.

2.3.1.Guidelines

- Nuisance weed species will be controlled when time and budget allows.
- Priority will be given to locations with the highest chance for success including relatively new infestations and where there is potential for infestations to spread to un-infested areas of the right-of-way or to un-infested neighboring properties.
- Species designated as nuisance weeds in NW Region, Area 1 that are known to exist on the highway right-of-way include:

Common Name/Botanical Name	Whatcom	Skagit
Butterfly bush/Buddleja davidii	◆	◆
Poison hemlock/Conium maculatum	◆	◆
St. Johnswort/Hypericum perforatum	◆	◆
Sulfur cinquefoil/Potentilla recta		◆
Common tansy/Tanacetum vulgare	◆	◆
Bull thistle/Cirsium vulgare	◆	◆
Canada thistle/Cirsium arvense	◆	◆
Scotch broom/Cytisus scoparius	◆	
Wild carrot/Daucus carota	◆	◆
Yellow Toadflax/Linaria vulgaris	◆	◆
Common Mullein/Verbascum thapsus	◆	◆
Hairy Willow Herb/Epilobium hirsutum	◆	◆
Himalayan blackberry/Rubus discolor	◆	◆

2.3.2.Methods

- Control measures for nuisance weed are dependent on the species.
- Woody species such as Scotch broom and Himalayan blackberry are most effectively treated with a combination of cutting, herbicide treatments and encouragement of native vegetation.
- Perennial species such as Canada thistle are most effectively controlled by succeeding years of properly timed herbicide applications.
- Annual or biennial species such as bull thistle and common tansy may also be effectively controlled with herbicide applications when plants are in the rosette stage in spring, or by hand pulling prior to seed set.
- See **Appendix A, IVM Prescriptions, Nuisance Weed Control**.

2.4. Tree and Brush Control

2.4.1.Guidelines

- Trees and brush are controlled for safety reasons including preservation of sight distance at curves and intersections, and for visibility of signs, and preventing trees with potentially large trunk diameter or potential to fall on the highway from growing too close to traffic lanes.
- Native large shrub and small stature tree species should be allowed to grow and mature in Zone 2 and selectively trimmed if they begin to encroach on site distance or other traffic operational requirements.
- Any tree with a trunk diameter of 4” or greater is considered a hazard for errant vehicles in Zone 2 and should be removed. This zone is also referred to as the Design Clear Zone and is typically maintained to a width of 30’ from the traffic lane edge. Actual minimum widths are

determined by roadway alignment, traffic speed and volume, and cross-section of the roadside, as specified in the WSDOT Design Manual, Chapter 700.04. <http://www.wsdot.wa.gov/Publications/Manuals/M22-01.htm>

- Some hardwood deciduous tree species are prone to failure when mature and have the potential to fall on the highway. Whenever possible, particularly on interstate routes, alder, birch, bigleaf maple, and cottonwood species will be removed when growing on the right-of-way within 70' of the pavement.

2.4.2.Methods

- Removal of undesirable tree and brush species is typically accomplished by hand cutting, hand pulling, properly timed selective mowing, properly timed herbicide applications, or combinations thereof.
- In some locations it is most effective to mow back the majority of the existing undesirable vegetation and then selectively treat re-growth with herbicides in succeeding years, allowing desirable vegetation to grow up around and form a competitive cover.
- In some cases when tree and brush species are cut by hand, the debris can be fed through a chipper and placed back on the roadside in the form of mulch for soil enhancement and weed prevention.
- Timing of activities has a significant effect on how the vegetation grows back. Herbicide applications made by hand, directly to the cut surfaces of undesirable plants may be used to reduce or eliminate grow back.
- Chemical control methods will not be used on conifers greater than 2 feet in height and/or large dense patches of young trees, to avoid unnecessary negative visual impacts from "brown-out".
- Chemical control methods will not be used on deciduous plants until after the first of September, except for as stump treatments in conjunction with mechanical cutting to eliminate grow-back.
- When possible, safe and practical, seedlings of desirable trees may be dug or pulled by hand and transplanted to areas where their growth will be beneficial and appropriate. In some locations agreements may be signed to allow private citizens to collect seedlings for use as transplants.
- See **Appendix A, IVM Prescriptions, Tree and Brush Control**.

3. SPECIAL MAINTENANCE AREAS

Special Maintenance Areas are any locations with unique maintenance requirements or special considerations for roadside vegetation management. These areas may include interchanges, community entrances or enhancement areas, areas maintained by cities, bicycle paths, storm water retention ponds, state park land, wellheads, environmentally sensitive areas, school zones and roadsides adjacent to individual properties with current or annual no-spray agreements.

3.1. Interchanges/Intersections

3.1.1.Guidelines

- Interchange areas are sometimes developed and maintained to a greater level than general roadside areas to include storm water management facilities, pedestrian areas, and permanent vegetation designed for screening, and visual enhancements for community entrances.

3.1.2.Locations

- Interchanges and intersections with unique maintenance considerations and/or interchanges that are considered urban gateways along with a description of special maintenance activities can be referenced using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.2. Formally Landscaped Sections

3.2.1.Guidelines

- On areas along I-5 near Safety Rest Areas and in Blaine near the Canadian border, the roadsides have been planted with ornamental landscaping.
- Vegetation management work in these areas is distinguished by charges to the 1500 series within the WSDOT Financial Information Recording System.

3.2.2.Locations

- Areas considered as formally landscaped can be referenced along with notes describing general practices for each location using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.3. City Maintenance Areas

3.3.1.Guidelines

- In most cases where non-limited access highways exist within city limits, the roadside (all area outside the highway pavement and drainage systems) are maintained by the local city government.

3.3.2.Locations

- Areas where roadsides are maintained by cities can be referenced using a web base map viewer application at: [IVM Map Viewer](#)

Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.4. Herbicide Sensitive Areas

3.4.1.Guidelines

- In some situations herbicide use is limited or restricted because of legal requirements, neighbor concerns, or WSDOT imposed environmental safety precautions.
- In these locations, vegetation must be managed without the use of herbicides or with only a limited palette of herbicide types.

3.4.2.Locations

- Herbicide sensitive areas and reason/type of limitations on herbicide using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.5. Adopt-a-Highway and Neighbor Maintained Agreements

3.5.1.Guidelines

- In some locations WSDOT has signed agreements with private citizens or neighboring businesses for maintenance of roadside vegetation.

3.5.2.Locations

- Areas with existing agreements for others to maintain a portion of the roadside, along with notes describing arrangements for each location can be referenced using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.6. Storm Water Management Facilities

3.6.1.Guidelines

- Storm water management facilities include bio-filtration swales, retention ponds and infiltration ponds.
- Storm water management facilities are managed for noxious and nuisance weeds, and hazard trees following the same guidelines mentioned in previous sections. The primary objectives with regard vegetation management within these facilities are maintenance of the functionality in terms of the designed volume of retention and water flow, and the maintenance of the surrounding fence
- Trees and brush should be cleared along both sides of the perimeter fencing for a width of approximately 8 feet as needed.
- Inlets and outfalls should be kept clear of vegetation and debris.

3.6.2.Locations

- Storm water management facilities, along with notes describing general maintenance requirements for each location can be referenced using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.7. Wetland Mitigation Sites

3.7.1.Guidelines

- Wetland mitigation sites are carefully monitored through WSDOT's Environmental Services Office for up to 10 years following their creation to ensure compliance with environmental regulation.
- In most cases vegetation in these sites is planted and established through the construction and long-term monitoring process so that once they are turned over to maintenance, actions are not required unless noxious weeds or hazardous trees become an issue.
- In cases where mitigation sites have fulfilled their original permit requirements and have been turned back to maintenance, sites should be inspected on an annual basis to determine if any repairs or weed control is necessary.

3.7.2.Locations

- All wetland mitigation sites within Northwest Region, Area 1 along with notes describing dates constructed and permit requirements for each location can be referenced using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.8. Protected Terrestrial Species

3.8.1.Guidelines

- WSDOT is currently working with the Department of Fish and Wildlife to identify highway locations where known populations of federally listed threatened and endangered terrestrial species exist on or near the highway right-of-way. These locations are then being matched against maintenance activities with potential to have adverse impacts on the protected species so that necessary maintenance activities can be timed to avoid impacts wherever possible.
- Methods and timing of roadside maintenance activities to avoid impacts on protected terrestrial species are described in the Region Maintenance Environmental Compliance Guidance for Protected Terrestrial Species.

3.8.2.Locations

- Once locations and guidelines have been finalized in the region compliance guide, locations and descriptions of limitations on vegetation maintenance activities will be added to a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.9. Designated IVM Treatment Sites

3.9.1.Guidelines

- As discussed in **Section 2.1**, selected sites are designated for planning, carrying out and monitoring multi-year IVM treatments for control of weeds or other unwanted vegetation.
- IVM treatment sites are documented with an initial record in the IVM Treatment Database, to identify the problem to be addressed, location(s), management goals, and integrated treatment plan.
- Records are updated each time a treatment is made, results observed, or when the treatment plan is modified based on observations.

3.9.2.Locations

- All designated IVM treatment sites within NW Region, Area 1 can be referenced through records in the Statewide Pesticide Tracking Database.

Zone 1 Maintenance - Bareground Treatment

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
TREATMENT TYPE:	Pavement Edge	Pavement Edge	Pavement Edge	
MANAGEMENT GOALS:	Vegetation free	Vegetation free	Vegetation free	
METHOD:	Annual herbicide application	Annual herbicide application	Annual herbicide application	
EQUIPMENT:	Spray truck w/ boom mounted nozzles	Spray truck w/ boom mounted nozzles	Spray truck w/ boom mounted nozzles	
MATERIALS:	Frequency 4 ozl./acre + Sulfomet 3 ozd./acre + Ranger Pro 64 ozl./acre	Perspective 8 ozl./acre + Sulfomet 3 ozd./acre + Ranger Pro 64 ozl./acre	Payload 10 ozl./acre + Sulfomet 3 ozd./acre + Ranger Pro 64 ozl./acre	
TIMING:	Spring	Spring	Spring	
IVM FOLLOW-UP:	Evaluate control	Evaluate control	Evaluate control	
REMARKS:	Typically applied in a 2 to 3 ft. band.			

Zone 2 Maintenance - Tree and Brush

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
TREATMENT TYPE:	Deciduous	Deciduous	Conifers	
MANAGEMENT GOALS:	Prevent vegetation obstruction	Prevent vegetation obstruction	Prevent vegetation obstruction	
METHOD:	Herbicide treatment	Herbicide treatment	Stump treatment	
EQUIPMENT:	Spray truck w/ handgun	Spray truck w/ handgun	Apply with paint brush	
MATERIALS:	Krenite S 320ozl/acre	Milestone 6oz./acre	Element 3A non diluted or 1:1 w/ water	
TIMING:	Mid to late Summer	Late Summer to early Fall	Anytime	
IVM FOLLOW-UP:	Evaluate control	Evaluate control	Evaluate control	
REMARKS:	Krenite: Alder, Blackberry, cottonwood, Willows, Aspen --- Milestone: Scotchbroom, Hemlock, Thistles --- Element 3A: Maples, Douglas Fir, Scotch broom, Alder			

Noxious and Nuisance Weed Control - General

	OPTION 1	OPTION 2		
TREATMENT TYPE:	Chemical application	Chemical application		
ACTION THRESHOLD:	Where ever present (dependent on available resources)	Where ever present (dependent on available resources)		
MANAGEMENT GOALS:	Eradication and control only if your county requires.	Eradication and control only if your county requires.		
METHOD:	Spot treatment w/ herbicide	Spot treatment w/ herbicide		
EQUIPMENT:	Handgun	Handgun		
MATERIALS:	Milestone 7ozl./acre	Aquaneat 128ozl./acre		
TIMING:	Early Summer to early Fall	Early growth stage		
IVM FOLLOW-UP:	Reapply if necessary following year. Restore site w/ native vegetation.	Reapply if necessary following year. Restore site w/ native vegetation.		
REMARKS:	Option 1: Orange, Spotted, Smooth, and Yellow Hawkweed, Knapweed, Thistles, Tansy, Butterfly Bush, Poison Hemlock, Wild Chervil --- Option 2: Herb Robert			

Appendix B

Herbicide Guidelines

Herbicides Approved for Use on WSDOT Rights of Way

When making herbicide applications:

1. Always read and follow product labels
2. Always use personal protective equipment when mixing, loading, and applying

Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/ Recommendations	WSDOT Restrictions	Cautions
2,4-D	Agri Star 2, 4-D LV4, Basecamp Amine 4, Clean Amine, Crossbow, Curtail, ES, Escalade, Low Vol 4 Ester, Platoon, Rangestar, Savage, Solution, Veteran 720, Weedar 64, WeedDestroy, Weedmaster, Weedone LV4	Growth regulator - phenoxy synthetic auxin (4)	Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Ester and acid formulations of 2,4-D may provide a good alternative to amine formulations. A number of the 2,4-D products come premixed with other herbicides.	Amine formulations of 2,4-D are restricted for use within 60' of all water	Amine formulations cause irreversible eye damage and are highly toxic to rainbow trout. All 2,4-D products pose risks when applied near grapes and other sensitive crops.
Aminocyclopyrachlor	Perspective Plainview Streamline Viewpoint	Growth regulator - mimics plant hormones, synthetic auxin (4)	Nuisance and noxious weed control Zones 2 and 3, Plainview is a bare-ground mixture	Depending on which mixture, can be either selective broadleaf or non-selective pre-emergent control	Each product is premixed with other herbicide to achieve either selective or non-selective control	No WSDOT use restrictions beyond those specified on product labels	Refer to product labels
Aminopyralid	Milestone Milestone VM Milestone VM Plus Capstone	Growth regulator - mimics plant hormones, synthetic auxin (4)	Nuisance and noxious weed control Zones 2 and 3	Selective broadleaf treatment	Effective on many perennial weed species due to some amount of soil residual activity on suppressing seed germination	No WSDOT use restrictions beyond those specified on product labels	Refer to product label
Bromacil	Krovar 1 DF Hyvar	Photosynthetic inhibitor - photosystem II, site A (5)	Zone 1 bare-ground	Nonselective pre-emergent grass and weed control	Krovar is premixed with diuron	<u>Westside</u> - Restricted use <u>Eastside</u> - Krovar restricted for use within 60' of all water	Bromacil is potentially mobile in soil, use caution if rain is possible.
Bromoxynil	Buctril 2EC BroClean Brox 2E Maestro 2EC	Photosynthetic inhibitor - photosystem II, site C (6)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Effective broadleaf weed control without grass seed suppression	<u>Westside</u> - Restricted use <u>Eastside</u> - Restricted for use within 60' of all water	Can cause irreversible eye damage, highly toxic to fresh water fish
Chlorsulfuron	Telar XP Landmark XP Throttle XP Perspective	Amino acid synthesis inhibitors - ALS inhibitor (2)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Product highly effective on difficult perennials such as Canadian thistle and horsetail. Landmark is premixed with Oust.	No WSDOT use restrictions beyond those specified on product labels	Refer to product labels
Clopyralid	Transline Curtail	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Curtail is premixed with 2,4-D, Pathfinder is premixed with triclopyr	Curtail and Pathfinder are restricted for use within 60' of all water because of mixture with other restricted herbicides.	Curtail contains 2,4-D amine which causes irreversible eye damage and is highly toxic to rainbow trout

Appendix B

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Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/ Recommendations	WSDOT Restrictions	Cautions
Dicamba	Vanquish Veteran 720 Dicamba HD E2 Escalade Range Star Viewpoint	Growth regulator - benzoic acidsynthetic auxin (4)	Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Vanquish is the dicamba formulation without 2,4-D	Veteran 720 is restricted for use within 60' of all water because of 2,4-D amine content	Veteran 720 contains 2-4-D amine which causes irreversible eye damage and is highly toxic to rainbow trout
Dichlobenil	Norosac 4G Casoron	Cell wall (cellulose) synthesis inhibitor (20)	Ornamental planting beds	Pre-emergent weed control in ground cover beds. Post emergent control of grasses.	Highly effective for pre-emergent control of unwanted weeds in ornamentals	Restricted for use within 60' of all water	Dichlobenil is highly toxic to aquatic insects
Diflufenzopyr	Overdrive	Auxin transport inhibitor (19)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment		No WSDOT use restrictions beyond those specified on labels	Refer to product label
Diuron	Karmex Diuron 4 L Diuron 80 DF Parrot Sahara DG	Photosynthetic inhibitor - photosystem II, site B (7)	Zone 1 bare-ground	Nonselective pre-emergent grass and weed control	Cost effective weed control for Zone 1 in Eastern Washington	<u>Westside</u> - Restricted use <u>Eastside</u> - Restricted for use within 60' of all water	Highly toxic to fish.
Flumioxazin	Payload	Cell membrane disrupter - PPO inhibitor (14)	Zone 1 bare-ground	Nonselective pre-emergent weed control	Requires constant agitation to keep in suspension	Restricted for use within 60' of all salt water	Highly toxic to estuarine invertebrates
Fluroxypyr	Vista E2 Escalade	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Highly effective on Kochia	No WSDOT use restrictions beyond those specified on product labels	Highly toxic to Eastern Oyster, high surface runoff potential
Fosamine	Krenite S	Growth regulator - inhibits bud and leaf formation (27)	Tree and brush control in Zones 2 & 3	Selective broadleaf treatment	Effective broadleaf tree control without visual impacts	No WSDOT use restrictions beyond those specified on labels	Refer to product labels
Glyphosate	Roundup Pro Razor Pro Buccaneer Aquaneat Rodeo Aquamaster Mad Dog Plus Ranger Pro	Amino acid synthesis inhibitor - EPSP synthase inhibitor (9)	Zone 1, spot spray around shrub and tree plantings, aquatic weed control (Rodeo, Aquamaster)	Nonselective control of all vegetation	Rodeo, Aquamaster and Aquaneat are approved for use in or over water. Aquatic versions of glyphosate products are approved for use with NPDES permit.	No WSDOT use restrictions beyond those specified on product labels	Refer to product labels

Herbicides Approved for Use on WSDOT Rights of Way

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Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/ Recommendations	WSDOT Restrictions	Cautions
Imazapic	Plateau	Amino acid synthesis inhibitors - ALS inhibitor (2)	All zones	Pre-emergent control of undesirable grasses	WSDOT tests plots show a significant impact on desirable perennial grasses at rates above 6 oz per acre.	<u>Westside</u> - Restricted use <u>Eastside</u> - Restricted for use within 60' of all water	Moderate to high potential to leach into groundwater
Imazapyr	Arsenal Habitat Polaris Sahara DG Imazuron	Amino acid synthesis inhibitors - ALS inhibitor (2)	All zones	Pre and post-emergent non-selective control of all vegetation	Habitat is an aquatic version of Arsenal - good alternative to glyphosate in certain cases, approved for use with NPDES permit.	No WSDOT use restrictions beyond those specified on product labels	High surface runoff potential
Indaziflam	Esplanade	Cellulose-biosynthesis inhibitor (21)	Zone 1 bare-ground	Nonselective pre-emergent weed control	Effective control of annual weeds such as marestalk, kochia, and crab grass	Restricted for use within 60' of all water	Toxic to fish and aquatic invertebrates
Isoxaben	Gallery 75DF	Cell wall (cellulose) synthesis inhibitor (20)	Turf & Ornamental	Pre-emergent weed control in ground cover beds	Works well by itself or with Ronstar	Restricted for use within 60' of all water	Moderate to high potential to leach into groundwater
Metsulfuron-methyl	Escort XP Metsulfuron Methyl 60 DF MetCel VMF Streamline	Amino acid synthesis inhibitors - ALS inhibitor (2)	Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3	Selective broadleaf and conifer treatment	Good control on many difficult perennials.	No WSDOT use restrictions beyond those specified on product labels	Refer to product labels
Norflurazon	Predict	Bleaching - carotenoid biosynthesis inhibitor (12)	Zone 1 bare-ground	Pre-emergent weed control in Zone 1 and ground cover beds	Good Zone 1 product but may be difficult to keep in suspension	Restricted for use within 60' of all water	High surface runoff potential
Oryzalin	Oryzalin A.S. Surflan A.S	Seedling growth inhibitor - microtubule assembly inhibitor (3)	Zone 1 Ornamental planting beds	Pre-emergent weed control in Zone 1 and ground cover beds	Product requires additional rinsing to thoroughly remove residues from empty container	Restricted for use within 60' of all water	Highly toxic to fish
Oxadiazon	Ronstar G Ronstar WSP	Cell membrane disrupter - PPO inhibitor (14)	Turf & Ornamental	Pre-emergent weed control in ground cover beds	Works well by itself or with Gallery	Restricted for use within 60' of all water, gardens, plants bearing edible fruit	Highly toxic to fish
Pendimethalin	Pendulum 2G Pendulum Aqua	Seedling growth inhibitor - microtubule assembly inhibitor (3)	Zone 1 Turf & Ornamental	Nonselective/Selective depending on rate, Pre-emergent grass and weed control		<u>Westside</u> - Restricted use <u>Eastside</u> - Restricted for use within 60' of all water	Highly toxic to fish, high potential for loss on eroded soil
Picloram	Tordon	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Highly effective for conifer and broadleaf weed control in Eastern Washington	<u>Westside</u> - Restricted use <u>Eastside</u> - Restricted for use within 60' of all water	Highly mobile in soil and readily adsorbed through roots of desirable trees

Appendix B

Herbicide Guidelines

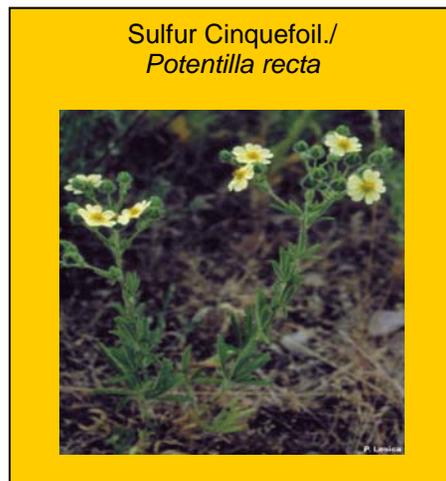
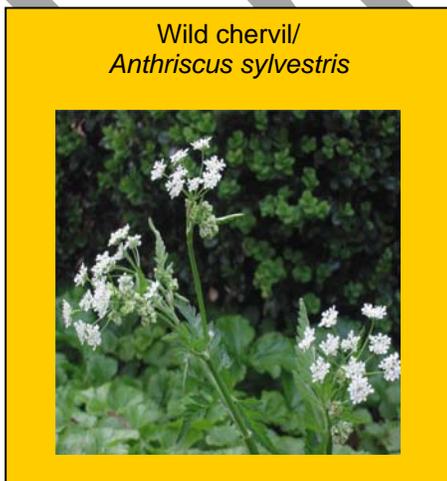
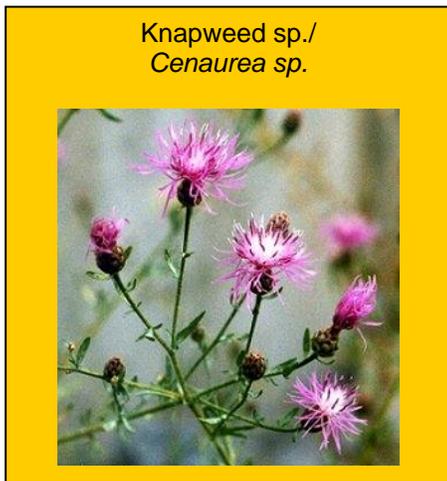
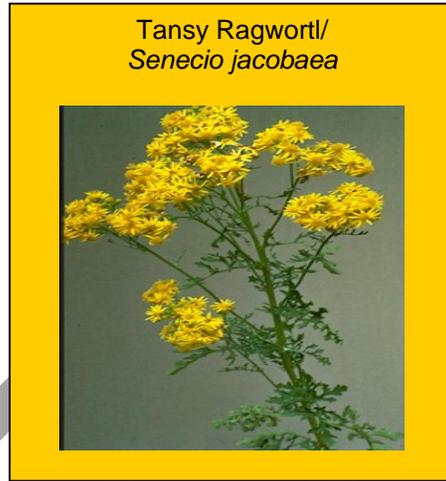
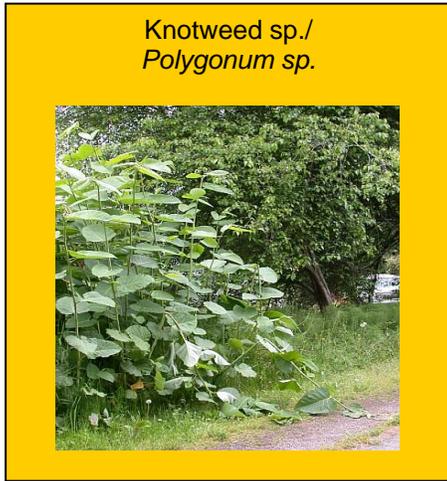
Herbicides Approved for Use on WSDOT Rights of Way

When making herbicide applications:

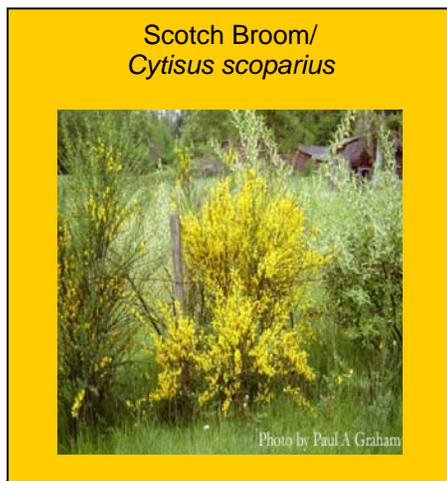
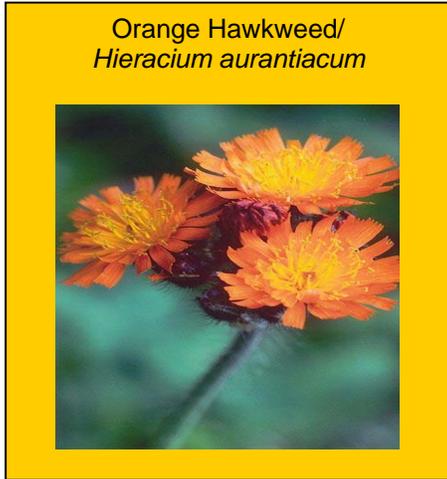
1. Always read and follow product labels
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Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/ Recommendations	WSDOT Restrictions	Cautions
Pyraflufen	Edict Edict 2SC	Cell membrane disrupter - PPO inhibitor (14)	Noxious and nuisance weed control, Zones 2 and 3	2,-4-D substitute, effective on Kochia, Russian thistle	Effective with Roundup for Kochia control	Restricted for use within 60' of all water	Irreversible eye damage, highly toxic to Rainbow Trout
Sulfentrazone	Portfolio Throttle XP	Cell membrane disrupter - PPO inhibitor (14)	Zone 1 bare-ground	Nonselective pre-emergent grass and weed control	Use caution in sandy soils	<u>Westside</u> - Restricted use <u>Eastside</u> - Restricted for use within 60' of all water	High surface runoff potential, potentially mobile in soil if rain is possible.
Sulfometuron-methyl	Oust Landmark XP Sulfomet Throttle XP	Amino acid synthesis inhibitors - ALS inhibitor (2)	Zone 1 bare-ground	Nonselective pre/post emergent grass and weed control	Landmark is a premix with Oust and Telar	Refer to product labels	Oust has been proven to move with wind if not watered in to the ground
Tebuthiuron	Spike 80DF	Photosynthetic inhibitor - photosystem II, site B (7)	Zone 1 bare-ground	Nonselective pre-emergent grass and weed control		<u>Westside</u> - Restricted use <u>Eastside</u> - Restricted for use within 60' of all water	High surface runoff potential, potentially mobile in soil if rain is possible.
Topramezone	Frequency	Bleaching - carotenoid biosynthesis inhibitor (12)	Zone 1 bare-ground	Nonselective pre-emergent grass and weed control	Use in combination with another bare-ground chemical	Refer to product label	Refer to product label
Triclopyr Amine	Capstone, Element 3A, Garlon 3A, Milestone VM Plus	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Works well for scotch broom control	Refer to product label	Can cause irreversible eye damage
Triclopyr Ester	Crossbow, Crossbow L, Element 4, Garlon, Pathfinder	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Works well for cut-stump or basal treatments applications. Crossbow is premixed with 2,4-D, Pathfinder with clopyralid	Restricted for use within 60' of all water	Highly toxic to fish

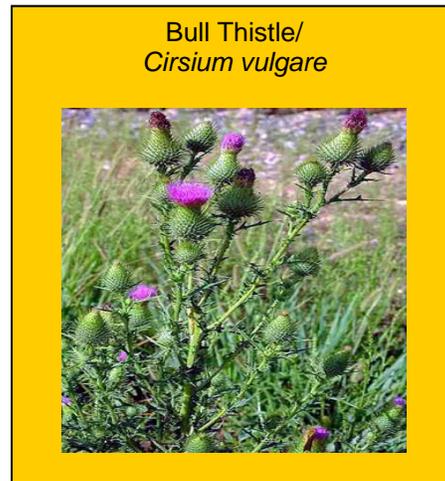
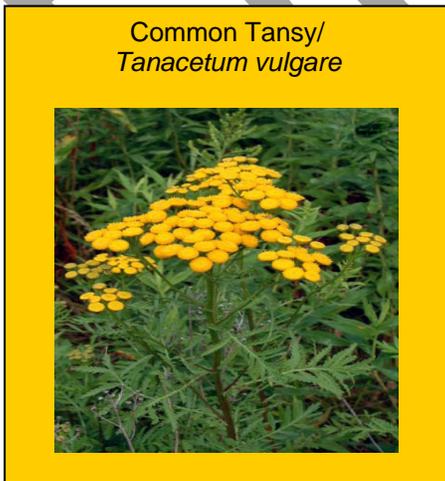
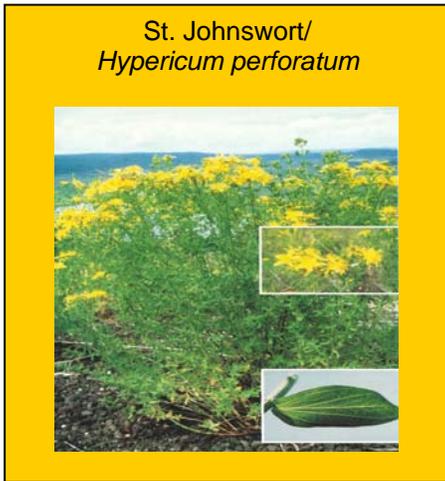
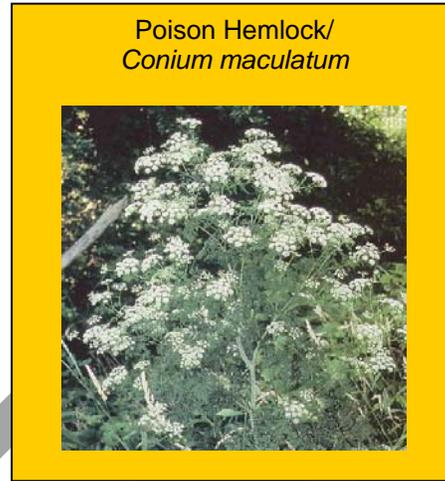
Designated for control in NW area 1:
(Whatcom and Skagit County)



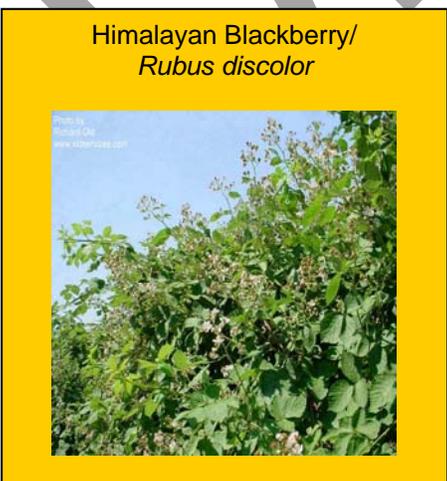
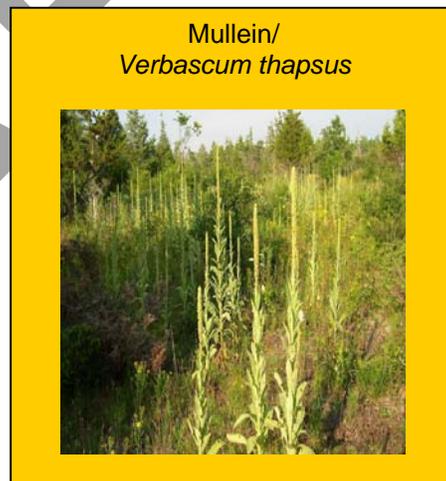
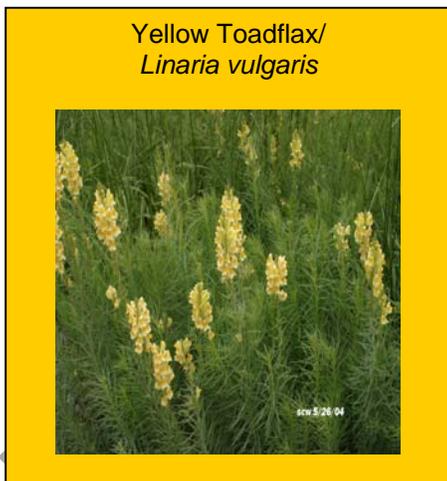
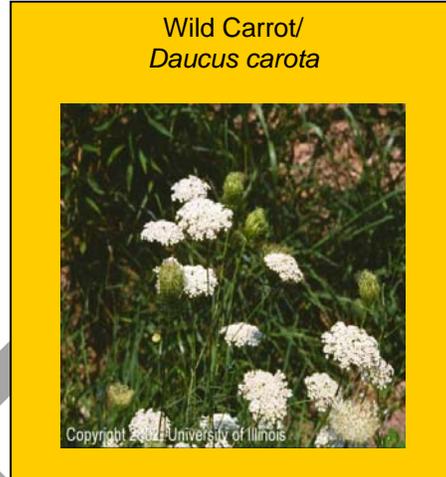
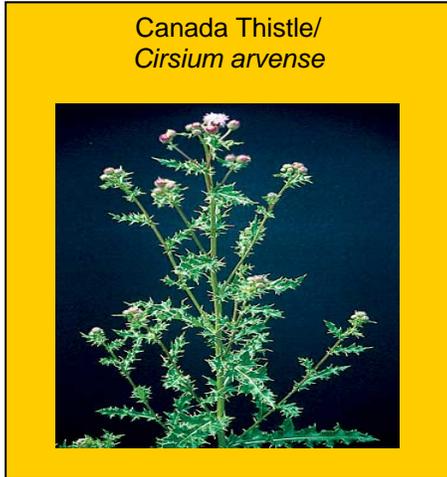
Designated for control in NW area 1:
(Whatcom and Skagit County)

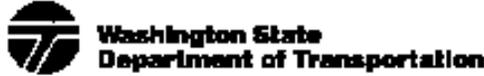


Nuisance weeds in NW area 1:
(Whatcom and Skagit County)



Nuisance weeds in NW area 1:
(Whatcom and Skagit County)





Integrated Vegetation Management Record

Org. Code	County	Date 6/13/2007		Vegetation Management Zone(s) <input type="checkbox"/> Zone 1 <input type="checkbox"/> Zone 2 <input type="checkbox"/> Zone 3
Area SE _____ MP _____ to MP _____		Location _____		
Class Appoints & Boxes:				
<input type="checkbox"/> NB	<input type="checkbox"/> EB	<input type="checkbox"/> Roadside	<input type="checkbox"/> Landscaped Area	<input type="checkbox"/> Interchange
<input type="checkbox"/> SB	<input type="checkbox"/> WB	<input type="checkbox"/> Shoulder	<input type="checkbox"/> Rest Area	<input type="checkbox"/> Bridge
		<input type="checkbox"/> Median	<input type="checkbox"/> Park-n-Ride	<input type="checkbox"/> Ramp
				<input type="checkbox"/> Mitigation Site
				<input type="checkbox"/> Stormwater
				<input type="checkbox"/> Yard/Stockpile
Third Party Damage <input type="checkbox"/> Yes				Sensitive Sites
				<input type="checkbox"/> Aquatic
				<input type="checkbox"/> Wetlands
Target: <input type="checkbox"/> Noxious Weeds <input type="checkbox"/> Brush/Trees <input type="checkbox"/> Other				
<input type="checkbox"/> Nuisance Weeds <input type="checkbox"/> Hazard Tree				
List Target/Species: _____				
Reason for Action:				
<input type="checkbox"/> Noxious Weeds	<input type="checkbox"/> Nuisance Weeds	<input type="checkbox"/> Fire Prevention	<input type="checkbox"/> Restore Native Veg.	<input type="checkbox"/> Zone 1 Pilot
<input type="checkbox"/> Site Distance	<input type="checkbox"/> Hazard Vegetation	<input type="checkbox"/> Customer Request	<input type="checkbox"/> Enhance Vegetation	<input type="checkbox"/> Slope Stabilization
				<input type="checkbox"/> Aesthetic
				<input type="checkbox"/> Other _____
Long term IVM plan (Describe goals/objectives and a step-by-step approach over time)				
Approximate Acres to Accomplish _____				
Activities				
			Planned date of Treatment	Actual date of Treatment
Manual	<input type="checkbox"/> Digging	<input type="checkbox"/> Pulling	<input type="checkbox"/> Planting	
	<input type="checkbox"/> Logging	<input type="checkbox"/> Scaling	<input type="checkbox"/> Other _____	
Mechanical	<input type="checkbox"/> Aerial Saw Work	<input type="checkbox"/> Tractor Brush Cutter	<input type="checkbox"/> Mower/Chain	
	<input type="checkbox"/> Manual Brush Cutting	<input type="checkbox"/> Tractor Mower	<input type="checkbox"/> Other _____	
Bio-Control	<input type="checkbox"/> Insect	<input type="checkbox"/> Pathogen	Type/Species _____	
	<input type="checkbox"/> Parasites			
Cultural	<input type="checkbox"/> Burning	<input type="checkbox"/> Grading	<input type="checkbox"/> Seeding	
	<input type="checkbox"/> Misting	<input type="checkbox"/> Grazing	<input type="checkbox"/> Soil Amendment	<input type="checkbox"/> Other _____
Chemical	_____	Record Number	_____	_____
#1 Evaluation and Date				
#2 Evaluation and Date				
#3 Evaluation and Date				

	USDA, Forest Service	OMB 0596-0217 FS-1500-15
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Exhibit x

PESTICIDE - USE PROPOSAL (Reference FSM 2150)	DEPARTMENT/AGENCY		CONTACT/PHONE NO.
	REGION	FOREST	DATE SUBMITTED
1) OBJECTIVE a) Project No. b) Specific Target Pest c) Purpose	_____	_____	_____
2) PESTICIDE a) Common Name b) Formulation c) % AI, AE, or lb / Gal. d) Registration No.	_____	_____	_____
3) a) Form Applied b) Use Strength (%) or Dilution Rate c) Diluent	_____	_____	_____
4) lbs. AI Per Acre or Other Rate	_____	_____	_____
5) APPLICATION a) Method b) Equipment	_____	_____	_____
6) a) Acres or Other Unit to be Treated b) Number of Applications c) Number of Sites d) Specific Description of Sites	_____	_____	_____
7) a) Month(s) of Year b) States	_____	_____	_____
8) SENSITIVE AREAS a) Areas to be Avoided b) Areas to be Treated with Caution	_____	_____	_____
9) REMARKS a) Precautions to be Taken b) Use of Trained / Certified Personnel c) State and Local Coordination d) Other Pesticides Being Applied to Same Site e) Monitoring f) Other	_____	_____	_____

Entity	Mailing Address	Contact Person	Title	Phone	E-Mail
Whatcom County Noxious Weed Board	Whatcom Co. Public Works 322 N. Commercial St. Suite 110 Bellingham, WA	Laurel Baldwin	Coordinator	(360) 715-7470	lbaldwin@co.whatcom.wa.us
Skagit County Noxious Weed Board	11768 Westar Lane, Suite A Burlington, WA 98233	Bill Rogers	Coordinator	(360) 336 - 9430	williamr@co.skagit.wa.us
Skagit County Public Works	1800 Continental Place Mount Vernon, WA 98273	Dan Berenston	Director of Public Works	(360) 336-9400	pw@co.skagit.wa.us
Whatcom County Public Works	Whatcom Co. Public Works 322 N. Commercial St. Suite 110 Bellingham, WA		Public Works Administration	(360) 676-6692	publicworks@co.whatcom.wa.us
USFS District Office	810 State Route 20 Sedro Woolley, WA 98284	Ann Risvold	North Zone Botanist		arisvold@fs.fed.us
Nooksack Indian Tribe	5016 Deming Rd. PO Box 157 Deming, WA 98244	Robert "Bob" Kelly	Natural Resource Director	(360) 592-5176 Fax: 360-529-5753	rkelly@nooksacktribe.org
City of Bellingham	2221 Pacific St. Bellingham, WA 98229	Ted Carlson	Director of Public Works	(360) 778-7700	pw@cob.org
City of Lynden	300 4th St. Lynden, WA 98264	Steve Banham	Public Works Director	(360) 354-3446	BanhamS@lyndenwa.org
City of Blaine	1200 Yew Ave. Blaine, WA 98230	Ravyn Whitewolf	Public Works Director	(360) 332-8820	rwhitewolf@cityofblaine.com
City of Everson	111 West Main Street Everson, WA 98247	Rick Holt	Public works Supervisor	(360) 966-3411	rholt@ci.everson.wa.us
City of Nooksack	Nooksack City Hall PO Box 4265 103 W. Madison St. Nooksack, WA	Bob	Public Works Director	(360) 966- 2531	bob@cityofnooksack.com
City of Sumas	Sumas City Hall 433 Cherry Street Sumas, WA 98295		Major of Sumas	(360) 988-5711	mayorbromley@cityofsumas.com