

Olympic 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 Olympic Region. This area manages vegetation within approximately 312 miles of state highway corridor, primarily in Pierce and Thurston Counties. The main corridor in the area is Interstate 5 but the area also maintains portions of other limited access highways along State Routes (SR) 16, 167 and 512, and US 101. There are many secondary routes in the area in settings ranging from urban to rural in character, some are high in scenic quality. 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 agency, region, and area policies along with 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

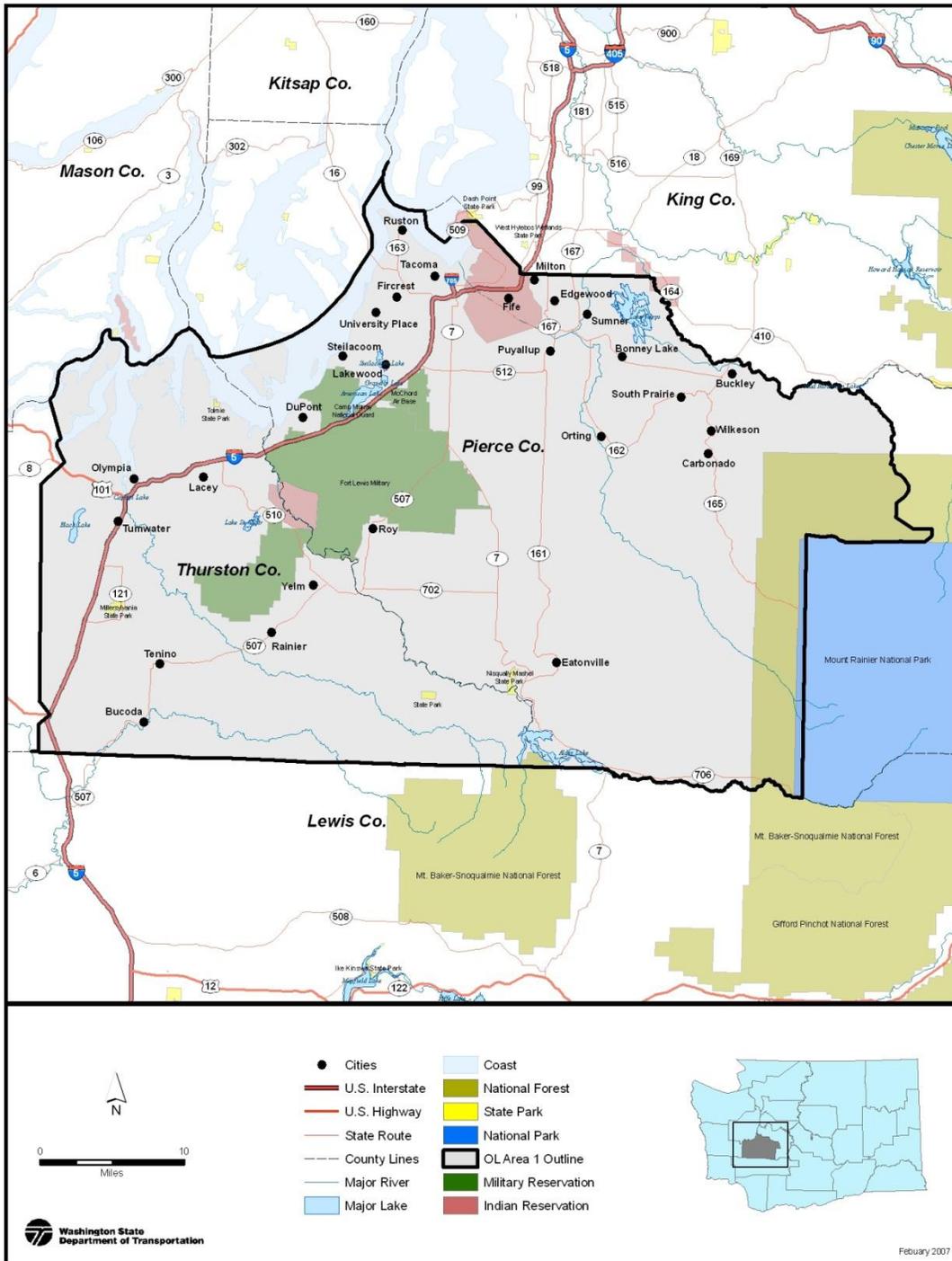
This plan is organized around the major categories of roadside vegetation maintenance work. The major categories include: Zone 1 (or pavement edge maintenance), Routine Mowing, Noxious Weed Control, Nuisance Weed Control, Tree and Brush Control, and Special Maintenance Areas.

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 Tom Gibbs or Ray Willard at the numbers listed below for questions or comments:

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Olympic Region, Area 1 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 for roadside vegetation are defined in Chapter 6 of the [WSDOT Maintenance Manual](http://www.wsdot.wa.gov/Publications/Manuals/M51-01) (M51-01, November 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 will 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](http://www.wsdot.wa.gov/Publications/Manuals/fulltext/M25-31/RCP.pdf) (November 2011) <http://www.wsdot.wa.gov/Publications/Manuals/fulltext/M25-31/RCP.pdf>

Operational Zones

WSDOT roadsides are divided into three 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.

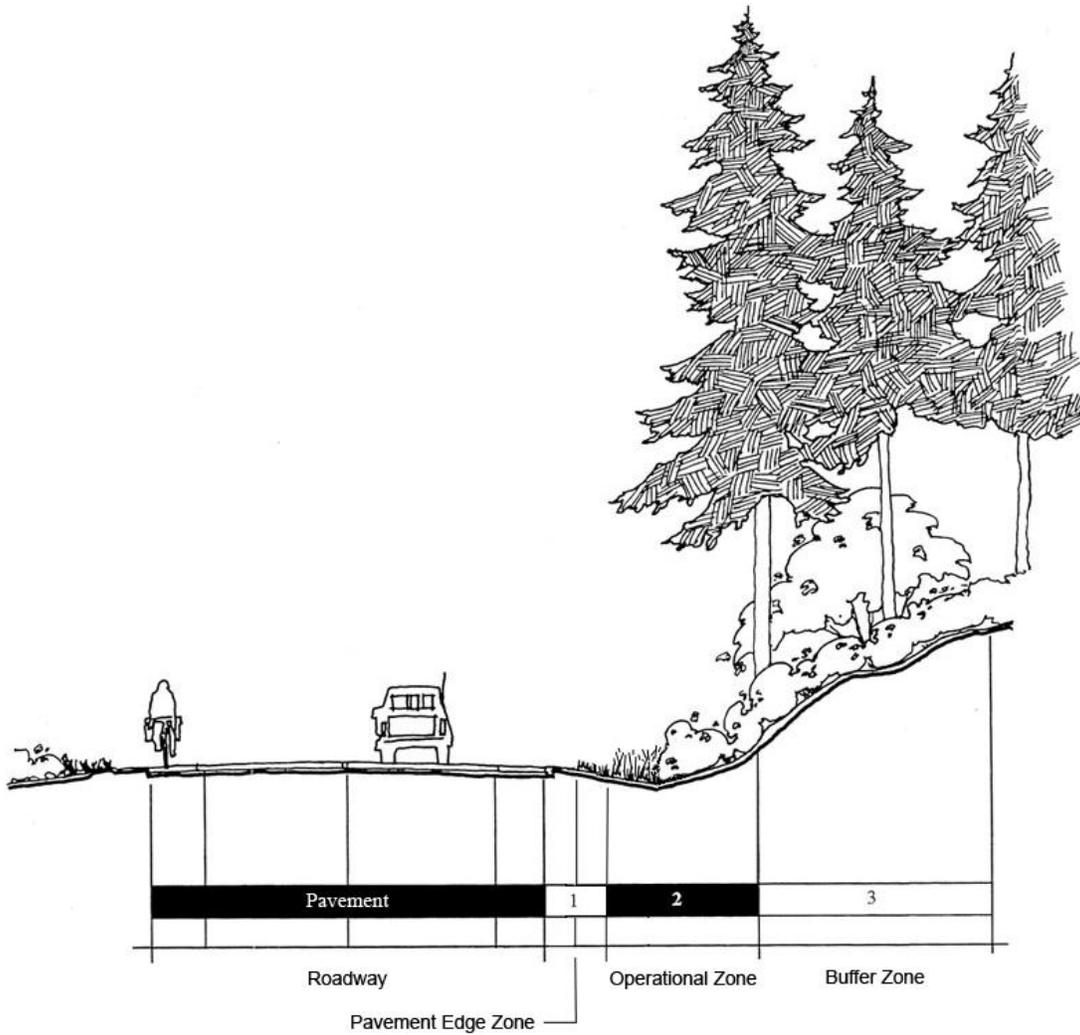
Routine Maintenance Activities – When vegetation maintenance activities are required to keep the area of roadside being treated in an annually controlled condition, activities are considered routine. This is more critical for areas of vegetated roadside near the travel lanes, edge of pavement, and around 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 Roadside (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 special 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 E) 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

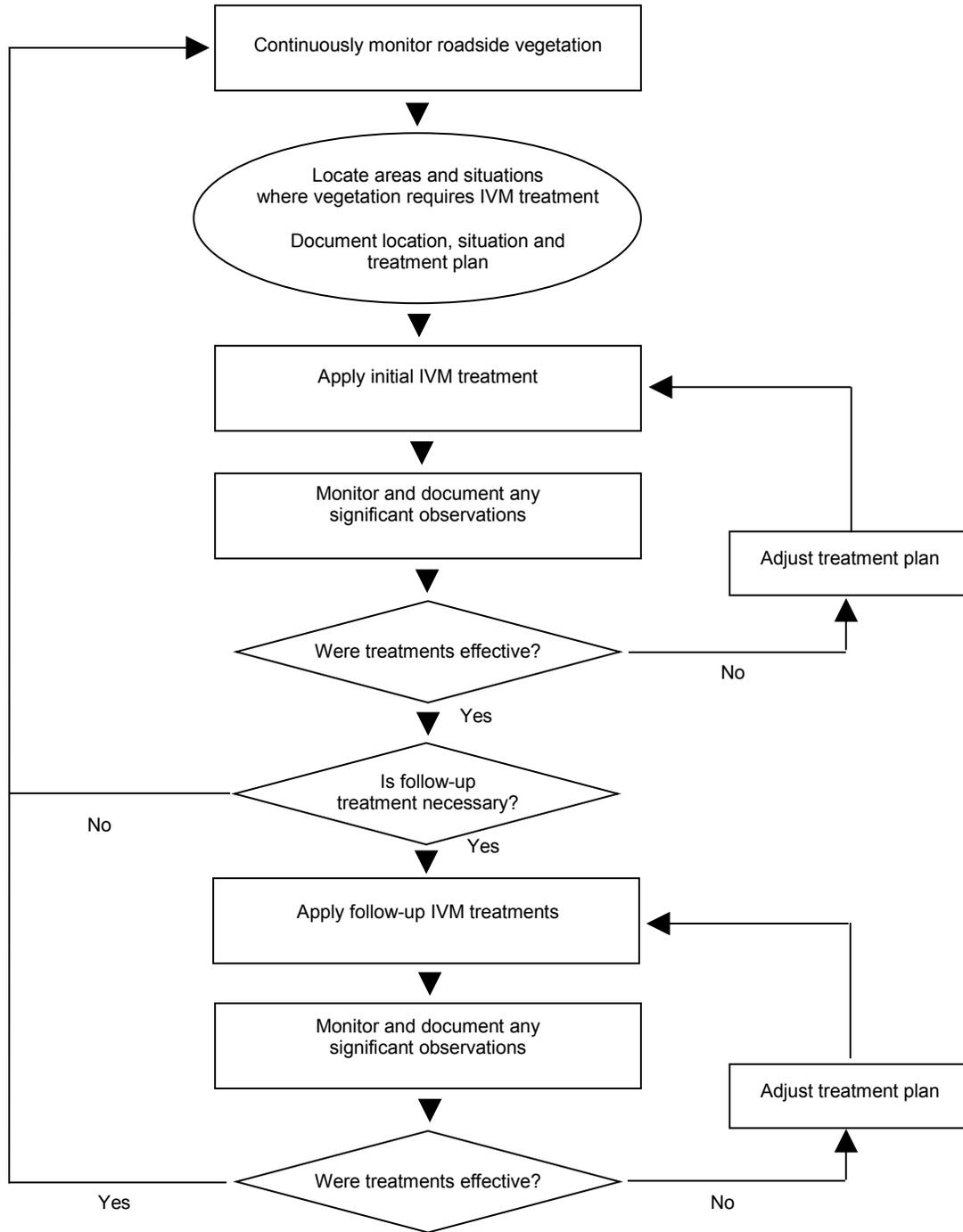
No Vegetation with Stem Diameter Greater than 4"
 Maintained using IVM techniques for sign visibility, sight distance, errant vehicle recovery and weed control.

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

IVM 2014 Goals

The purpose of this section is to identify the highest priority roadside vegetation management needs in Olympic Region, Area 1 and to describe in general the approach the area will take in addressing these needs in 2014. 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, ***Olympic Region, Area 1 – Roadside Vegetation Management Plan*** which details the guidelines, methods and specific locations 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 three groups – Pavement Edge Maintenance/Zone 1, and Tree and Brush Control/Zone 2, and Hazard Tree Removal/Zone 3.

Pavement Edge Maintenance/Zone 1

- Zone 1 treatment to under guardrail and cable rails throughout Olympic Region area 1. The area may consider using Esplanade, Perspective, Sulfomet, and Ranger Pro this year as their zone 1 mixer.
- Before applying a Zone 1 treatment review all No Spray Zones in Thurston and Pierce Counties. Location for this year's Zone 1 treatment:
 - SR 101 both directions from MP 362 to MP 367
 - SR 121 All
 - I-5 From MP 109 to Lewis County Line both sides
 - I-5 From MP 109 to MP 114 Hardware only
 - I-5 From MP 114 to King County Line Hardware and none construction sites
 - SR 507 MP From Roy Y to Lewis County
 - SR 509 Needs to be reviewed
 - SR 510 MP 6 to MP 9
 - SR 512 All
 - SR 702 All
 - SR 705 Ramps and Hardware only
 - SR 706 to main gate
 - SR 7 & SR 7 Extension Needs to be reviewed
 - SR 161 All except Eatonville and Graham Hill
 - SR 162 except in city limits.
 - SR 165 NO SPRAY AREA
 - SR 167 All to King County Line
 - SR 410 ALL
 - SR 99 Hardware and selective locations.
 - SR 16 ALL

Tree and Brush Control/Zone 2

Maintenance work in Zone 2 presents some of the most visible evidence of roadside management. Methods selected may have a significant impact (positive or negative) on visual quality.

- Improve sight distance by limbing low lying branches and remove brush from highway signs, intersections, and curved areas where they may block sight distance

- Limbs that are 10' from the ground will be removed from larger evergreen trees like the Western Red cedar and Douglas fir. Prune smaller deciduous trees to encourage an open habit with leaves above 6 feet. (Hazelnut, Serviceberry, Vine Maple, etc.)
- Keep shrubs and groundcover like Salal, Snowberry, and Nootka Rose to 2 feet in height
- Limit the use of shrubs in areas directly adjacent to paths, Parking areas, and remote picnic sites
- Consult with the region's Landscape Architecture Office or HQ Roadside & Site Development Office for site and species specific pruning methods

Hazard Tree Removal/Zone 3

- Tacoma Area 1 will complete and review a hazard tree assessment in early fall to track locations and species of trees that are removed due to concerns
- Danger tree removal at Alder Canyon on SR 7 and SR 507 south of Bucoda and on I-5 Nisqually area MP 95-102
- Continue to search for and evaluate danger trees throughout the season for removal

Noxious Weed Control

Noxious weeds are those species legally designated by state and county regulations for required control by all property owners. Work under this group is considered second priority after critical safety related aspects have been addressed. Laws are enforced with fines and/or control work and billing of property owners by county administration. Control of designated noxious weed species is typically carried out on all highways throughout the area on an as needed basis. However, some locations merit more focused attention and effort to apply multi-year IVM treatments or coordinate with adjacent landowners. The general area-wide approach and areas of focused attention for 2014 include:

- Focus on areas with the highest concerns from local counties. These areas will be targeted early in the season during their rosette stages.
- Areas identified by local weed boards will be treated.
- Locations to be treated:
 - Knapweed early summer I-5 MP 88-89 both sides of the interchange
 - Knapweed early summer I-5 median from MP 92 to 95
 - Sulfur cinquefoil early summer I-5 Exit 95
 - Tansy Ragwort early spring I-5 MP 96 SB
 - Poison Hemlock early spring I-5 MP 99 NB/SB
 - Tansy Ragwort early spring I-5 Exits 101, 102, 104, 107 and 111 both NB/SB
 - Tansy Ragwort early spring I-5 MP 104.5 to 105 NB
 - Tansy Ragwort and Poison Hemlock early spring I-5 Exit 109 NB/SB
 - Tansy Ragwort and Poison Hemlock early spring I-5 median MP 110.5
 - Tansy Ragwort, Poison Hemlock and Skeleton weed early spring on I-5 Exit 114
 - Tansy Ragwort and Gorse early summer I-5 Exit 114
 - Tansy Ragwort, Poison Hemlock and Skeleton weed early spring I-5 MP 114.93 to 115.50
 - Knapweed early summer I-5 MP 114.93 to 115.50
 - Dalmatian Toadflax late summer I-5 MP 114.93 to 115.50
 - Tansy Ragwort and Poison Hemlock early spring I-5 Exit 118 NB/SB
 - Dalmatian Toadflax late summer I-5 Exit 118 NB/SB
 - Tansy Ragwort early spring I-5 Exit 119
 - Knapweed in early summer on I-5 Exit 119

- Tansy Ragwort early spring on SR 7 from MP 19.90 to 47.38
- Poison Hemlock early spring SR 507 MP 6.13 to MP 9
- Tansy Ragwort early spring SR 507 MP 15 to 20 then from 30.05 to 43.57
- Knapweed early summer SR 507 MP 15 to MP 20
- Tansy Ragwort and Poison Hemlock early spring SR 510 MP 3.77 to 5.9
- Poison Hemlock early spring SR 702 MP 2.29 to 3.32

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 approach to control of nuisance vegetation and locations where focused efforts will be applied if time and resources allow include:

- Spot treat for re-growth of previously controlled scotch broom and blackberry on I-5 Exit 118 NB quadrants
- Cut and stump treat scotch broom and other undesirable vegetation on I-5 Exit 118 (DuPont interchange) SB quadrants
- Couple of areas on SR 512 MP 1.5 east bound, median areas on SR 509 between Port of Tacoma and Taylor Way near MP 2-3 where scotch broom is encroaching on the fog line and also for sight distance.

Landscape Maintenance

Landscape maintenance work includes all vegetation management activities that take place on roadsides within areas designated as formal plantings where the intention is to enhance the appearance of freeways through urban centers or interchanges. For these roadsides the goal is to maintain the plantings in all three zones by controlling all weeds. Planted vegetation is intended to be preserved and enhanced over time through pruning, hedging, trimming, and fertilization where necessary. All locations designated as "Formal Landscape" in Olympic Region, Area 1 are discussed and referenced in section 3.2 of this plan. For the 2014 season, the goals and overall approach to vegetation maintenance in these areas will be as follows:

IVY Bed Plan

Late October through February

Begin trimming Ivy off of all curbs and short walls. Use bladed weed eaters to well out around trees and shrubs. Use bladed and string weed eaters to cut down and mulch up any previously treated nuisance vegetation. Remove ivy from trees, signs and sign posts. Hand pull any small volunteer trees.

March and April

For 2014 there will be a test application of 1% glyphosate applied to select ivy beds to conduct a test as to whether this application will retard the ivy growth. A 5 to 6 foot band will be sprayed from the curb edge inward. Also in this time frame we will make spot applications to any noxious weeds that are found

May and June

Usually doing area wide zone one applications and very little landscape maintenance is taking place. If time allows continue noxious weed control. And spot spray any nuisance weeds. Monitor the test area to see if growth is being retarded.

July and August

Begin string trimming the perimeters and gore points of the ivy beds that were not included into the mowing plan. General cleanup of the landscape beds will include light hedging and pruning of vegetation for sight distance. Continue spot spraying nuisance and noxious weeds. Remove volunteer trees and other woody species.

September and early October

Due to our area wide tree and brush program very little landscape maintenance takes place. If time allows, continue spot spraying nuisance and noxious weeds. Monitor the landscaped areas for effectiveness of the plan and make changes as needed.

Shrub Bed Plan

Mid October through February

Heavy trimming of shrubs for sight distance including opening up any signs that may have vegetation encroaching. Monitor IVM plan for effectiveness. Apply casoron to curtail any nuisance and noxious weed growth, control fire weed and shiny geranium in known locations with this product. Surflan applications to areas that don't get treated with Casoron where there is a need.

March and April

Perform a hand application of Surflan and Glyphosate to the perimeters of shrub beds, swales and gore points where it's too difficult to mechanically or manually control. Monitor Casoron applications for effectiveness.

May and June

Because of area wide zone 1 application, very little landscape maintenance will be accomplished. If time allows spot spray any nuisance and noxious weeds

July and August

Begin string trimming perimeters and gore points of shrub beds that were not incorporated into the mowing plan. General cleanup of the landscaping will include light hedging for sight distance. Spot spraying any missed nuisance vegetation with a focus on volunteer trees and other woody species.

September and early October

Little landscape maintenance takes place because of area wide tree and brush applications. If time allows spot spray nuisance and noxious vegetation and monitor the effectiveness of the IVM plan.

Locations to be treated

- I-5 104.73 – 104.83 IVY BED
- I-5 105.04 – 105.2 SHRUB BED
- I-5 105.24 – 105.5 SHRUB AND IVY BEDS includes the capitol interchanges
- I-5 105.55 – 105.92 IVY BED
- I-5 106.04 – 106.58 IVY BED
- I-5 106.58 – 106.6 CATONEASTER AND IVY yearly light pruning with heavy pruning every 7 to 10 years as needed
- I-5 106.6 – 106.66 IVY BED
- I-5 106.66 – 107.58 SHRUB BED
- I-5 107.64 – 107.91 ELEVATED SHRUB BED does not receive a Casoron application
- I-5 107.91 – 108.51 IVY AND SHRUB BEDS including the Sleater Kinney interchange
- I-5 108.51 – 108.93 SHRUB BED identified as a shiny geranium sight. Also has a 6 to 6 foot grass fringe on the mainline side
- I-5 108.93 – 109.28 SHRUB BEDS including the 109 interchange
- I-5 111.39 – 112.04 SHRUB BEDS with grass fringe including the 111 interchange
- I-705 area in and around downtown Tacoma and areas designated as formal landscaped areas.
- I-5 108.94 – 109.12 WAX MYRTLE moderate pruning every 2 years. Nuisance and noxious control as needed
- I-5 112.15 – 111.84 SHRUB BEDS with grass fringe mainline side includes the 111 interchange
- I-5 109.24 – 108.9 SHRUB BEDS including 109 interchange
- I-5 108.9 – 108.46 SHRUB BEDS identified as a shiny geranium class a noxious weed area
- I-5 108.46 – 108.16 IVY BED with grass fringe mainline side includes Sleater Kinney interchange
- I-5 MP 109.28 to the interchange at 111 will be moved where capable back to the native tree line.
- I-5 102.6 SHRUB BED. Trosper off ramp right side up to the stop light.
- I-5 102.6 – 102.7 IVY BED Gore to Gore at Trosper and interior of ramps.
- I-5 102.89 – 103.43 SHRUB BED.
- I-5 103.53 – 103.65 SHRUB BED Deschutes off ramp both sides
- I-5 103.98 – 104.31 IVY BED. US 101 off ramp both sides
- I-5 104.38 – 104.5 SHRUB BEDS Includes US 101 on ramp and Deschutes on ramp both sides
- I-5 108.16 – 106.87 SHRUB BEDS includes Pacific Ave. interchanges
- I-5 106.69 – 106.51 COTONEASTER WITH IVY yearly light pruning. Heavy pruning every 7 to 10 years as needed
- I-5 106.51 – 105.91 IVY BED
- I-5 105.81 – 105.39 IVY BEDS with elevated ivy including the capitol interchanges trim elevated ivy every 2 to 5 years as needed
- I-5 105.26 – 105.02 SHRUB BEDS Henderson on ramp both sides. Did not receive a Casoron application in 2014
- I-5 105.02- 104.59 IVY BED
- I-5 104.46 – 104.27 IVY AND SHRUB BEDS includes the US 101 interchange. North side of US 101

- I-5 104.27 – 103.03 IVY AND ELEVATED IVY trim elevated ivy every 2 to 5 years as needed. Includes 2nd Ave. interchange and south side of US 101
- I-5 102.94 – 102.79 IVY AND SHRUB BEDS includes new planting at Trospen and Trospen interchange
- US 101 365.22 – 365.65 SHRUB BEDS both directions at black lake interchange.

NPDES Maintenance

Before crews warrant the need to remove or treat vegetation from a Stormwater Facility several factors need to be considered. Crews shall review sections 3.9 and 3.9.1 of the Olympic Region Area 1 IVM Plan, section 5.5 of the Highway runoff manual, and review sections 1 through 4 of the Roadside Policy Manual an onsite visit with Region and/or HQ environmental office to determine what is the “Best Maintenance Practice” to a site specific plan or Owner’s Manual.

- Locations of IVM needs in Stormwater facilities will be tracked through Highway Activities Tracking System. (HATS)
- All herbicide applications will tracked in the Pesticide Tracking Database
- Work will be determined by Typical and Non Typical Maintenance and the operation of the facility

Olympic 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. Typical routine maintenance activities are maintenance of a vegetation-free band at the edge of pavement where required, and certain types of mowing and trimming operations.

1.1. Shoulder Maintenance (Zone 1)

Some type of routine maintenance is required in most cases for maintenance of vegetation at the edge of pavement. Annual herbicide applications are required where a vegetation-free condition is specified, and regular cycles of mowing and/or grading are required where grass is allowed to grow up to the edge of pavement. Determination on maintenance practices and cycles for vegetation at the edge of pavement varies by roadway section. Key factors in determining the best management approach include: Lowest life cycle cost, pavement edge design/construction, environmental precautions for herbicide use, and available area resources.

1.1.1. Guidelines

- Annual herbicide treatments where used in Zone 1 are intended to remove all vegetation growth in a solid band adjacent to the pavement edge. Limited re-growth of grasses and other non-weed species in the year following each treatment is acceptable.
- Vegetation-free Zone 1 is only maintained with the annual application of herbicides under all guardrail installations and throughout the area.
- Where maintained, a vegetation-free Zone 1 is 3' band width or less.
- Shoulders where a vegetation-free Zone 1 is not maintained will be managed to establish with grasses, mowed as necessary and selectively managed with herbicides to control broadleaf weeds and other vegetation.

1.1.2 Methods

- A vegetation-free Zone 1 is maintained using an annual application of combined non-selective post-emergent and pre-emergent soil residual herbicides
- Applications typically occur beginning mid-May depending on weather patterns and plant growth.
- Pavement edges will be monitored for surface drainage problems resulting from sod build-up in areas where Zone 1 is not maintained and will be graded in select locations as necessary to allow for hydraulic flow of storm water off the roadway surface.
- See **Appendix A, Routine Maintenance Prescriptions, Zone 1 Maintenance**

1.1.3 Locations

- Delineation for 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 (Zone 2)

Regular mowing cycles are required in locations where seasonal grass growth next to the pavement is tall enough to interfere with traffic operations and safety. In some locations, particularly on secondary highways with narrow rights-of-way, periodic 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 of roadside grass stands occurs throughout the area in at least one pass, at least once per year immediately adjacent to the edge of pavement, to prevent vegetation from encroaching on traffic operations.
- On limited access highways, routine annual mowing areas are designated as either single pass or multiple pass.
- Detailed description of mowing practice along the major freeway corridors in the area is provided in **Appendix C, Routine Mowing Plan**.
- Additional annual mowing or trimming will be conducted throughout the growing season as needed for select locations on secondary highways to preserve site distance at curves, intersections and any other highway entry points.
- In areas beyond the identified routine mowing limits, mowing is only used occasionally as part of planned IVM treatments for target specific weed and/or tree and brush control as described below in **Section 2**.
- 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

- Timing and mowing heights are set to encourage root development and health of the grass stands.
- 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.

1.2.3. Locations

- Single pass routine mowing occurs on all roadsides in the area except under guardrail and other locations where a vegetation-free Zone 1 is maintained. Inaccessible steep slopes behind Jersey barrier may also be left un-mowed. 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.

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. Whatever activities are conducted are targeted selectively at removal of unwanted vegetation and establishment 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 considered 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.
- 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.

1.3.2. Methods

- Hazard trees are removed in such a manner to minimize damage and impact to the highway structure and to other healthy trees and under-story 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 7. 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.
- Treatment records may be printed out and inserted into **Appendix E** of plan binders for reference.

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 treatment of 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 Olympic Region, Area 1 the following weeds designated for control are known to exist on state highway rights-of-way in Pierce and Thurston 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 in Olympic Region, Area 1:

Common Name/Botanical Name	Prc	Ths
Gorse/ <i>Ulex europaeus</i>	◆	◆
Purple loosestrife/ <i>Lythrum salicaria</i>	◆	◆
Hawkweed sp./ <i>Hieracium sp.</i>	◆	◆
Knotweed sp./ <i>Polygonum sp.</i>		◆
Ragwort tansy/ <i>Senecio jacobaea</i>	◆	◆
Rush skeletonweed/ <i>Chondrilla juncea</i>	◆	◆
Toadflax Dalmatian/ <i>Linarea dalmatica</i>	◆	◆
Hemlock, poison/ <i>Conium maculatum</i>	◆	◆
Knapweed sp./ <i>Centaurea sp.</i>	◆	◆

Class C

Class C noxious weeds are widely established throughout Washington or may impact the agricultural industry. The County Noxious Weed Control Boards also have the power to designate Class C species for control. The following designated Class C noxious weeds are known to exist on state right-of-way in Olympic Region, Area 1:

Class C noxious weeds designated for control in the counties within this area and currently present within WSDOT right-of-way in this area are described on the following table:

Common Name/Botanical Name	Prc	Ths
Butterfly bush/ <i>Buddleia davidii</i>	◆	◆

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 tracking 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 weeds species in OL 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

2.3.1. Guidelines

- 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 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.
- 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 Olympic Region, Area 1 that are known to exist on the highway right-of-way include:

Common Name/Botanical Name
Himalayan blackberry/ <i>Rubus discolor</i>
Scotch broom/ <i>Cytisus scoparius</i>
Common tansy/ <i>Tanacetum vulgare</i>
Canada thistle/ <i>Cirsium arvense</i>
Bull thistle/ <i>Cirsium vulgare</i>
Sulfur cinquefoil/ <i>Potentilla recta</i>
St. Johnswort/ <i>Hypericum perforatum</i>
Common Mullein/ <i>Verbascum thapsus</i>

- Pictures of nuisance weeds are included for reference in **Appendix D**.

2.3.2. Method

- Control measures for nuisance weed are dependent on the type of plant.

- 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 large trunk diameter from growing too close to traffic lanes.
- Native shrub and small 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.
- Large tree species left to grow in Zone 2 and in some cases parts of Zone 3, can reach substantial size over a relatively short period of time and causing a hazard either to errant vehicle recovery, contributing to shading and winter ice formation.
- Fast-growing pioneer tree species such as big leaf maple, alder, or cottonwood, present a risk from falling on the road when mature. Wherever these trees emerge within 70' of the pavement on highway right-of-way, they should be removed within the first two to three years of growth or as soon as possible.
- Any tree with a trunk diameter of 4" or greater is considered a hazard for errant vehicles in Zone 2 and should be removed when young. The Design Clear Zone and is typically maintained to a width of 30' from the traffic lane edge where guardrail or concrete barrier does not exist. Actual minimum widths are determined by roadway alignment, traffic speed and volume, and cross-section of the roadside. Clear Zone widths are specified in the WSDOT Design Manual, Chapter 700.04.
<http://www.wsdot.wa.gov/Publications/Manuals/M22-01.htm>

2.4.2. Methods

- Removal of undesirable tree and brush species is typically accomplished by properly timed selective mowing, properly timed herbicide applications, hand cutting, hand pulling, or combinations thereof.
- In some locations it is most effective to mow back the majority of the existing vegetation and then selectively treat undesirable 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 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 seedling trees, to avoid unnecessary negative visual impacts from “brown-out”.
- Chemical control methods will not be used on deciduous trees and shrubs 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, seedling of desirable trees may be dug or pulled by hand and transplanted to areas where there growth will be beneficial and appropriate. 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 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 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.
- There are 60 interchanges in Olympic Region, Area 1 including 32 on I-5, 4 on US 101, 6 on SR 16, 8 on SR 512, 4 on SR 167, 3 on SR 509 and 3 on I-705. The level of roadside maintenance varies in relation to the level of development in the surrounding area. In rural forested or open settings interchanges are typically mowed along the edges of pavement and bridge abutments, with timing and frequency the same as adjacent highway sections. In urban settings such as Olympia and Tacoma many of the interchanges fall within sections of formal landscaping and are maintained at a higher level to preserve the original design intent and provide a more park like appearance.
- There are also several major at-grade intersections in the area that require special attention to maintain safe site distance.

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 in Olympia and Tacoma and I-705 and SR-509 in Tacoma, the roadsides have been planted with ornamental landscaping and require a higher level of maintenance than the more natural roadsides in outlying areas.

3.2.2.Methods

- These areas are typically intended to grow and develop with only the plants as initially designed and constructed. Therefore a higher level of maintenance is required to remove and prevent any and all non-planted vegetation from the areas.
- Additional trimming and pruning may be required to maintain a neat and well-kept appearance.

3.2.3.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. Bicycle/Pedestrian Paths

3.3.1.Guidelines

- In some cases agreements were made in the project development and design process, requiring WSDOT to maintain pathways and sidewalks.
- Paths and sidewalks may require special attention from maintenance to ensure the safety of users and to enhance the appearance of the local community.

3.3.2.Locations

- Where sidewalks or bicycle paths are maintained by WSDOT, these locations 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. Urban Curb and Sidewalk

3.4.1.Guidelines

- There are several corridors within Olympic Region, Area 1 that have been recently developed in non-incorporated urban areas. Where these highways have been built for pedestrian access, in response to county zoning and development regulations areas are planted and maintained as a more formal landscape with street trees, shrub beds and turf.
- In these areas WSDOT is committed to a higher level of service and maintenance of roadside vegetation is more labor intensive.

3.4.2.Methods

- Most activities are done by hand or by smaller mowing equipment. Mowing frequency is determined by turf growth, typically requiring one pass every two weeks beginning in April and continuing through early July. Grass is all non-irrigated and allowed to go dormant in late summer.
- Lawns are typically fertilized annually in the fall.

3.4.3.Locations by Milepost

- Locations of these areas 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.

3.5. Roadside Restoration Areas

3.5.1.Guidelines

- Within Olympic Region, Area 1 there are a number of locations that have been treated with soil amendments and plantings to achieve naturally self-sustaining native plant communities in Zones 2 and 3. In many cases these areas have been planted with volunteer labor and are therefore important to the local communities. Because these areas have been accomplished outside the normal project construction process maintenance is often asked to help with weed control for plant establishment over the first three to five years. However, the intent for these areas once established is that they will be naturally self-sustaining and little to no maintenance will be required over the life of the roadside planting.

3.5.2.Methods

- Restoration areas are designed to provide a solid canopy of native shrubs and appropriate trees within three to five years after planting. During the first three to five years the most important maintenance actions include selective weed control focusing on larger woody species such as Himalayan blackberry and scotch broom. Typically, control involves hand pulling or cutting and stump treatment with herbicides. Prescriptions for control of most common weed species are provided in **Appendix A**.

3.5.3.Locations by Milepost

- Locations of these areas 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. City Maintenance Areas

3.6.1.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.

3.6.2.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.

3.7. Herbicide Sensitive Areas

3.7.1.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.
- In some locations, individuals have registered with Washington State Department of Agriculture as being pesticide sensitive. If these individual reside within ½ mile of the highway, the law requires that WSDOT notify them prior to application of herbicides.

3.7.2.Locations

- The list of pesticide sensitive individual's changes annually, supervisors and herbicide applicators should reference the most current list to see if any notifications are required prior to spraying in any location.
- Locations and descriptions 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. Adopt-a-Highway and Neighbor Maintained Agreements

3.8.1.Guidelines

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

3.8.2.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.

3.9. Storm Water Management Facilities

3.9.1.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 regards to 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.

3.9.2.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.

3.10. Wetland Mitigation Sites

3.10.1. 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.

3.10.2. Locations

- All wetland mitigation sites within OL 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.

3.11. Protected Terrestrial Species

3.11.1. 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.

3.11.2. 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.

3.12. IVM Treatment Sites

3.12.1. 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.

3.12.2. Locations

All designated IVM treatment sites within OL Region, Area 1 are referenced by individual records found in the IVM Treatment Database.

Zone 1 Maintenance - Bareground Treatment

	OPTION 1	OPTION 2	OPTION 3	
TREATMENT TYPE:	Pavement Edge	Pavement Edge	Pavement Edge	
MANAGEMENT GOALS:	Vegetation free	Limited regrowth	Chemical mowing	
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:	Ranger Pro 64ozl./acre	Ranger Pro 64ozl./acre + Suflan AS T&O 32ozl./acre	Ranger Pro 64ozl./acre + Landmark XP 8ozd./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:	Tree and Brush	Tree and Brush	Tree and Brush	Tree and Brush
MANAGEMENT GOALS:	Control vegetation obstruction	Control vegetation obstruction	Control vegetation obstruction	Control vegetation obstruction
METHOD:	Spot spray w/ herbicide	Spot spray w/ herbicide	Cut and daub	Spot spray w/ herbicide
EQUIPMENT:	Handgun	Handgun	Dauber	Backpack
MATERIALS:	Element 3A 192ozl./acre + Metcel VMF 2ozd./acre	Element 4 192ozl./acre	Element 3A non diluted or 1:1	Milestone VM Plus 133ozl./acre
TIMING:	Late spring & summer	Late spring & summer	Anytime	Late spring & summer
IVM FOLLOW-UP:	Evaluate control	Evaluate control	Evaluate control	Evaluate control
REMARKS:	Avoid brown out by spraying late in the season and spray only to appropriate height.			

Noxious and Nuisance Weed Control - General

	OPTION 1	OPTION 2	OPTION 3	Option 4
TREATMENT TYPE:	Chemical application	Chemical application	Chemical application	Chemical application
ACTION THRESHOLD:	As soon as plant appears	As soon as plant appears	As soon as plant appears	As soon as plant appears
MANAGEMENT GOALS:	Eradication and control of listed noxious weeds.	Eradication and control of listed noxious weeds.	Eradication and control of listed noxious weeds.	Eradication and control of listed noxious weeds.
METHOD:	Spot treatment w/ herbicide	Spot treatment w/ herbicide.	Spot treatment w/ herbicide.	Spot treatment w/ herbicide.
EQUIPMENT:	Backpack sprayer	Handgun	Backpack sprayer	Backpack sprayer
MATERIALS:	Element 3A 133ozl./acre + Metcel VMF 2ozl./acre	Surflan AS T&O 128ozl./acre	Ranger Pro 267ozl./acre	Element 4 133ozl./acre + Metcel VMF 2ozd./acre
TIMING:	During growing season	During growing season	During growing season	During growing season
IVM FOLLOW-UP:	Reapply as necessary	Reapply as necessary	Reapply as necessary	Reapply as necessary
REMARKS:	Poison Hemlock, Tansy Ragwort, Sulfur Cinquefoil, Shiny Geranium, Knotweed, Spurge Laurel, Knapweed, Rush Skeletonweed, Yellow Devil Hawkweed.			

Noxious and Nuisance Weed Control - General

OPTION 5

TREATMENT TYPE:	Chemical application			
ACTION THRESHOLD:	As soon as plant appears			
MANAGEMENT GOALS:	Eradication and control of listed noxious weeds.			
METHOD:	Blanket spray			
EQUIPMENT:	Hand spreader			
MATERIALS:	Casoron 4G 150lb./acre			
TIMING:	late winter early spring			
IVM FOLLOW-UP:	Reapply as necessary			
REMARKS:				

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

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
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

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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 marehail, 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
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
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

SR	Direction	Shoulder	BEG MP	END MP	Type	Description
005	INC	RS	88.16	88.68	I/C Exit 88 to SR 12	1 pass
005	INC	RS	94.99	95.23	I/C Exit 95 Maytown Littlerock	1 pass
005	INC	RS	98.96	99.87	I/C Exit 99 Scott Lake	Spot mow
005	INC	RS	100.94	101.87	I/C Exit 101 Tumwater Blvd	spot mow
005	INC	RS	102.55	103.17	I/C Exit 102 Trosper Rd	mow grass strip 2 times year
005	INC	RS	103.43	103.63	I/C Exit 103 Deschutes Way	landscape quadrants
005	INC	RS	104.03	104.77	I/C Exit 104 to SR 101 N.	landscape quadrants
005	INC	RS	105.19	106.24	I/C Exit 105 State Capitol	landscape quadrants
005	INC	RS	107.09	108.51	I/C Exit 107 Pacific Ave.	landscape quadrants
005	INC	RS	107.99	108.53	I/C Exit 108 Sleater Kinney	landscape quadrants
005	INC	RS	108.94	109.51	I/C Exit 109 Martin Way	landscape quadrants
005	INC	RS	111.18	112.41	I/C Exit 111 Marvin Rd	mow 1 pass, Brown Brush median
005	INC	RS	113.85	114.65	I/C Exit 114 Nisqually	mow 1 pass
005	INC	RS	116.41	117.06	I/C Exit 116 Mounts Rd	1 pass
005	INC	RS	117.79	118.34	I/C Exit 118 Center Drive	1 pass
005	INC	RS	118.72	119.39	I/C Exit 119 Steilacoom-Dupont Rd	1 pass
005	INC	RS	120.48	121.42	I/C Exit 120 Fort Lewis	Mow out quadrants
005	INC	RS	122.43	123.05	I/C Exit 122 Berkley St.	1 pass
005	INC	RS	123.28	123.94	I/C Exit 123 Thorne Lane	1 pass
005	INC	RS	124.33	125.09	I/C Exit 124 Gravelly Lake Dr.	1 pass
005	INC	RS	125.61	126.21	I/C Exit 125 Bridgeport Way	1 pass
005	INC	RS	127.13	128.02	I/C 127 So. Tacoma Way	1 pass
005	INC	RS	128.61	128.94	I/C Exit 128 So. 84 St.	1 pass
005	INC	RS	129.37	130.03	I/C Exit 129 S 72st.	1 pass
005	INC	RS	130.31	131.21	I/C Exit 130 Tacoma Mall Blvd	1 pass
005	INC	RS	131.35	132.82	I/C Exit 132 to SR 16	construction
005	INC	RS	133.41	134.17	I/C 133 Center City	construction
005	INC	RS	134.61	135.30	I/C Exit 134 Portland Ave.	construction
005	INC	RS	135.90	136.51	I/C Exit 136 A,B Port of Tacoma	1 pass
005	INC	RS	137.16	137.92	I/C Exit 137 Fife and Milton	1 pass
005	DEC	RS	137.71	137.09	I/C Exit 137 Fife and Milton	1 pass
005	DEC	RS	136.40	135.70	I/C Exit 136 Port of Tacoma	1 pass
005	DEC	RS	135.30	133.93	I/C Exit 135 Puyallup SR 167	1 pass
005	DEC	RS	132.67	131.32	I/C Exit 132 to SR 16	1 pass
005	DEC	RS	131.09	130.24	I/C Exit 130 So. 56st.	1 pass
005	DEC	RS	129.99	129.10	I/C Exit 129 S 72st.	1 pass
005	DEC	RS	128.88	128.51	Ramp on to SR 005	1 pass
005	DEC	RS	128.02	126.79	I/C 127 So. Tacoma Way	1 pass
005	DEC	RS	126.17	125.47	I/C Exit 125 Bridgeport Way	1 pass
005	DEC	RS	124.95	124.23	I/C Exit 124 Gravelly Lake Dr.	1 pass
005	DEC	RS	123.92	123.28	I/C Exit 123 Thorne Lane	1 pass
005	DEC	RS	122.94	122.38	I/C Exit 122 Berkley St.	1 pass
005	DEC	RS	121.36	120.35	I/C Exit 120 Fort Lewis	Mow out quadrants fort mows
005	DEC	RS	119.35	118.62	I/C Exit 119 Steilacoom-Dupont Rd	1 pass

Appendix C

Mowing Plan

005	DEC	RS	118.40	117.42	I/C Exit 118 Center Drive	1 pass
005	DEC	RS	117.25	116.44	I/C Exit 116 Mounts Rd	1 pass
005	DEC	RS	114.56	113.66	I/C Exit 114 Nisqually	1 pass
005	DEC	RS	112.25	111.44	I/C Exit 111 Marvin Rd	landscape quadrants
005	DEC	RS	109.31	108.81	I/C Exit 109 Martin Way	landscape quadrants
005	DEC	RS	108.45	107.85	I/C Exit 108 Sleater Kinney	landscape quadrants
005	DEC	RS	107.70	106.90	I/C Exit 107 Pacific Ave.	landscape quadrants
005	DEC	RS	106.12	104.86	I/C Exit 105 State Capitol	landscape quadrants
005	DEC	RS	104.58	103.75	I/C Exit 104 to SR 101 N.	landscape quadrants
005	DEC	RS	102.99	102.47	I/C Exit 102 Trosper Rd	landscape quadrants
005	DEC	RS	101.62	100.75	I/C Exit 101 Tumwater Blvd	1 pass
005	DEC	RS	99.58	98.94	I/C Exit 99 Scott Lake	1 pass
005	DEC	RS	95.18	94.93	I/C Exit 95 Maytown Littlerock	1 pass
005	DEC	RS	88.62	88.03	I/C Exit 88 to SR 12	under construction
005	DEC	RS	107.45	107.44	Woodard Creek	
005	Both	RS	99.29	101.31	Test and Evaluation	1 pass
005	Both	RS	101.88	109.51	Landscaped Area	mow grass twice a year
005	Both	RS	114.56	114.72	Nisqually National Wildlife Refuge	1 pass
7	Both	RS	47.00	52.00	Urban	Sight distance drainage swales
007	Both	RS	17	36	Rural	Sight distance high animal crossing
016	INC	RS	0.84	3.49	Multiple Off Ramp Area	1 pass
016	INC	RS	3.66	4.13	On Ramp from Pearl St.	1 pass
016	INC	RS	4.33	4.90	I/C Exit Jackson Ave.	1 pass
016	INC	RS	2.41	2.42	19th Street Interchange	1 pass
016	DEC	RS	5.01	4.15	I/C Exit Jackson Ave.	1 pass
016	DEC	RS	3.61	3.01	I/C Exit Pearle St.	1 pass
016	DEC	RS	2.88	1.65	I/C Exit 19th. St.	1 pass
016	DEC	RS	1.39	0.29	Multiple On and Off Ramp Area	1 pass
099	Both	RS	0.00	0.59	City of Fife	no mow
099	Both	RS	1.18	5.70	City of Milton	no mow
101	INC	RS	362.28	362.79	Exit Ramp to Shelton and Aberdeen	out of area
101	INC	RS	363.96	364.39	On ramp from Evergreen Parkway	1 pass
101	INC	RS	365.03	365.90	I/C Exit Black Lake Blvd	landscape
101	INC	RS	366.17	366.88	I/C Exit to Cooper Pt. Rd	landscape
101	INC	RS	367.15	367.33	Off ramp to SR 005 South	landscape
101	DEC	RS	366.68	366.11	I/C Exit to Cooper Pt. Rd	landscape
101	DEC	RS	365.92	364.80	I/C Exit Black Lake Blvd	landscape
101	DEC	RS	364.30	364.01	Off ramp to Evergreen State College	1 pass
101	DEC	RS	362.83	362.22	I/C Exit 2nd Ave SW	1 pass
121	Both	RS	3.21	4.48	Millersylvania State Park	spot mow
161	Both	RS	0.40	13.00	City of Eatonville	Sight distance High animal crossing
161	Both	RS	3.42	3.63	City of Eatonville	Spot mow
161	Both	RS	4.05	4.30	City of Eatonville	Spot mow

Appendix C

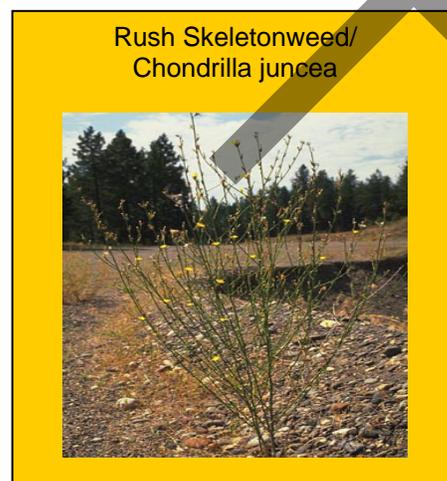
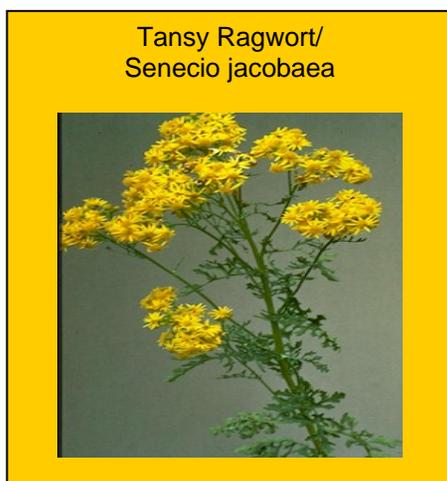
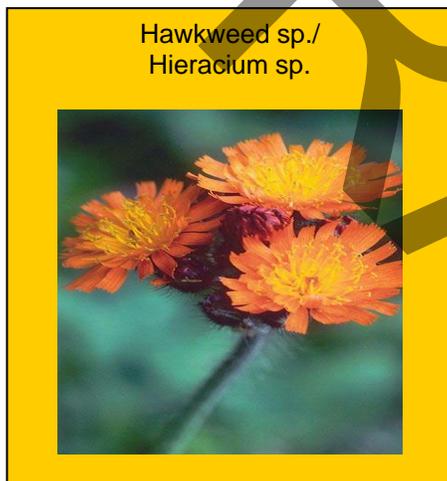
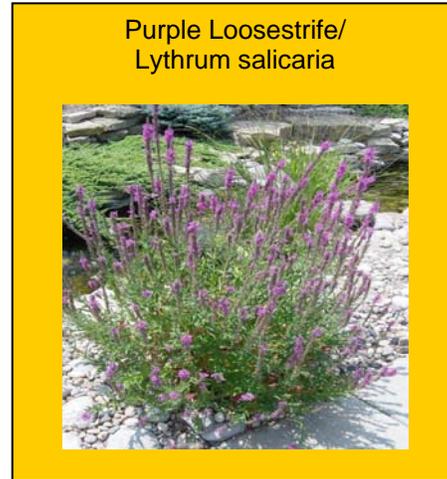
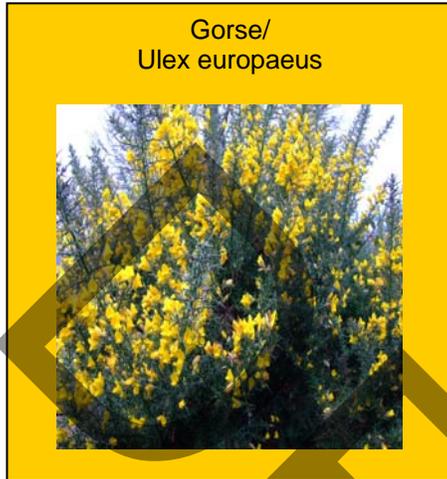
Mowing Plan

161	Both	RS	13.00	24.00	Rural	Sight distance and drainage
161	Both	RS	28.73	29.24	City of Puyallup	City
161	Both	RS	29.24	32.55	City of Edgewood	Spot mow
162	Both	RS	0.00	0.53	City of Sumner	spot mow
162	Both	RS	8.06	10.34	City of Orting	spot mow
163	Both	RS	0.00	2.85	City of Tacoma	no mow
163	Both	RS	2.85	3.08	City of Rustin	no mow
163	Both	RS	3.08	3.37	City of Tacoma	no mow
165	Both	RS	16.47	17.14	City of Wilkeson	no mow
165	Both	RS	20.74	21.24	City of Buckley	no mow
167	INC	RS	6.86	7.50	I/C Exit to Sumner	1 pass
167	INC	RS	10.38	11.17	I/C Exit to Milton	1 pass
167	INC	RS	1.00	5.50	I/C Exit to Edgewood	sight distance and hardware
167	DEC	RS	7.12	6.68	I/C Exit to Sumner and Yakima	1 pass
167	DEC	RS	6.44	5.75	I/C Exit to Puyallup and Olympia	1 pass
167	Both	RS	4.77	5.50	City of Puyallup	1 pass
410	INC	RS	9.10	9.58	I/C Exit Traffic Ave.	1 pass
410	INC	RS	10.19	10.79	I/C Exit to Orting	1 pass
410	INC	RS	10.68	10.07	I/C Exit to Orting	1 pass
410	INC	RS	11.28	11.93	I/C Exit 166th Ave.	1 pass
410	DEC	RS	11.68	11.07	I/C Exit 166th Ave.	1 pass
410	DEC	RS	9.36	9.10	I/C Exit Traffic Ave.	1 pass
410	DEC	RS	13.93	13.90	Fennel Creek	Wetland Mitigation Site
410	Both	RS	12.72	15.36	City of Bonney Lake	spot mow
410	Both	RS	19.62	21.99	City of Buckley	spot mow
507	Both	RS	13.32	15.66	City of Tenino	spot mow
507	Both	RS	22.20	23.31	City of Rainier	spot mow
507	Both	RS	27.32	29.23	City of Yelm	spot mow
507	Both	RS	35.19	36.22	City of Roy	spot mow
509	INC	RS	0.71	1.15	Off Ramp to Portland Ave.	landscape
509	INC	RS	1.65	2.60	I/C Exit to Port of Tacoma	landscape
509	INC	RS	2.37	2.38	East-West Corridor - Erdahl Ditch	Wetland Mitigation Site
509	INC	RS	3.99B	4.00B	East-West Corridor - Hylebos Creek	Wetland Mitigation Site
509	DEC	RS	2.81	1.69	I/C Exit to Port of Tacoma	1 pass
510	Both	RS	0.01	2.83	City of Lacey	spot mow
510	Both	RS	14.14	15.67	City of Yelm	no mow

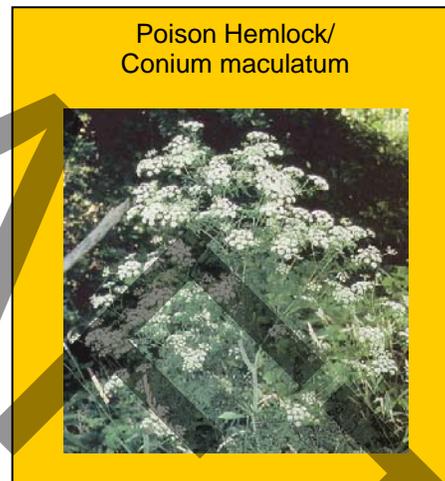
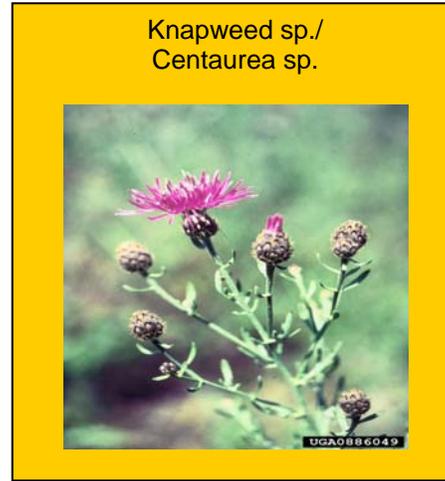
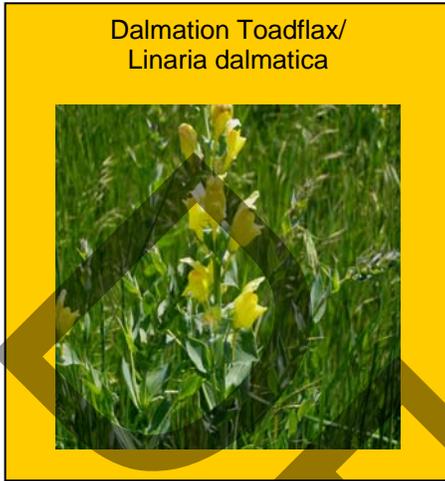
512	INC	RS	0.63	1.01	I/C Exit Steele St.	1 pass and Hardware
512	INC	RS	1.94	2.53	I/C Exit Pacific Ave	1 pass and Hardware
512	INC	RS	3.52	4.12	I/C Exit Portland Ave.	1 pass and Hardware
512	INC	RS	5.54	6.30	I/C Exit Canyon Rd	1 pass and Hardware
512	INC	RS	7.85	8.38	Off Ramp to 94th Ave. E.	1 pass and Hardware
512	INC	RS	8.46	9.34	I/C Exit Eatonville	1 pass and Hardware
512	INC	RS	9.83	10.53	I/C Exit Meridian St.	1 pass and Hardware
512	INC	RS	10.84	11.42	I/C Exit Orting	1 pass and Hardware
512	INC	RS	11.68	12.00	Off Ramp to Seattle and Yakima	1 pass and Hardware
512	DEC	RS	12.00	11.54	On Ramp from SR 167	1 pass
512	DEC	RS	11.20	10.68	I/C Exit Pioneer Ave. E.	1 pass
512	DEC	RS	10.35	9.69	I/C Exit Meridian St.	1 pass
512	DEC	RS	9.17	7.78	I/C Exit South Hill	1 pass
512	DEC	RS	6.17	5.40	I/C Exit Canyon Rd	1 pass
512	DEC	RS	3.96	3.46	I/C Exit Portland Ave.	1 pass
512	DEC	RS	2.51	1.75	I/C Exit Pacific Ave	1 pass
512	DEC	RS	0.87	0.63	I/C Exit Steele St.	1 pass
706	Both	RS	0	14	Rural	Sight distance high animal crossing

- I-5 MP 85.5 to MP 93 both directions will be mowed in late march because of ESA considerations. Prior to mowing that section we will be conducting a spot treatment for nuisance weeds. The area will be mowed beyond 1 pass where the application was made. The interchange at MP 88 will be treated in the same time frame and mowed out completely.
- I-5 It will be one pass mowing on the right shoulders from MP 93 both directions to Trosper interchange.
- I-5 the interchanges at 93rd and Tumwater Blvd. inside quadrants will be mowed back to the native tree line.

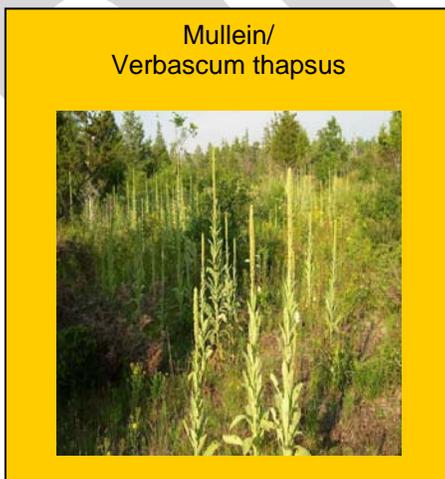
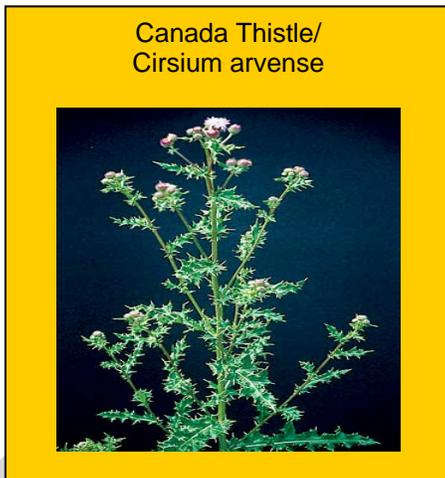
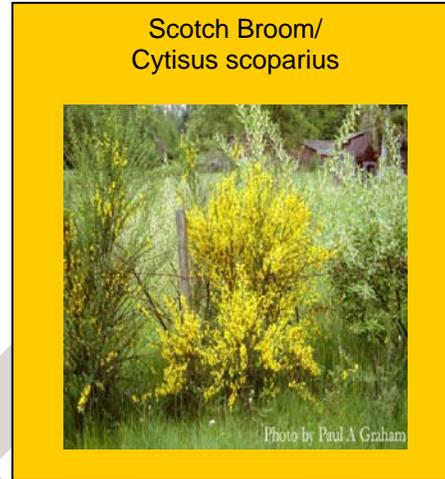
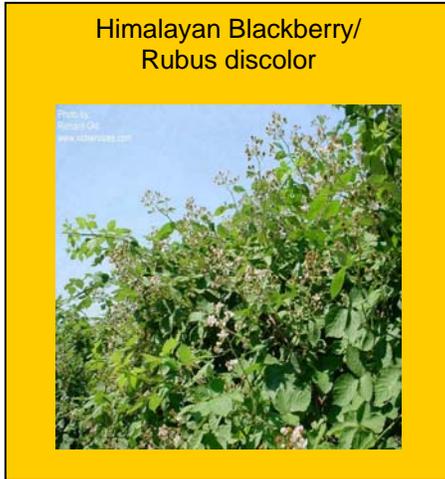
Designated for control in OL area 1:
(Thurston and Pierce County)



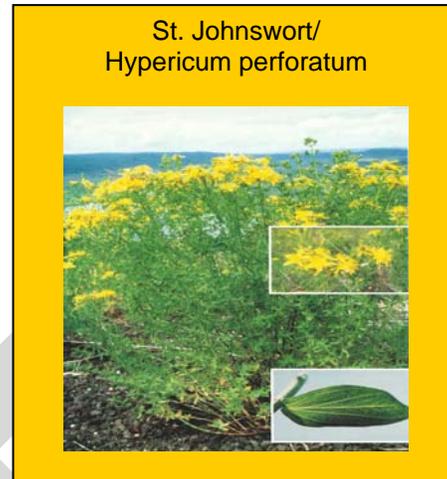
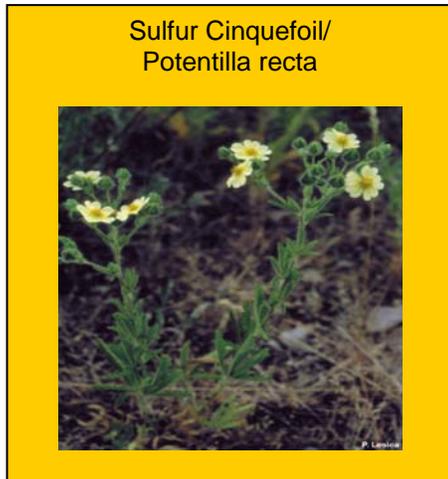
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(Thurston and Pierce County)

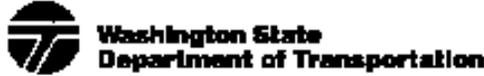


Nuisance weeds in OL area 1:
(Thurston and Pierce County)



Nuisance weeds in OL area 1:
(Thurston and Pierce 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 Appointments Below:				
<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"/> Staking	<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 PS-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			

Appendix F

IVM Stakeholders List

Entity	Mailing Address	Contact Person	Title	Phone	E-Mail
City of Olympia	601 4th Ave. E Olympia, Wa 98501	Rich Hoey	Public Works Director	(360) 753-8333	publicworks@ci.olympia.wa.us
City of Tumwater	555 Israel Rd. SW Tumwater, WA 98501	Jay Eaton	Public Works Director	(360) 754-4140	jeaton@ci.tumwater.wa.us
City of Lacey	420 College St. SE Lacey, WA 98509	Scott Egger	Public Works Director	(360) 491-5600	segger@ci.lacey.wa.us
City of Tenino	149 Hodgden St. S Tenino, WA 98589	Dave Dafoe	Public Works Director	(360) 264-2368 Fax (360) 264-5772	
City of Bucoda	110 N. Main St. Bucoda, WA 98530	Alan Carr	Major	(360) 278-3525 Fax (360) 278-3526	bucoda@scattercreek.com
City of Rainier	102 Rochester St. Rainier, WA 98576	Ron Gibson	Public Works Director	(360) 446-2265 Fax (360) 446-2720	rainierpw@ywave.com
City of Yelm	901 Rhoton Road Yelm, WA 98597	Ryan Johnstone	Public Works Director	(360) 458-8499	ryani@ci.yelm.wa.us
City of Dupont	1700 Civic Drive Dupont, WA 98327	Peter Zahn	Public Works Director	(253) 912-5380 Fax (253) 964-1455	pzahn@ci.dupont.wa.us
City of Lakewood	6000 Main St. SW Lakewood, WA 98499	Don Wickstrom	Public Works Director	(253) 983-7795 Fax (253) 512-2268	publicworks@cityoflakewood.us
City of Roy	216 McNaught St. S. Roy, WA 98580	Aaron Possiem	Public Works Superintendent	(253) 843-1113	publicworks@cityofroywa.us
City of Eatonville	201 Center St. W. Eatonville, WA 98328	Doug Beagle	Public Works Director	(360) 832-3361	dbeagle@eatonville-wa.gov
City of Steilacoom	Public Works Building 1030 Roe Street	Mark Burlingame	Public Works Director	(253) 581-1912 Fax (253) 582-0651	mark.burlingame@ci.steilacoom.wa.us
City of University Place	4951 Grandview Drive W. University Place, WA 98466	Gary Cooper	Public Works Director	(253) 460-6494	gcooper@cityofup.com
City of Fircrest	120 Ramsdell St. Fircrest, WA 98466	Jeffy Wakefield	Public Works Director	(253) 564-8900 Fax (253) 564-3640	jwakefield@cityoffircrest.net
City of Tacoma	747 Market Street rm 408 Tacoma, WA 98402	Kurtis Kingsolver	Public Works Director	(523) 594-7879	pwaintrn@cityoftacoma.org
City of Fife	3725 Pacific Highway East Fife, WA 98424	Russell Blount	Public Works Director	(253) 922-9315	publicworks@cityoffife.org
City of Puyallup	1100 39th Ave. SE Puyallup, WA 98374	Rob Andreotti	Public Works Director	(253) 841-5513 Fax (253) 841-5437	robert@ci.puyallup.wa.us
City of Edgewood	2224 104th Ave. E. Edgewood, WA 98372	Rick Pederson	Public Works Superintendent	(253) 952-3299 Fax (253) 952-3537	rick@cityofedgewood.org
City of Sumner	1104 Maple St. Suite 260 Sumner, WA 98390	Bill Pugh	Public Works Director	(253) 299-5701 Fax (253) 299-5539	billp@ci.sumner.wa.us
City of Bonney Lake	19306 Bonney Lake Blvd. Bonney Lake, WA 98391	Dan Grigsby	Public Works Director	(253) 447-4347 Fax (253) 826-1921	grigsbyd@ci.bonney-lake.wa.us

Entity	Mailing Address	Contact Person	Title	Phone	E-Mail
Town of South Prairie	121 NW Washington St. South Praire, WA 98385	Mark Kask	Town Planner (Contracted)	(360) 897-8878 Fax (360) 897-8717	south_praire@yahoo.com
City of Orting	110 Train St. SE Orting, WA 98360	Laura Hinds	Public Works	(360) 893-2219 ext. 139	
City of Buckley	240 River Road Buckley, WA 98321	John Dansby	Public Works Supervisor	(360) 829-1921 Fax (360) 829-5440	jdansby@cityofbuckley.com
Town of Wilkeson	540 Church St. Wilkeson, WA 98396	Mark Kask	City Planner	(360) 829-0790 Fax (360) 829-4292	
Town of Carbonado	818 8th Ave. Carbonado, WA 98323			(360) 829-0125 Fax (360) 829-9912	carbonado@qwest.net
Puyallup Tribe		Herman Dillion	Council Chairman	(235) 573-7835	
Thurston County Weed Coordinator	9605 Tilley Rd. SW Olympia, WA 98512	Rick Johnson	Noxious Weed Coordinator	(360) 786-5576 Fax (360) 786-5577	johnsor@co.thurston.wa.us
Pierce County Noxious Control Board	1420 E. 112th St. Tacoma, WA 98445	Beki Shoemaker	Program Director	(253) 798-6800	bshoema@co.pierce.wa.us