

# Northwest Region, Area 3 Integrated Roadside Vegetation Management Plan

2014



**Washington State  
Department of Transportation**  
Maintenance Operations Division

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## Summary

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This plan explains the Washington State Department of Transportation's (WSDOT) policy and practice for maintenance of roadside vegetation for Maintenance Area 3 within the agency's Northwest Region. This area manages vegetation within approximately 221 miles of state highway corridor primarily in Snohomish and Northeast King County. The area maintains the Interstate 5 corridor through most of Snohomish County, the SR 2 corridor up to Stevens Pass, the SR 9 corridor between the King County line and Arlington, SR 203, 522, and a number of smaller collector/distributor routes in and around the Everett area. A map of the entire area is included as **Figure 1** on the following page.

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

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

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

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

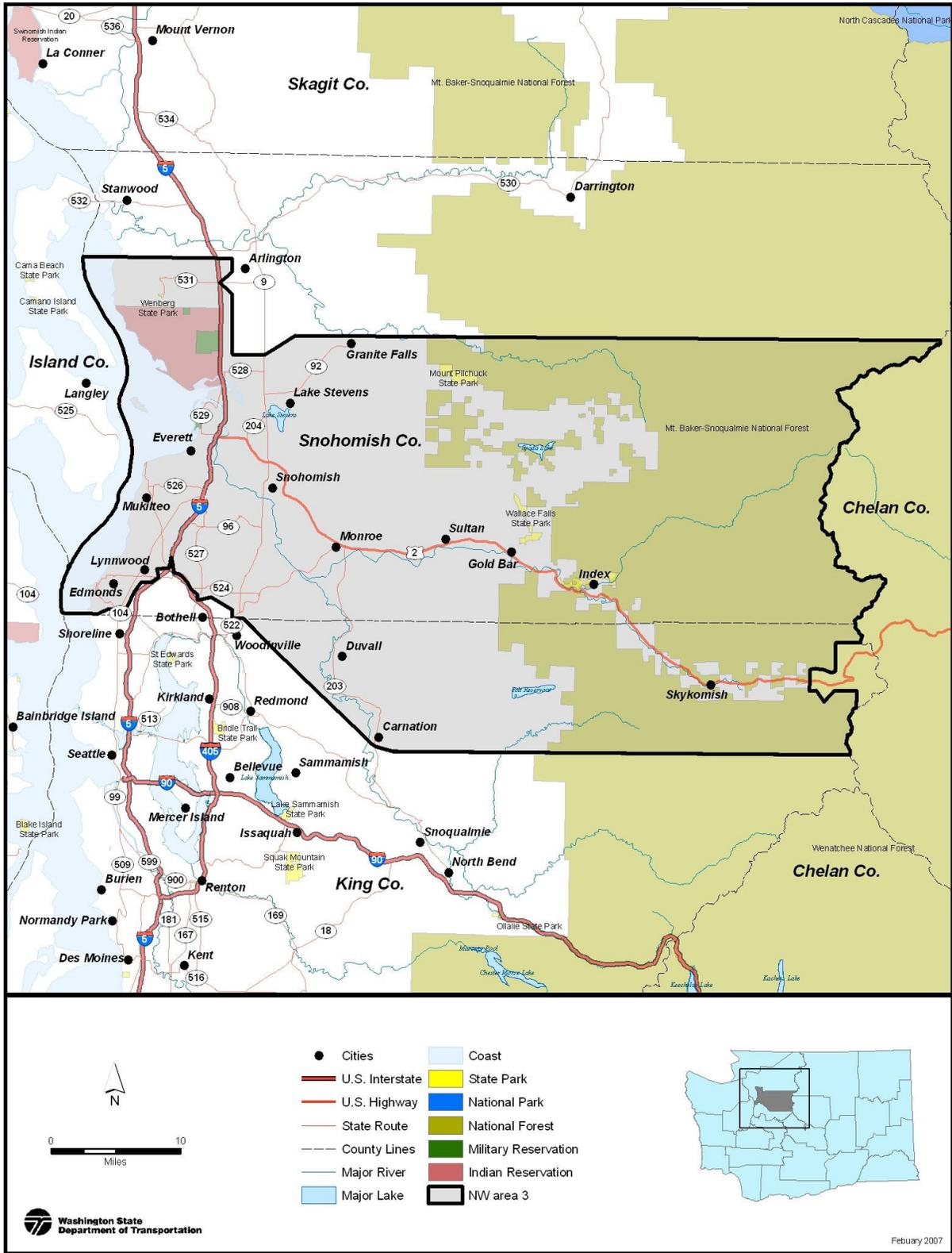
The management of roadside vegetation is a dynamic process and it is intended that this plan be continuously adapted over time based on input from a variety of sources. An integral component of the process is a database for recording IVM treatments for specific vegetation controls and locations, and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

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

[http://www.wsdot.wa.gov/Maintenance/Roadside/mgmt\\_plans.htm](http://www.wsdot.wa.gov/Maintenance/Roadside/mgmt_plans.htm), hard copies and/or specific location data can also be provided upon request. Please contact Ron Morton or Ray Willard for questions or comments:

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**Northwest Region, Area 3 Map**  
Figure 1

## ***Roadside Management Considerations***

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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, October 2010) <http://www.wsdot.wa.gov/Publications/Manuals/M51-01.htm>

### **Visual Quality**

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

### **Operational Zones**

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

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

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

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

### **Roadside Maintenance Activities**

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

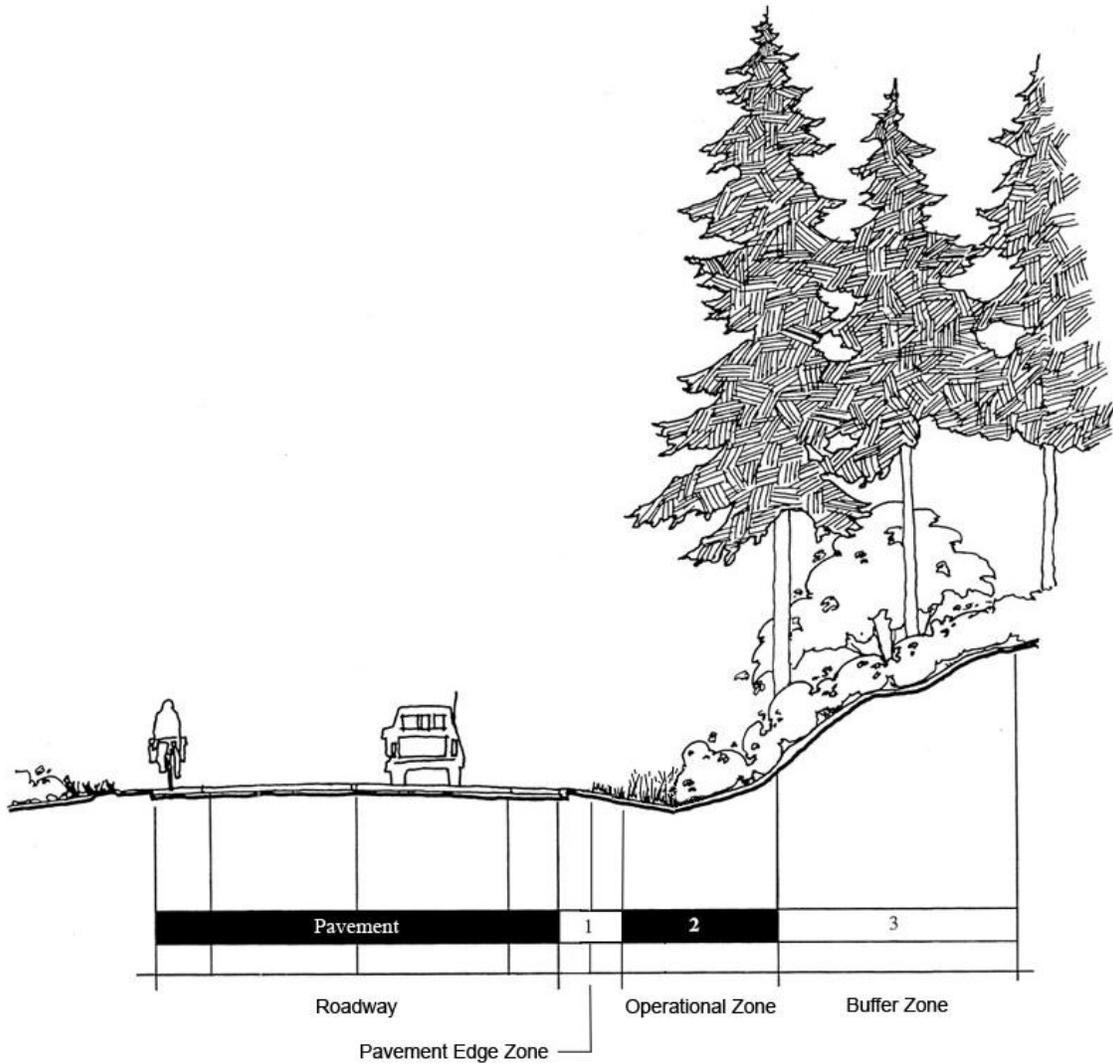
**Routine Maintenance Activities** – When vegetation maintenance activities are required to keep the area of roadside being managed in an annually controlled condition, they are considered routine. This is more critical for areas of vegetated roadside near the travel lanes, edge of pavement, and around guardrails. This plan provides prescriptions and gives locations for routine maintenance activities including maintenance of Zone 1 and annual mowing.

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

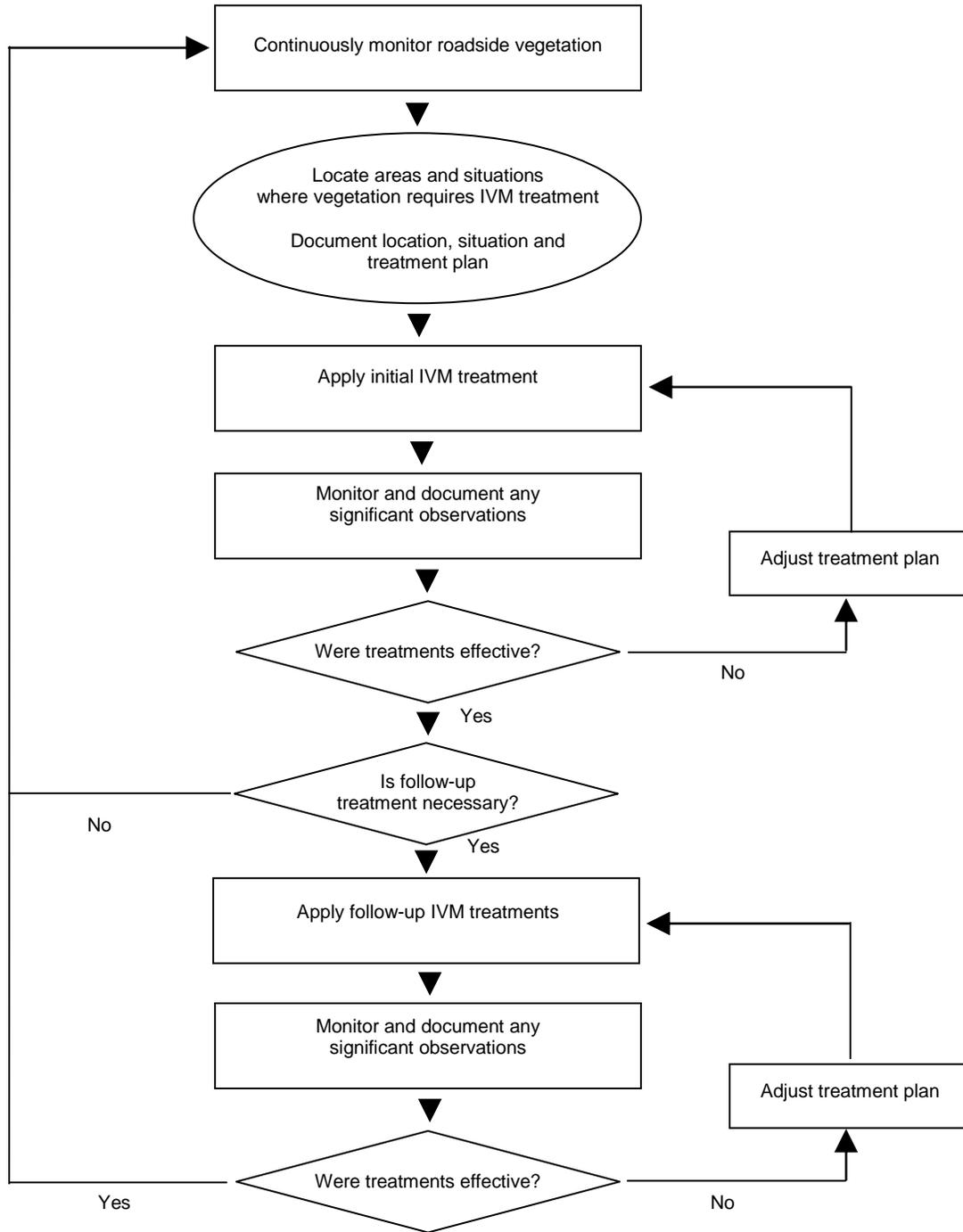
**Buffer Zone**

*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

## **Area IVM Goals - 2014**

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The purpose of this section is to identify the highest priority roadside vegetation management needs in Northwest Region, Area 3 and to describe in general the approach the area will take in addressing these needs in the coming years. Information here is presented in relation to the three major groups for roadside vegetation maintenance performance: Control of Vegetative Obstructions, Noxious Weed Control, and Nuisance Weed Control. This section is intended to supplement the information in the following section, **Northwest Region, Area 3 – Roadside Vegetation Management Plan** which details the guidelines and methods for accomplishing the work of roadside vegetation management along the highways within this maintenance area.

### **Control of Vegetative Obstructions**

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

#### Pavement Edge Maintenance/Zone 1

##### **415310 Section**

- For limited access freeways and state routes including I-5, 531, 2,204, 529, Zone 1 is maintained with an annual application of herbicides.
- Normally maintained at less than three feet, which may vary depending on the slope of the shoulder and distance of cable rail from pavement edge.
- Areas that fall with-in water buffer areas are maintained by using herbicides that have been approved through EPA and WSDOT's risk assessment programs. Chemicals that will be use are Glyphosate, Landmark, and Payload as per label.
- There will be some removal of excessive sod build up, if build up has an effect on the hydraulic flow of water off the roadway surface.

##### **415320 Section**

- For limited access freeway on SR 522, Zone 1 is maintained with an annual application of herbicides. Normally maintained at less than three feet, which may vary depending on the slope of the shoulder. Areas that fall within water buffer areas are maintained by using herbicides that have been approved through EPA and WSDOT's risk assessment programs. Chemicals that will be use are Glyphosate, Landmark, and Payload as per label. There will be some removal of excessive sod build up, if build up has an effect on the hydraulic flow of water off the roadway surface.
- US 2, Zone 1 is only maintained around the base of the guardrail and where there are narrow shoulders with the use of herbicides. We will also treat low sides of supers where road debris tends to accumulate and buildup on shoulders.
- SR 203, Zone 1 is only maintained with an annual application of herbicides. Normally maintained at less than three feet, which may vary depending on the slope of the shoulder.

##### **415340 Section**

- For limited access freeways and state routes including US 2, 527, 96, 524, 99, 526, and 525, Zone 1 is maintained with an annual application of herbicides.
- Normally maintained at less than three feet, which may vary depending on the slope of the shoulder and distance of guard rail from pavement edge.
- Areas that fall with-in water buffer areas are maintained by using herbicides that have been approved through EPA and WSDOT's risk assessment programs. Chemicals that will be use are Glyphosate, Landmark, and Payload as per label.
- There will be some removal of excessive sod build up, if build up has an effect on the hydraulic flow of water off the roadway surface.

## Tree and Brush Control/Zone 2

- Tree and Brush control for all highways within Area 3 will fall under the guidelines of section 2.4.1 in the Northwest region Area 3 IVM Plan. Removal of danger trees when identified.

### **Noxious Weed Control**

Noxious weeds are those species legally designated by state and county regulations for required control by all property owners. Because laws are enforced with fines and/or control work and billing of property owners by county administration, work under this group is considered second priority after critical safety related locations have been addressed. Control of designated noxious weed species is typically carried out 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 2010 include:

#### **415310 Section**

- I-5 – Target noxious weeds by spot spraying using a portable tank from MP 183 to MP 207 starting in early May if weather allows. We will mainly target Canada thistle, and Bull thistle and we will use Capstone and Metcel VMF at a rate that is recommended on label. Tansy Ragwort on I-5 MP 185-187 Median, Chervil on I-5 MP 199-207 right shoulders and median, Poison Hemlock on I-5 MP 186-200 right shoulders and median.
- In June, July and August target mainly Hawkweeds with the use of Milestone VM at a rate that is recommended on label. For Knotweed we will use Habitat at recommended rate on label.
- Spurge laurel on I-5 MP 190.5-191.5 in median and right shoulders
- SR 531 – Control noxious weed that may appear through the growing season.

#### **415320 Section**

- US 2, SR 203,522 – Target noxious weeds by spot spraying, using a portable tank from MP 5 to MP 56 starting in early May if weather permits. We will mainly target Canada thistle, Bull thistle, Dalmatian toadflax and we will use Escort and Telar DF at a rate that is recommended on label. Also in May we will target Tansy Ragwort and Hawkweeds with Milestone at a rate that is recommended on label. In June, July and August we will mainly target Hawkweeds Knapweeds and we will use Milestone VM at a rate that is recommended on label. For Knotweed we will use Habitat at a rate that is recommended on label.
- Locations of focus for this year:
  - SR 522 MP 15.2 – Knotweed
  - SR 203 MP 17 – Knotweed
  - US 2 MP 26.5 - Knotweed
  - US 2 44 to 45 – Dalmatian Toadflax
  - US 2 MP 49.5 – Orange Hawkweed

#### **415340 Section**

- SR 2, 9, 92, 96, 524, 525, 526 and 527 - Target noxious weeds by spot spraying using a portable tank starting in early May if weather allows. We will mainly target Canada thistle, and Bull thistle and we will use Capstone and Metcel VMS at recommended rates. In June, July and August we will mainly target Hawkweeds and we will use Milestone VM at recommended rates, Knotweed we will use Habitat at recommended rates.

### **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 2013, the overall approach to control of nuisance vegetation and locations where focused efforts will be applied if time and resources allow include:

#### **415310 Section**

- I-5 – Target some of our larger infestations mainly Blackberry and Scotch Broom. We will make our applications in late summer and early fall. Scotch Broom will be mowed first then treated with Garlon 4A. From MP 198.5 to MP 207.7, within the Tulalip reservation, nuisance mowing will be reimbursed by the tribe. On I-5 from Union Slough to the Snohomish River Bridge south bound, the right-of-way will be mowed to the ditch at the right-of-way line.
- SR 531, 528, 529, 204– Treat as necessary our smaller infestations of nuisance weeds as describe in section 2.3 of the IVM plan.
- I-5, SR 2, 204, 531, 529 – Early fall treat blackberry & small alders in Zone 2 with Krenite at recommended rates.

#### **415320 Section**

- SR 2 – Target some of our larger infestations mainly Blackberry and Scotch Broom, We will make our applications in late summer and early fall. Scotch Broom will be mowed first then treated with Garlon 4A.
- SR 203, 522 – Treat as necessary our smaller infestations of nuisance weeds as describe in section 2.3 of the IVM plan.
- US 2 & SR 203 – Target Blackberry, smaller alders and maples with Krenite in the fall if time and resources allow.

#### **415340 Section**

- SR 2, 525 and 526 – Target some of our larger infestations of blackberry and Scotch broom late summer early fall. Scotch broom will be mowed first then treated with Garlon 4A.
- SR 9, 92, 96, 524, 527 – Treat as necessary our smaller infestations of nuisance weeds as describe in section 2.3 of the IVM plan.
- SR 2, 9, 92, 96, 524, 526 & 527 – Treat blackberry & small alders in Zone 2 with Krenite at recommended rates, early Fall.

## ***Northwest Region, Area 3 – Roadside Vegetation Management Plan***

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### **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. Bare Ground Shoulder Maintenance (Zone 1)**

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

##### **1.1.1. Guidelines**

- Where maintained, a vegetation-free Zone 1 is 3' band width or less.
- A vegetation-free Zone 1 is maintained on non-guardrail sections of limited access highways and ramps through annual application of non-selective post emergent, and soil residual pre-emergent herbicides.
- For all guardrail installations area-wide and on select secondary roads with narrow paved shoulders, a vegetation-free Zone 1 will be maintained with annual application of non-selective post emergent, and soil residual pre-emergent herbicides.

##### **1.1.2 Methods**

- NW Region, Area 3 maintains Zone 1 on limited access freeways by an application of non-selective post emergent, and soil residual pre-emergent herbicides.
- Treatment prescriptions are listed in **Appendix A, Zone 1 Maintenance – Bare Ground Treatment**

##### **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 (Zones 1 and 2)**

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

##### **1.2.1. Guidelines**

- Routine annual mowing occurs on all corridors where Zone 1 is not maintained with at least one pass, one or more times per year as needed immediately adjacent to the edge of pavement.

- Additional annual mowing or trimming maybe also conducted as needed for select locations on secondary highways to preserve site distance at curves, intersections and any other highway entry points for all highways including areas where Zone 1 is maintained.
- In designated areas on Interstates 5 mowing widths may extend beyond one mower pass where specified.
- In focus areas such as interchanges, urban landscaped areas, and areas adjacent to safety rest areas, mowing patterns and frequencies are adjusted to local situations as described in **Section 3**.
- In all other areas mowing is only used as needed to conduct IVM treatments for weed 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

- On I-5, routine annual mowing areas are designated as either single pass or multiple pass.
- Single pass mowing consists of one pass up to the maximum width of mowing equipment 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.
- Multiple pass in medians on divided highways indicate the median is mowed out across the entire width regardless of the number of passes required.
- On secondary roads annual trimming of brush and encroaching branches, will be conducted as necessary with side-arm mowers to prevent vegetation obstructions at intersections, driveways and for sign visibility.
- See **Appendix A, Routine Maintenance Prescriptions, Zone 2 Maintenance**

#### 1.2.3. Locations

- Single pass routine mowing occurs on all roadsides in the area, except for inaccessible steep slopes behind Jersey barrier or guardrail.
- **Appendix C, Routine Mowing Plan** (not included at this time) describes mowing priorities, timing and limits on the I-5 corridor.

### 1.3. Hazard Tree Monitoring and Removal

In areas where there is adequate right-of-way width to accommodate Zone 3 the main objective is to establish vegetation that requires as little maintenance as possible. Activities conducted are targeted selectively at removal of unwanted vegetation and 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 consider routine and ongoing roadside maintenance activities.

#### 1.3.1. Guidelines

- Hazard tree removal is considered a routine maintenance activity because maintenance is constantly on the look out for any trees that

pose an imminent threat to the highway or traffic, and whenever hazard trees are identified they are routinely removed as soon as possible.

- Hazard trees may be dead, diseased, leaning, or structurally unsound. Best horticultural judgment will be used in evaluating trees that appear diseased or structurally unsound or are believed to pose a long-term threat to determine the best course of action.
- Another consideration in removal of trees is the contribution to shading in areas prone to frost and ice formation on the highway surface. When such areas are identified, the surrounding canopy may be thinned through selective removal of large trees on the right-of-way.

### **1.3.2. Methods**

- Hazard trees are removed in such a manner to minimize damage and impact to the highway structure and other healthy trees and 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 6. 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 concern's 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**.

### 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 NW Region, Area 3 the following weeds designated for control are known to exist on state highway rights-of-way in Snohomish and King 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 NW Region, Area 3:

<b>Common Name/Botanical Name</b>	<b>Sno</b>	<b>King</b>
Knotweed sp./ <i>Polygonum sp.</i>	◆	<i>Not Selected</i>
Ragwort tansy/ <i>Senecio jacobaea</i>	◆	◆
Hawkweed sp./ <i>Heiracium</i>	◆	◆
Toadflax dalmatian/ <i>Linaria dalmatica</i>	◆	◆
Poison hemlock/ <i>Conium maculatum</i>	◆	◆
Knapweed sp./ <i>Centaurea sp.</i>	◆	◆
Purple loosestrife/ <i>Lythrum salicaria</i>	◆	◆
Sulfur cinquefoil/ <i>Potentilla recta</i>	◆	◆
Houndstongue/ <i>Cynoglossum officinale</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 Class C noxious weeds are known to exist on state rights-of-way in NW Region, Area 3:

<b>Common Name/Botanical Name</b>	<b>Sno</b>	<b>King</b>
Canada thistle/ <i>Cirsium arvense</i>	◆	<i>Not Selected</i>
Bull thistle/ <i>Cirsium vulgare</i>	◆	<i>Not Selected</i>
Absinth wormwood/ <i>Artemisia absinthium</i>		◆
Common Hawkweed/ <i>Hieracium lachenalli</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 and bagged. Maintenance employees are encouraged to be aware of and look for new noxious weed occurrences, and to stop, pull and bag these plants whenever possible.
- In conjunction with weed control treatments, a variety of other measures may be taken to promote natural vegetative competition through seeding, planting, and soil enhancement. The IVM Record and database are essential to the execution and success of these control measures.
- For recommended treatments specific to noxious weed species, see **Appendix A, IVM Prescriptions, Noxious Weed Control**

**2.2.3. Locations**

- Priority locations for control of designated noxious weed species in NW Region, Area 3 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 NW Region, Area 3 that are known to exist on the highway right-of-way include:

<b>Common Name/Botanical Name</b>	<b>Sno</b>	<b>King</b>
Knotweed sp./ <i>Polygonum sp.</i>	<i>Noxious</i>	◆
Himalayan blackberry/ <i>Rubus discolor</i>	◆	◆
Scotch broom/ <i>Cytisus scoparius</i>	◆	◆
Butterfly bush/ <i>Buddleia davidii</i>	◆	◆
Common tansy/ <i>Tanacetum vulgare</i>	◆	◆
St. Johnswort/ <i>Hypericum perforatum</i>	◆	◆
Yellow Toadflax/ <i>Linaria vulgaris</i>	◆	◆
Canada thistle/ <i>Cirsium arvense</i>	<i>Noxious</i>	◆
Bull thistle/ <i>Cirsium vulgare</i>	<i>Noxious</i>	◆
Common Mullein/ <i>Verbascum thapsus</i>	◆	◆

### 2.3.2. Methods

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 large 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 coniferous or hardwood deciduous tree species such as Douglas fir, bigleaf maple, alder, or cottonwood 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 should be removed when young.
- Any tree with a trunk diameter of 4" or greater is considered a hazard for errant vehicles in Zone 2 and should be removed. This zone is also referred to as the Design Clear Zone and is typically maintained to a width of 30' from the traffic lane edge. Actual minimum widths are determined by roadway alignment, traffic speed and volume, and cross-section of the roadside, as specified in the WSDOT Design Manual, Chapter 700.04. <http://www.wsdot.wa.gov/Publications/Manuals/M22-01.htm>

#### 2.4.2. Methods

- Removal of undesirable tree and brush species is typically accomplished by hand cutting, hand pulling, properly timed selective mowing, properly timed herbicide applications, or combinations thereof.
- In some locations it is most effective to mow back the majority of the existing 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 the roadside in the form of mulch for soil enhancement and weed prevention.
- Timing of activities has a significant effect on how the vegetation grows back. Herbicide applications made by hand, directly to the cut surfaces of undesirable plants may be used to reduce or eliminate grow back.
- Chemical control methods will not be used on conifers greater than 2 feet in height and/or large dense patches of young trees, to avoid unnecessary negative visual impacts from "brown-out".
- Chemical control methods will not be used on deciduous plants until after the first of September, except for as stump treatments in conjunction with mechanical cutting to eliminate grow-back.
- When possible, safe and practical, seedling of desirable trees may be dug or pulled by hand and transplanted to areas where their 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.

##### **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, and some sections of the roadside in and around the Everett Metro area have been planted with ornamental landscaping.
- Work in these areas is charged to the 1500 series of work operations.
- Areas on I -5 have been removed by HOV project.

##### **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.
- Lawn areas, if present may include irrigation systems and weekly mowing routines during the growing season.

##### **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 design and construction 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**

- WSDOT maintained pedestrian and bicycle paths in the areas along with notes describing general practices 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.

## **3.4. City Maintenance Areas**

### **3.4.1. 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.

### **3.4.2. Locations**

- Limits for city maintained roadsides 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. Herbicide Sensitive Areas**

### **3.5.1. 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.

### **3.5.2. Locations**

- Herbicide sensitive areas and reason/type of limitations on herbicide use 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.
- The list of pesticide sensitive individuals change annually, supervisors and herbicide applicators should reference the most current list to see if any notifications are required prior to spraying in any location.

## **3.6. Adopt-a-Highway and Neighbor Maintained Agreements**

### **3.6.1. Guidelines**

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

### **3.6.2. 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.

## **3.7. Storm Water Management Facilities**

### **3.7.1. 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.

### **3.7.2. 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.

## **3.8. Wetland Mitigation Sites**

### **3.8.1. 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.

### **3.8.2. Locations**

- All wetland mitigation sites within Northwest Region, Area 3 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.

### **3.9. Protected Terrestrial Species**

#### **3.9.1. 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.

#### **3.9.2. 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.

### **3.10. IVM Treatment Sites**

#### **3.10.1. 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.

#### **3.10.2. Locations**

- All designated IVM treatment sites within NW Region, Area 3 can be referenced through records in the Statewide Pesticide Tracking Database.

**Zone 1 Maintenance - Bareground Treatment**

**OPTION 1**

<b>TREATMENT TYPE:</b>	Pavement Edge			
<b>MANAGEMENT GOALS:</b>	Vegetation free			
<b>METHOD:</b>	Annual herbicide application			
<b>EQUIPMENT:</b>	Spray truck w/ boom mounted nozzles			
<b>MATERIALS:</b>	Ranger Pro 48ozl./acre + Landmark XP 6ozd./acre + Payload 8ozd./acre			
<b>TIMING:</b>	Spring			
<b>IVM FOLLOW-UP:</b>	Evaluate control			
<b>REMARKS:</b>	Typically applied in a 2 to 3 ft. band.			

**Zone 2 Maintenance - Tree and Brush**

**OPTION 1**

<b>TREATMENT TYPE:</b>	Deciduous tree and brush			
<b>MANAGEMENT GOALS:</b>	Control vegetation obstruction			
<b>METHOD:</b>	Herbicide treatment			
<b>EQUIPMENT:</b>	Handgun			
<b>MATERIALS:</b>	Krenite 384ozl./acre			
<b>TIMING:</b>	Late summer			
<b>IVM FOLLOW-UP:</b>	Evaluate control			
<b>REMARKS:</b>	Avoid brown out by spraying late in the season and spray only to appropriate height.			

**Noxious and Nuisance Weed Control - General**

	<b>OPTION 1</b>	<b>OPTION 2</b>	<b>OPTION 3</b>	
<b>TREATMENT TYPE:</b>	Chemical application	Chemical application	Chemical application	
<b>ACTION THRESHOLD:</b>	Where ever present (dependent on available resources)	Where ever present (dependent on available resources)	Where ever present (dependent on available resources)	
<b>MANAGEMENT GOALS:</b>	Eradication and control only if your county requires.	Eradication and control only if your county requires.	Eradication and control only if your county requires.	
<b>METHOD:</b>	Spot treatment w/ herbicide	Spot treatment w/ herbicide	Spot treatment w/ herbicide	
<b>EQUIPMENT:</b>	Backpack	Backpack	Handgun	
<b>MATERIALS:</b>	Element 3A 40ozl./acre	Aquaneat 50ozl./acre	Element 3A 48ozl./acre + Milestone 5ozl./acre	
<b>TIMING:</b>	During growing season	During growing season	During growing season	
<b>IVM FOLLOW-UP:</b>	Reapply if necessary following year. Restore site w/ native vegetation.	Reapply if necessary following year. Restore site w/ native vegetation.	Reapply if necessary following year. Restore site w/ native vegetation.	
<b>REMARKS:</b>	Option 1: Thistles, Blackberry, Poison Hemlock, Herb Roberts, Teasel, Willow Herb, Nightshade, Yellow Archangel --- Option 2: Reed Canary grass, Vetch, Thistles, Purple Loosestrife, Garlic Mustard, Yellow Flag Iris, Bindweed, Prickly Lettuce, Morning Glory, Knotweed -- Option 3: Tansy Ragwort, Scotch Broom, Blackberry, Thistles			

## 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

## Herbicides Approved for Use on WSDOT Rights of Way

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Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/ Recommendations	WSDOT Restrictions	Cautions
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
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 Imazuron	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

# Appendix B

# Herbicide Guidelines

## Herbicides Approved for Use on WSDOT Rights of Way

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Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/ Recommendations	WSDOT Restrictions	Cautions
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
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 marestail, 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 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

# Appendix B

# Herbicide Guidelines

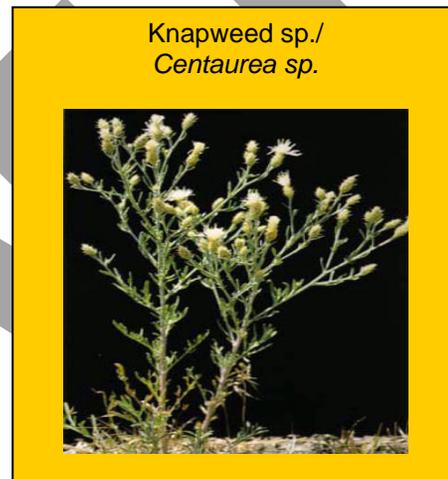
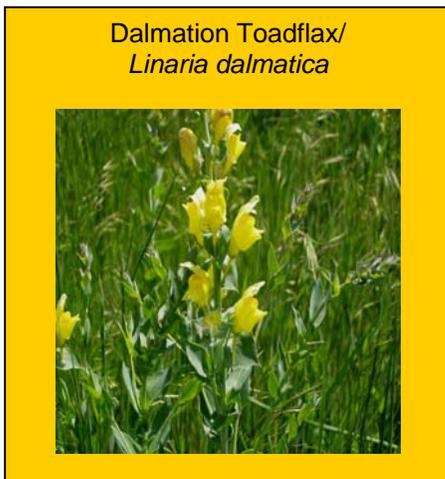
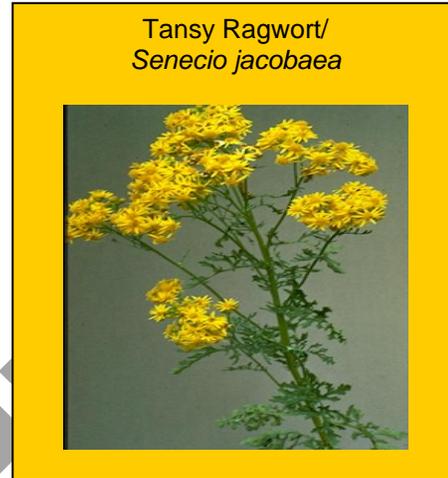
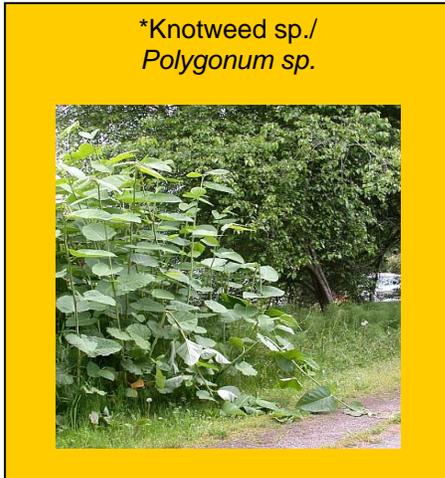
## Herbicides Approved for Use on WSDOT Rights of Way

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

**Designated for control in NW area 3:**  
(Snohomish and King County)



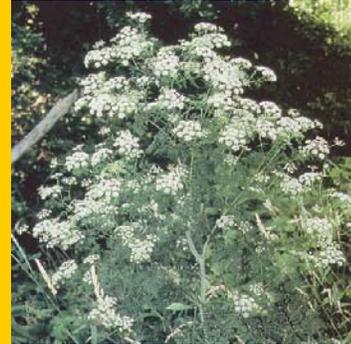
\*Designated for control in Snohomish

**Designated for control in NW area 3:**  
(Snohomish and King County)

Hawkweed sp./  
*Heiracium sp.*



\*Poison Hemlock/  
*Conium maculatum*



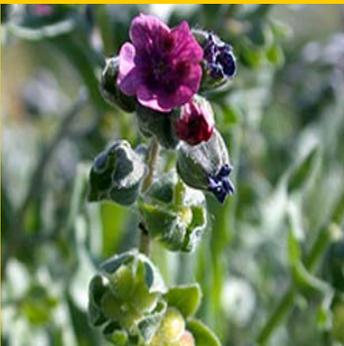
Purple Loosestrife/  
*Lythrum salicaria*



Sulfur cinquefoil/  
*Potentilla recta*



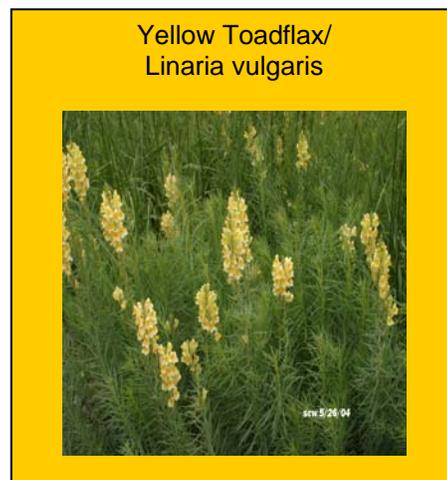
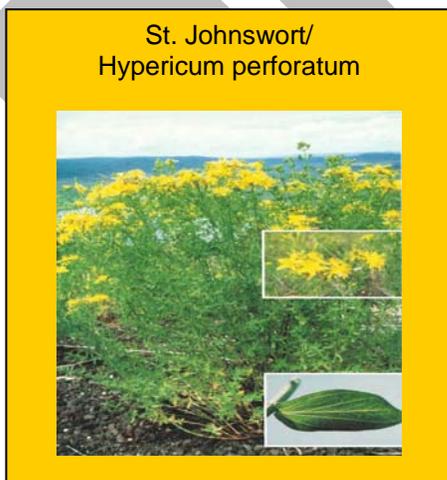
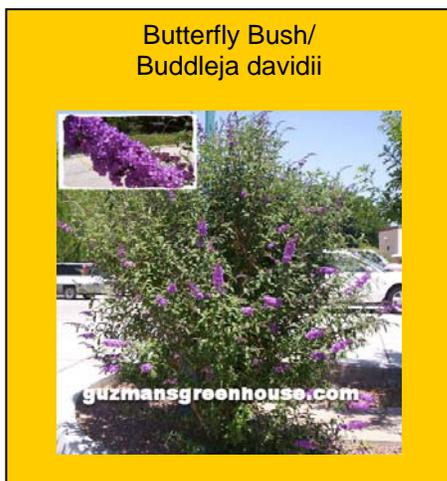
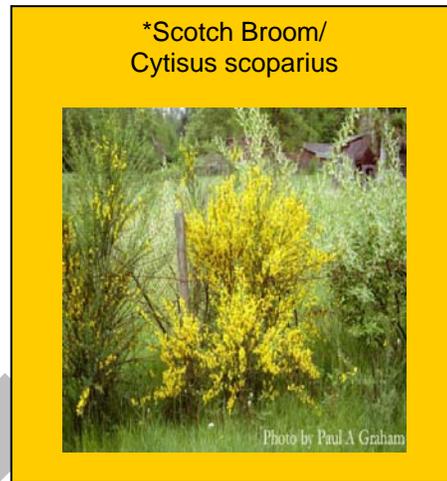
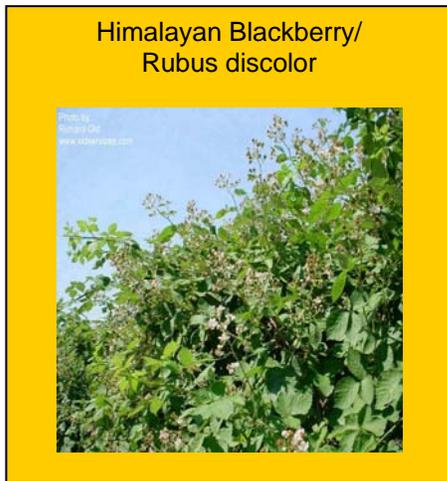
Houndstongue/  
*Cynoglossum officinale*



Absinth wormwood/  
*Artemisia absinthium*

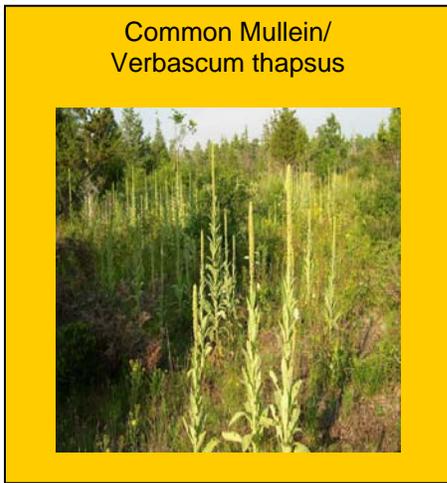


**Nuisance weeds in NW area 3:  
(Snohomish and King County)**

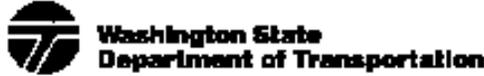


\*designated for control on US 2 in King County

**Nuisance weeds in NW area 3:  
(Snohomish and King County)**



DRAFT



Integrated Vegetation Management Record

Org. Code	County	Date 6/13/2007		Vegetation Management Zone(s) <input type="checkbox"/> Zone 1 <input type="checkbox"/> Zone 2 <input type="checkbox"/> Zone 3
Area SE _____ MP _____ to MP _____		Location _____		
Class Appoints & Boxes:				
<input type="checkbox"/> NB	<input type="checkbox"/> EB	<input type="checkbox"/> Roadside	<input type="checkbox"/> Landscaped Area	<input type="checkbox"/> Interchange
<input type="checkbox"/> SB	<input type="checkbox"/> WB	<input type="checkbox"/> Shoulder	<input type="checkbox"/> Rest Area	<input type="checkbox"/> Bridge
		<input type="checkbox"/> Median	<input type="checkbox"/> Park-n-Ride	<input type="checkbox"/> Ramp
				<input type="checkbox"/> Mitigation Site
				<input type="checkbox"/> Stormwater
				<input type="checkbox"/> Yard/Stockpile
Third Party Damage <input type="checkbox"/> Yes				Sensitive Sites
				<input type="checkbox"/> Aquatic
				<input type="checkbox"/> Wetlands
Target: <input type="checkbox"/> Noxious Weeds <input type="checkbox"/> Brush/Trees <input type="checkbox"/> Other				
<input type="checkbox"/> Nuisance Weeds <input type="checkbox"/> Hazard Tree				
List Target/Species: _____				
Reason for Action:				
<input type="checkbox"/> Noxious Weeds	<input type="checkbox"/> Nuisance Weeds	<input type="checkbox"/> Fire Prevention	<input type="checkbox"/> Restore Native Veg.	<input type="checkbox"/> Zone 1 Pilot
<input type="checkbox"/> Site Distance	<input type="checkbox"/> Hazard Vegetation	<input type="checkbox"/> Customer Request	<input type="checkbox"/> Enhance Vegetation	<input type="checkbox"/> Slope Stabilization
				<input type="checkbox"/> Aesthetic
				<input type="checkbox"/> Other _____
Long term IVM plan (Describe goals/objectives and a step-by-step approach over time)				
Approximate Acres to Accomplish _____				
<b>Activities</b>				
			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	_____	_____
<b>#1 Evaluation and Date</b>				
<b>#2 Evaluation and Date</b>				
<b>#3 Evaluation and Date</b>				



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

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

# Appendix F

# IVM Stakeholders List

Entity	Mailing Address	Contact Person	Title	Phone	E-Mail
City of Everett	3200 Cedar St. Everett, WA	Dave Davis	Public Works Director	(425) 257-8800	<a href="mailto:everettpw@everettwa.gov">everettpw@everettwa.gov</a>
City of Mukilteo	11930 Cyrus Way Mukilteo, Wa 98275	Rob McGaughey	Public Works Director	(425) 263-8080	<a href="mailto:r.mcgaughey@ci.mukilteo.wa.us">r.mcgaughey@ci.mukilteo.wa.us</a>
City of Lynnwood	19100 44th Ave. W. Lynnwood, WA 98046	William A. Franz	Public Works Director	(425) 670-5204	<a href="mailto:publicworks@ci.lynnwood.wa.us">publicworks@ci.lynnwood.wa.us</a>
City of Edmonds	7110 210th St. SW Edmonds, WA 98020		Public Works Administration	(425) 771-0235 Fax (425) 744-6057	<a href="mailto:pw@edmondswa.gov">pw@edmondswa.gov</a>
City of Granite Falls	206 S Granite Ave Granite Falls, WA 98252	Vacant	Public Works	(360) 691-6441 Fax (360) 691-6734	
City of Lake Stevens	1820 Main Street Lake Stevens, WA 98258	Mick Monken	Public Works Director	(425) 377-3237	<a href="mailto:mmonken@ci.lake-stevens.wa.us">mmonken@ci.lake-stevens.wa.us</a>
City of Snohomish	116 Union Ave. Snohomish, WA 98290	Steve Schuller	Public Works Director	(360) 568-3194	<a href="mailto:schuller@ci.snohomish.wa.us">schuller@ci.snohomish.wa.us</a>
City of Monroe	806 West Main St. Monroe, WA 98272	Brad Feilberg	Public Works Director	(360) 453-7229	<a href="mailto:bfeilberg@monroewa.gov">bfeilberg@monroewa.gov</a>
City of Duvall	14525 Main St. NE Duvall, WA 98019	Steven Leniszewski	Public Works Director	(425) 788-3434 Ext. 225	<a href="mailto:steven.leniszewski@duvallwa.gov">steven.leniszewski@duvallwa.gov</a>
City of Sultan	319 Main Street Sultan, WA 98294	Mick Matheson	Public Works Director	(360) 793-2262	<a href="mailto:mick.matheson@ci.sultan.wa.us">mick.matheson@ci.sultan.wa.us</a>
City of Gold Bar	107 5th St. Gold Bar, WA 98251	John Light	Public Works Director	(360) 793-1101 Fax (360) 793-2282	<a href="mailto:j.light@cityofgoldbar.us">j.light@cityofgoldbar.us</a>
City of Index	511 Ave "A" Index, WA 98256	Bill Cross	Maintenance Supervisor	(360) 793-2488 Fax (360) 793-7998	<a href="mailto:index@premier1.net">index@premier1.net</a>
Town of Skykomish	119 4th St. N Skykohmish, WA 98288	Ton Grider	Town Major	(360) 677-2388 Fax (360) 677-2407	<a href="mailto:townofsky@att.net">townofsky@att.net</a>
Mt. Baker-Snoqualmie National Forest	74920 NE Stevens Pass HWY, Skykomish, WA 98288	Joe Neal	District Ranger	(360) 677-2414	<a href="mailto:jneal@fs.fed.us">jneal@fs.fed.us</a>
Snohomish County	8915 Cathcart way Snohomish, WA 98296	H.F. "Sonny" Gohrman	County Noxious Weed Coordinator	(425) 388-7548	<a href="mailto:sonny.gohrman@snoco.org">sonny.gohrman@snoco.org</a>
King County	201 S. Jackson St. Suite 600, Seattle, WA 98104	Steve Burke	County Noxious Weed Coordinator	(206) 296-0290	<a href="mailto:steven-i.burke@kingcounty.gov">steven-i.burke@kingcounty.gov</a>
Tulalip Indian Reservation	6406 Marine Dr. Tulalip, WA 98271	Gus Taylor	Public Works Director	(360) 716-4011	