

# Southwest Region, Area 2 Integrated Roadside Vegetation Management Plan

2014



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

## ***Table of Contents***

---

Summary .....	1
Area Map .....	2
Roadside Maintenance Considerations .....	3-5
The Integrated Vegetation Management (IVM) Decision-Making Process.....	6
Area IVM Goals.....	7-8
Southwest Region, Area 2 – Roadside Vegetation Management Plan .....	9
1. ROUTINE MAINTENANCE ACTIVITIES .....	9
1.1. Routine Shoulder Maintenance (Zone 1) .....	9
1.1.1. Guidelines .....	9
1.1.2. Methods.....	9
1.1.3. Locations .....	9
1.2. Routine Mowing/Trimming (Zone 2) .....	9
1.2.1. Guidelines .....	9-10
1.2.2. Methods.....	10
1.2.3. Locations .....	10
1.3. Hazardous Tree Monitoring and Removal.....	11
1.3.1. Guidelines .....	11
1.3.2. Methods.....	11
2. INTEGRATED VEGETATION MANAGEMENT ACTIVITIES .....	12
2.1. Integrated Vegetation Management Planning and Tracking Database ..	12
2.1.1. Guidelines .....	12
2.2. Noxious Weed Control .....	12
2.2.1. Guidelines .....	12-13
2.2.2. Methods.....	13-14
2.2.3. Locations .....	14
2.3. Nuisance Weed Control .....	14
2.3.1. Guidelines .....	14
2.3.2. Methods.....	15
2.4. Tree and Brush Control.....	15
2.4.1. Guidelines .....	15
2.4.2. Methods.....	15-16
3. SPECIAL MAINTENANCE AREAS .....	17
3.1. Interchanges/Intersections .....	17
3.1.1. Guidelines .....	17
3.1.2. Locations .....	17
3.2. City Maintained Areas .....	17
3.2.1. Guidelines .....	17
3.2.2. Locations .....	17
3.3. Herbicide Sensitive Areas .....	17
3.3.1. Guidelines .....	17
3.3.2. Locations .....	17
3.4. Adopt-a-Highway and Neighbor Maintained Agreements .....	18
3.4.1. Guidelines .....	18
3.4.2. Locations .....	18
3.5. Storm Water Management Facilities .....	18
3.5.1. Guidelines .....	18

**Table of Content, Continued**

---

3.5.2. Locations .....	18
3.6. Wetland Mitigation Sites.....	18
3.6.1. Guidelines .....	18
3.6.2. Locations .....	19
3.7. Protected Terrestrial Species.....	19
3.7.1. Guidelines .....	19
3.7.2. Locations .....	19
3.8. Railroad Crossing.....	19
3.8.1. Guidelines .....	19
3.8.2. Locations .....	19
3.9. Designated IVM Treatment Sites .....	19
3.9.1. Guidelines .....	19-20
3.9.2. Locations .....	20
Appendix A .....	Integrated Vegetation Management Prescriptions
Appendix B .....	Herbicide Use Guidelines
Appendix C .....	Routine Mowing Plan (not included at this time)
Appendix D .....	Weed Identification
Appendix E .....	Forms and Records
Appendix F.....	Stakeholders List

## Summary

---

This plan explains the Washington State Department of Transportation's (WSDOT) policy and practice for maintenance of roadside vegetation for Maintenance Area 2 within the agency's Southwest Region. This area manages vegetation within approximately 258 miles of state highway corridor throughout Lewis County. In addition to the Interstate 5 corridor, the area maintains US 12 up to the south entrance to Mt. Rainier National Park, State Routes (SR) 122, 505, 506, 508, and portions of SR 6 and 7. A map of the area is included as **Figure 1** on the following page.

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

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

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

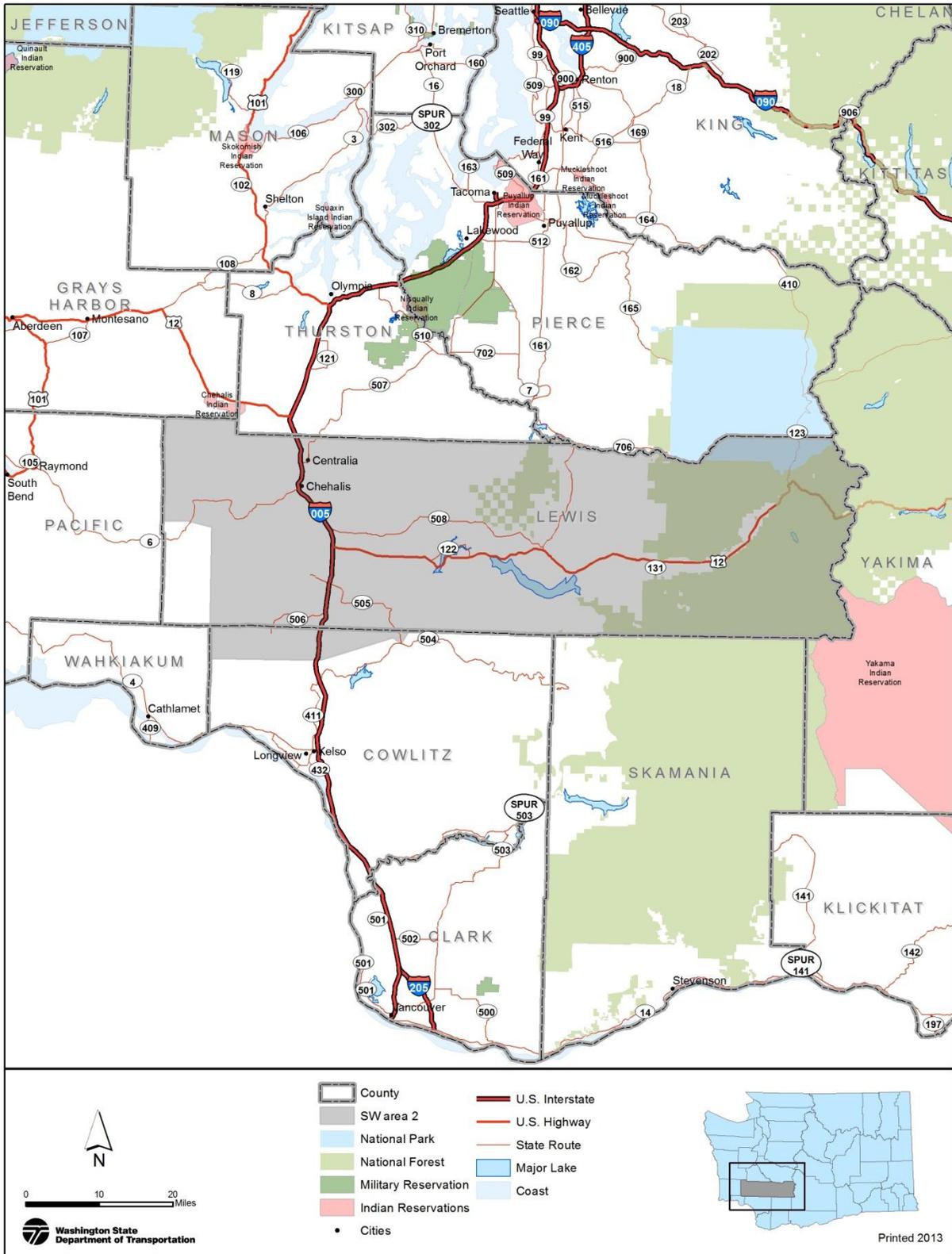
This plan is organized around the major categories of roadside vegetation maintenance work. The major categories include: Zone 1 (or pavement edge maintenance), Routine Mowing, Noxious Weed Control, Nuisance Weed Control, Tree and Brush Control, and Special Maintenance Areas (areas with unique vegetation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

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. 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 can also be provided upon request. Please contact Scott Wilcox or Ray Willard at the numbers listed below for questions or comments:

**Scott Wilcox**  
Superintendent, SW Region Area 2  
[wilcox@wsdot.wa.gov](mailto:wilcox@wsdot.wa.gov)  
(360) 740-8642  
1411 Rush Rd.  
Chehalis, WA 98532

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



**Southwest Region, Area 2 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 management are defined in Chapter 6 of the WSDOT Maintenance Manual (M51-01, August 2014) <http://www.wsdot.wa.gov/Publications/Manuals/M51-01.htm>

### **Visual Quality**

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

### **Operational Zones**

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

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

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

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

### **Roadside Maintenance Activities**

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

**Routine Maintenance Activities** – When vegetation maintenance activities are 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

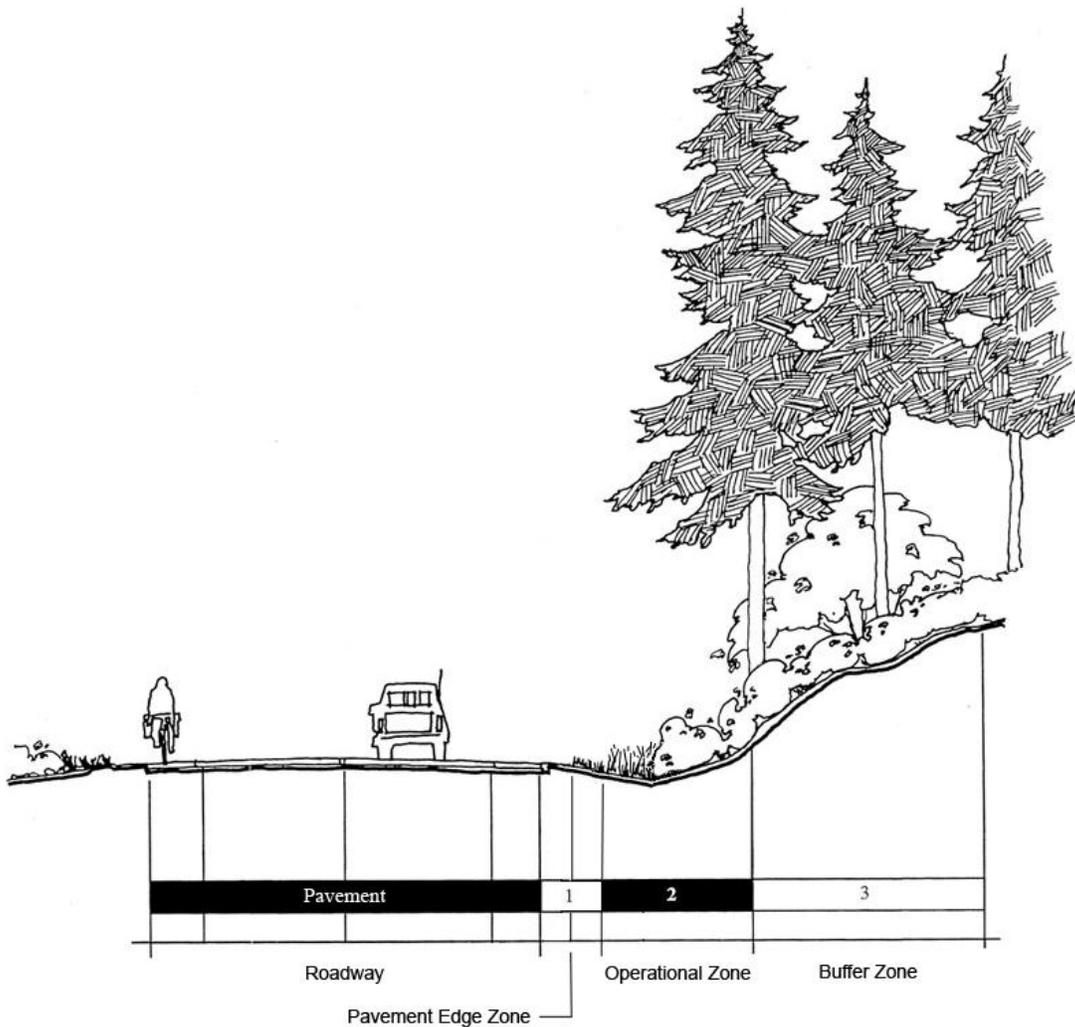
travel lanes, edge of pavement, and around guardrails. This plan provides prescriptions and gives locations for routine maintenance activities including maintenance of Zone 1 and annual mowing.

**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 Roadsides (WSDOT, July 1997). A copy of this document can be obtained by contacting the state roadside maintenance program manager.

**Special Maintenance Areas** – In some locations there are unique situations that require 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**

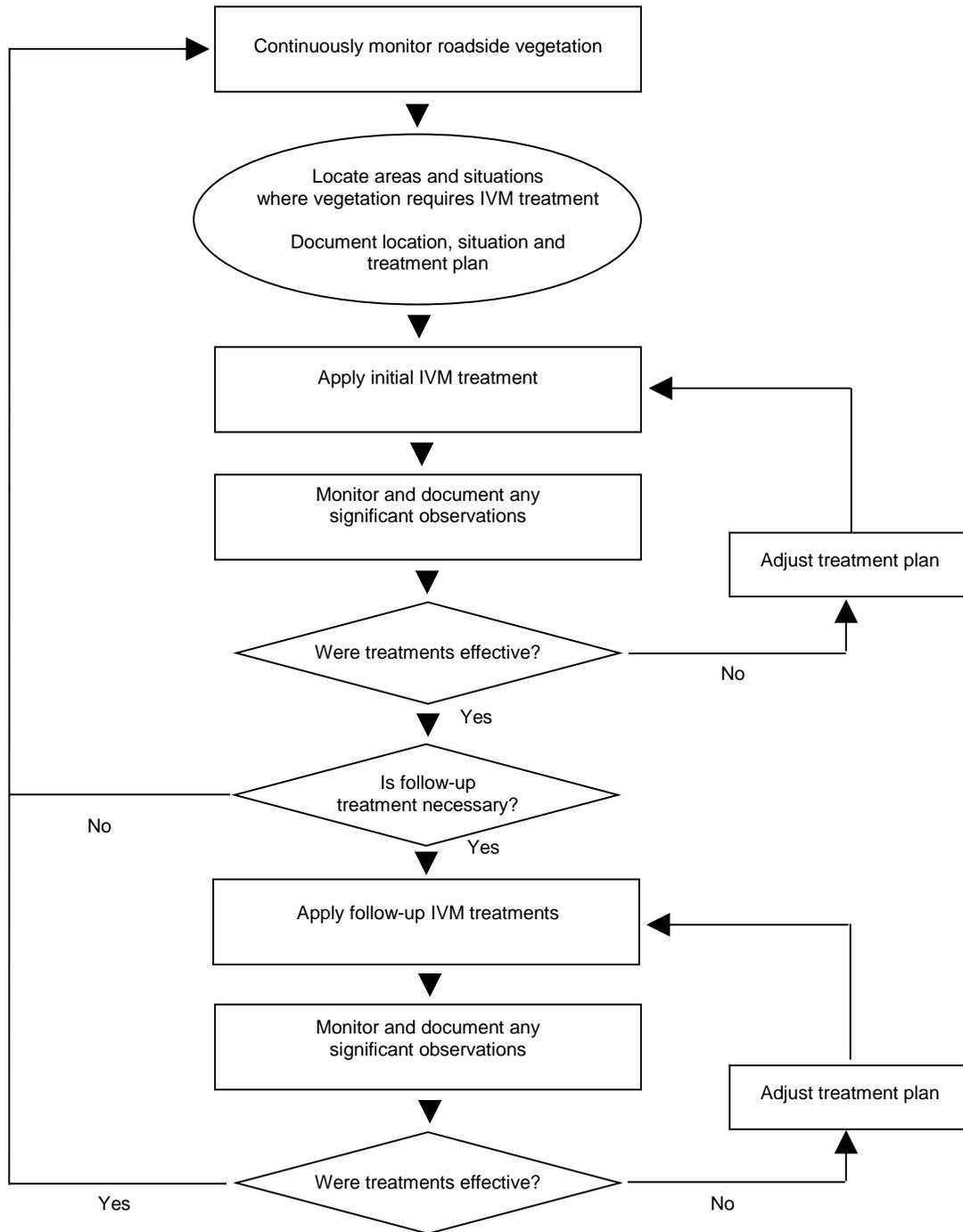
*No Vegetation with Stem Diameter Greater than 4"*  
 Maintained using IVM techniques for sign visibility, sight distance, errant vehicle recovery and weed control.

**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 Work Plan 2014**

---

The purpose of this section is to identify the highest priority roadside vegetation management needs in Southwest Region, Area 2 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 Maintenance Accountability Process (MAP) 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, **Southwest Region, Area 2 – 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 directly to the safety and operational functions 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

- All gravel shoulders in the area will be treated annually in April/May with a mixture of pre and post emergent, non-selective residual herbicides to maintain a 3-4ft. vegetation-free band along the edge of pavement and prevent vegetation from growing around guide posts, sign posts, luminaires, junction boxes, guardrails and Scenic Byway signs. In some areas where the ditch slope begins at or near the edge of the asphalt we will maintain a vegetation free slope to the bottom of the ditch to improve site distance and minimize mowing activities where mowers might traditionally encroach too far into the traveling lanes. Maximum speed for applying residual will be 8mph to prevent drift and treating areas beyond a zone 1.
- Selective mowing will be conducted throughout the spring if needed to address safety and traffic visibility issues at interchanges, intersections, corners and encroachment points.
- As needed, all shoulders will be mowed; one mower-width pass after grass has set seed around the middle of June to enable visibility of noxious weeds and their control.

#### Tree and Brush Control/Zone 2

- Selective cutting and clean up from winter storm debris will be conducted throughout the area in late winter/early spring.
- On selected roads, selective spot spraying for small one to two year old trees, along with Scotch broom and blackberries where they are impacting traffic safety will be conducted throughout the summer in conjunction with noxious weed control.
- Larger trees or solid stands of blackberry and Scotch broom will be addressed with mechanical mowing/trimming throughout the year whenever time allows.
- Selective spraying of larger trees and solid stands of blackberry and Scotch broom will be conducted with broadleaf herbicides in late summer/early fall to avoid wide-spread brown-out.
- Overhanging and encroaching branches will be mechanically trimmed as time allows.
- Cut encroaching brush and vegetation from slopes with mechanical arm mower throughout the year as time allows.
- Danger trees will be assessed and removed at various times throughout the year as time allows.

### **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 2014 include:

- From late May to the first part of August, crews will target known infestations and incidental emergent weeds with a wide-spectrum broadleaf herbicide mixture. Priority targets include –
  - US12, MP 130 to 138 – Scotch broom
  - Packwood pit site – Scotch broom
  - Skeleton weed
  - Hawkweeds
  - Common fennel
  - Butterfly bush
  - US12 MP 66 to 76 Tansy and Knapweed
  - I-5 MP 52 to 86 Tansy and Knapweed
- In August and September crews will treat priority infestations of difficult to control deep rooted perennial species including knotweed species and Dalmatian toadflax.
  - SR7, MP 1, 4, 9, 10, 11,12, and 15 – Knotweed
  - I-5, MP 82.5 NB, 78.46 SB, and 52.65 NB – Knotweed
- September through November – Spot spraying dormant brush control

### **Nuisance Vegetation Control**

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

- I-5, MP 76 to 83 – Except for areas with desirable native vegetation and wet areas, all of Zone 2 and 3 will be mowed out once a year to address concerns of fire hazard within the city limits.
- I-5 Labree interchange, February through April, and other landscaped areas as they evolve along the I-5 corridor, treat with a Casoron application to prohibit growth of weeds.

## ***Southwest Region, Area 2 – 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**

- Zone 1 is maintained with the annual application of non-selective pre and post-emergent herbicides throughout the area.
- Zone 1 is 3' maximum band width in most locations, a slightly wider band may be necessary in some guardrail installations and at gore points in interchanges.

##### **1.1.2 Methods**

- Zone 1 treatments will be applied in April/May, depending on rainfall patterns and annual plant growth.
- Pavement edges without Zone 1 will be monitored for surface drainage problems resulting from sod build-up and will be graded in 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 adjacent to Zone 1 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 along all shoulders throughout the area in one pass, and at least once per year.

- When the intention is to mow roadsides only once during the growing season, mowing will begin in summer when the majority of spring growth has taken place and grasses are beginning to set seed, and continue as necessary through the remainder of the summer.
- For roadsides that are intended to be mowed more than once during the spring growing season, an initial pass will be made in mid to late spring followed by another cycle beginning once the majority of spring growth has taken place and grasses are beginning to set seed.
- Trimming is distinguished from mowing because it consists of selectively cutting back encroaching limbs and/or hedging shrubs or woody vegetation. Trimming occurs annually as well, but not in the same places every year, only in select locations as needed to preserve the safe operation of the highway.
- In designated areas on Interstate 5 and SR-12, mowing widths extend beyond one mower pass. Sections of highway designated for multiple pass mowing will typically be mowed once by mid to late spring and then mowed out completely beginning in summer once the majority of spring growth has taken place and grasses are beginning to set seed.
- Additional annual mowing width or frequency may also be conducted as needed for select locations on secondary highways to preserve site distance at curves, intersections and any other highway entry points.
- In focus areas such as interchanges and areas adjacent to safety rest areas mowing patterns and frequencies are adjusted to local situations as described in **Section 3** and **Appendix C, Routine Mowing Plan** (not included at this time).
- In all areas outside designated routine mowing limits, mowing is only used as part of IVM treatments for weed and brush control as described below in **Section 2**.

### 1.2.2.Methods

- On I-5 and lower SR-12, routine annual mowing areas are designated as either single pass or multiple pass.
- Single pass mowing consists of one pass up to the maximum width of mowing equipment (25' max.) but may be as narrow as 6' depending on mowing equipment and the presence of existing visual lines such as ditches. When ditch lines are present, single mowing passes shall extend only to the bottom of the ditch line whenever possible.
- In areas designated as multiple pass, 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 depending on the location.
- See **Appendix A, Routine Maintenance Prescriptions, Zone 2 Maintenance**

### 1.2.3.Locations (locations will be available in the next version)

- 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, 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.
- When possible felled trees may be left on site.

## 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** 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 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 SW Region, Area 2 the following weeds designated for control are known to exist on state highway rights-of-way in Lewis County. It is assumed that the same list will be applied to the short sections of highway within the area extending into Cowlitz and Yakima 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 species are known to exist on WSDOT right-of-way:

<b>Common Name/Botanical Name</b>
Knotweed sp./ <i>Polygonum</i> sp.
Ragwort tansy/ <i>Senecio jacobaea</i>
Knapweed sp./ <i>centauria</i> sp.
Scotch broom/ <i>Cytisus scoparius</i> (only eastern SR12 and 123)
Dalmation toadflax/ <i>Linaria dalmatica</i> ssp. <i>dalmatica</i>
Rush skeletonweed/ <i>Chondrilla juncea</i>
Mouseear hawkweed/ <i>Hieracium pilosella</i>
Yellow hawkweed/ <i>Hieracium caespitosum</i>
Common fennel/ <i>Foeniculum vulgare</i>
Poison hemlock/ <i>Conium maculatum</i>
Butterfly bush/ <i>Buddleia davidii</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. There are no designated Class C noxious weeds known to exist on state right-of-way in SW Region, Area 2.

- Pictures of designated control noxious weeds are included for reference in **Appendix D**.

**2.2.2. Methods**

- Because noxious weed species are often difficult to control, herbicides treatments are often the primary, initial means of control.
- If infestations are limited to a few plants, hand pulling is also effective when the entire root system is also removed. Maintenance employees are encouraged to be aware of and look for new noxious weed occurrences, and to stop and pull these plants whenever possible.

- In conjunction with weed control treatments, a variety of other measures may be taken to promote natural vegetative competition through seeding, planting, and soil enhancement. The IVM Record and database are essential to the execution and success of these control measures.
- For recommended treatments specific to noxious weed species, see **Appendix A, IVM Prescriptions, Noxious Weed Control**

### 2.2.3. Locations

- Priority Locations for control of designated noxious weeds species in SW region, Area 2 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. At times control may be accomplished incidental to noxious weed control when species are present in the same area.
- 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 SW Region, Area 2 that are known to exist on the highway right-of-way include:

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

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

### 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.
- Fast-growing hardwood pioneer 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. 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 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.

##### **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. City Maintenance Areas**

##### **3.2.1.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.

##### **3.2.2.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.

#### **3.3. Herbicide Sensitive Areas**

##### **3.3.1.Guidelines**

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

##### **3.3.2.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.

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

#### **3.4.1.Guidelines**

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

#### **3.4.2.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.

### **3.5. Storm Water Management Facilities**

#### **3.5.1.Guidelines**

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

#### **3.5.2.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.

### **3.6. Wetland Mitigation Sites**

#### **3.6.1.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.

### 3.6.2. Locations

- All wetland mitigation sites with SW Region, area 2 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.

## 3.7. Protected Terrestrial Species

### 3.7.1. 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.

### 3.7.2. 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.

## 3.8. Railroad Crossings

### 3.8.1. Guidelines

- State law requires that all trees and brush be kept clear on highway rights of way within 100' of railroad crossings.
- To maximize safety at rail crossings, trees and brush should be cleared as far back as practical to maximize site distance.

### 3.8.2. Locations

- Locations of all railroad crossing in SW Region, area 2 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. IVM Treatment Sites

### 3.9.1. Guidelines

- As discussed in **Section 2.1**, selected sites are designated for planning, carrying out and monitoring multi-year IVM treatments for control of weeds or other unwanted vegetation.

- IVM treatment sites are documented with an initial record in the IVM Treatment Database, to identify the problem to be addressed, location(s), management goals, and integrated treatment plan.
- Records are updated each time a treatment is made, results observed, or when the treatment plan is modified based on observations.

### **3.9.2.Locations**

- All designated IVM treatment sites within SW Region, Area 2 are referenced by individual records found in the IVM Treatment Database.

**Zone 1 Maintenance - Bareground Treatment**

	<b>OPTION 1</b>	<b>OPTION 2</b>	<b>OPTION 3</b>	<b>OPTION 4</b>
<b>TREATMENT TYPE:</b>	Broadcast chemicals at pavement edge	Broadcast chemicals at pavement edge	Broadcast chemicals at pavement edge	Broadcast chemicals at pavement edge
<b>MANAGEMENT GOALS:</b>	Vegetation free zone	Vegetation free zone	Vegetation free zone	Vegetation free zone
<b>METHOD:</b>	Annual herbicide application	Annual herbicide application	Annual herbicide application	Annual herbicide application
<b>EQUIPMENT:</b>	Spray truck w/ fixed width booms	Spray truck w/ fixed width booms	Spray truck w/ fixed width booms	Spray truck w/ fixed width booms
<b>MATERIALS:</b>	Milestone 6-7 oz / acre Landmark 6-8 oz / acre Round Up Pro 64 oz / acre In Place 16 oz / acre	Perspective 8 oz / acre Sulfomet 3 oz / acre Ranger Pro 64 oz / acre In Place 16 oz / acre	Milestone 6-7 oz / acre Landmark 6-8 oz / acre Ranger Pro 64 oz / acre In Place 16oz / acre	Payload 10 oz / acre Landmark 6 oz / acre Ranger Pro 64 oz / acre In Place 16 oz / acre
<b>TIMING:</b>	Early Spring	Early Spring	Early to mid June	Early Spring
<b>REMARKS</b>	Use on tough to control annuals such as crab grass or when earlier spring applications are not possible	For areas with horsetail add Telar 2 oz/acre or substitute Landmark 6 oz/acre for Sulfomet	Use on tough to control annuals such as crab grass or when earlier spring applications are not possible	Use as a rotational mix to vary the mode of action where herbicide resistant weeds may be present
<b>GENERAL REMARKS:</b>	Typically applied in a 2 to 3 ft. band possibly wider at gore points, under guardrail or between cable rail and pavement			

**Zone 2 Maintenance - Tree and Brush**

	<b>OPTION 1</b>	<b>OPTION 2</b>	<b>OPTION 3</b>	<b>OPTION 4</b>
<b>TREATMENT TYPE:</b>	Broadcast or spot application selective chemical control			
<b>MANAGEMENT GOALS:</b>	Control existing or potential vegetation obstructions			
<b>METHOD:</b>	Herbicide application as part of an overall IVM treatment strategy			
<b>EQUIPMENT:</b>	Spray rig w/ hand gun or backpack sprayer			
<b>MATERIALS:</b>	Rangestar 64 oz / acre. In Place 16 oz / acre			
<b>TIMING:</b>	Late summer, early fall			
<b>REMARKS</b>	Prior to mid-September use only as spot spray on seedling trees and occasional brush			
<b>GENERAL REMARKS:</b>	Avoid noticeable brown out by spraying late in the season and/or limiting applications to small plants, and avoiding large scale broadcast applications.			

**Noxious and Nuisance Weed Control - General**

	<b>OPTION 1</b>	<b>OPTION 2</b>	<b>OPTION 3</b>	<b>OPTION 4</b>
<b>TREATMENT TYPE:</b>	Selective broadleaf chemical weed control	Selective broadleaf chemical weed control	Selective broadleaf chemical weed control	
<b>MANAGEMENT GOALS:</b>	Eradication	Eradication	Eradication	
<b>METHOD:</b>	Spot spray w/ herbicide	Spot spray w/ herbicide	Spot spray w/ herbicide	
<b>EQUIPMENT:</b>	Backpack / Handgun	Backpack / Handgun	Backpack / Handgun	
<b>MATERIALS:</b>	Capstone 144 oz/acre Syl-Tac 16 oz/acre	Milestone 5-7 oz./acre Syl-Tac 16 oz/acre	Rangestar 64 oz./acre Syl-Tac 16 oz/acre	
<b>TIMING:</b>	During growing season	Late winter through growing season	During growing season	
<b>REMARKS</b>	Broad spectrum control, some soil residual activity	Some soil residual activity, good choice for biennial weeds	Broad spectrum control, including conifers	
<b>GENERAL REMARKS:</b>	Check product labels to insure all target species will be controlled by the selected option. Check for species specific prescriptions for difficult to control weeds and applications in sensitive areas.			

**Knotweed**

	<b>OPTION 1</b>	<b>OPTION 2</b>	<b>OPTION 3</b>	<b>OPTION 4</b>
<b>TREATMENT TYPE:</b>	Non-selective chemical foliar control near standing water	Non-selective chemical foliar control		
<b>MANAGEMENT GOALS:</b>	Eradication	Eradication		
<b>METHOD:</b>	Spot treatment w/ herbicide	Spot treatment w/ herbicide		
<b>EQUIPMENT:</b>	Truck mounted sprayer where possible, back spray where necessary	Truck mounted sprayer where possible, backpack sprayer where necessary.		
<b>MATERIALS:</b>	Aquaneat 128 oz./acre Polaris 32 oz./acre Agri Dex or LI 700 16 oz./acre	Ranger Pro 128 oz/acre Polaris 32 oz/acre Syl-Tac 16 oz/acre		
<b>TIMING:</b>	Early to late bloom between July and August	Early to late bloom between July and August		
<b>REMARKS</b>	Reapply if necessary following year. Restore site w/ native vegetation.	Reapply if necessary following year. Restore site w/ native vegetation.		
<b>GENERAL REMARKS:</b>	Well established knotweed patches have deep and long-lived root systems that may survive years after emergent growth has been killed. Controlled sites should be monitored and re-treated for up to 3 years after initial treatment.			

**Dalmatian Toadflax**

	<b>OPTION 1</b>	<b>OPTION 2</b>	<b>OPTION 3</b>	
<b>TREATMENT TYPE:</b>	Selective chemical application	Selective chemical application		
<b>MANAGEMENT GOALS:</b>	Eradication	Eradication		
<b>METHOD:</b>	Spot treatment w/ herbicide	Spot treatment w/ herbicide		
<b>EQUIPMENT:</b>	Backpack sprayer or spray bottle, pickup, etc.	Backpack sprayer or spray bottle, pickup, etc.		
<b>MATERIALS:</b>	Telar 2 oz./acre Syl-Tac 16 oz/acre	Metcel 2 oz./acre Syl-Tac 16 oz/acre		
<b>TIMING:</b>	When in bloom late June thru August	When in bloom late June thru August		
<b>REMARKS</b>	Reapply as necessary in succeeding years	Reapply as necessary in succeeding years		
<b>GENERAL REMARKS:</b>				

## 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

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

## Appendix B

## Herbicide Guidelines

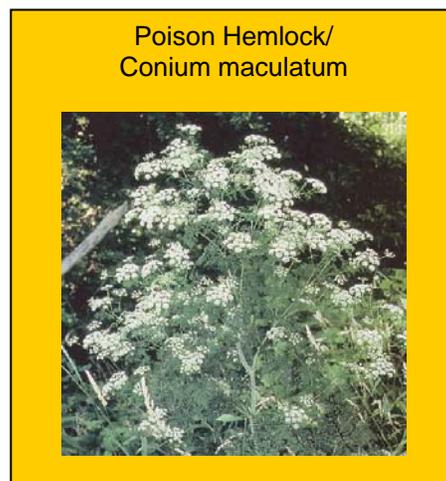
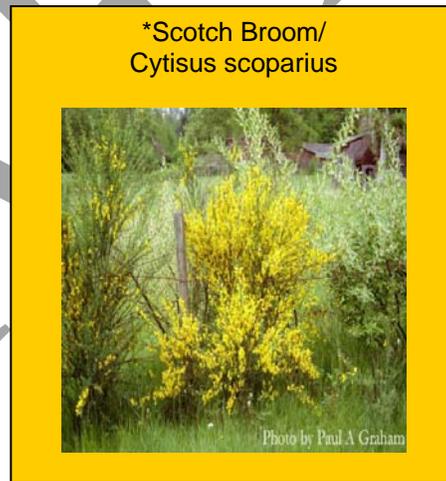
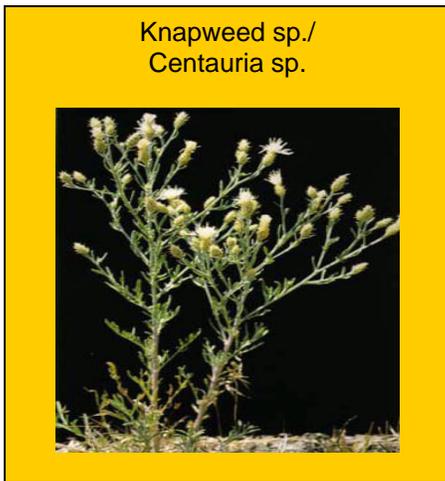
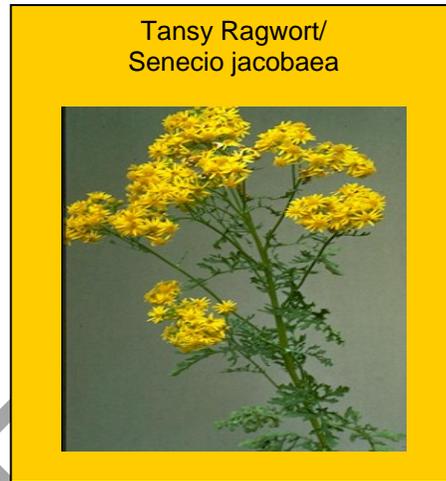
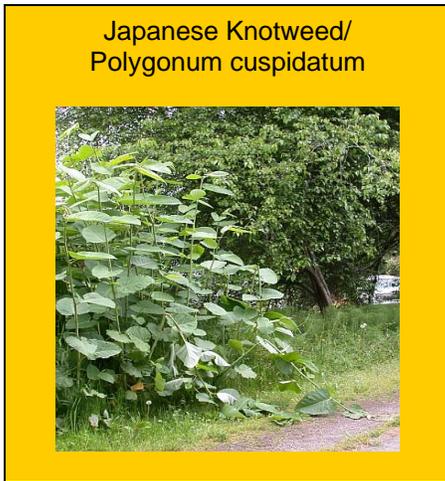
### Herbicides Approved for Use on WSDOT Rights of Way

#### When making herbicide applications:

1. Always read and follow product labels
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

**Designated for control in SW area 2:**  
(Lewis and Yakima County)

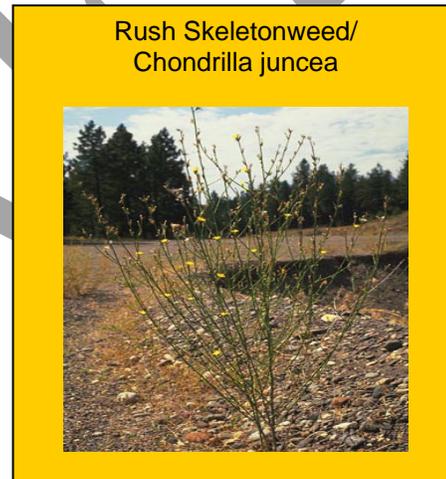
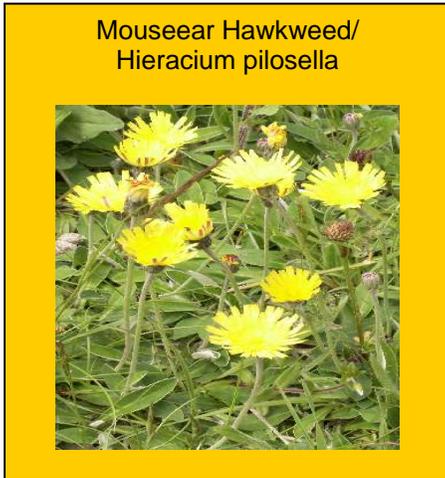
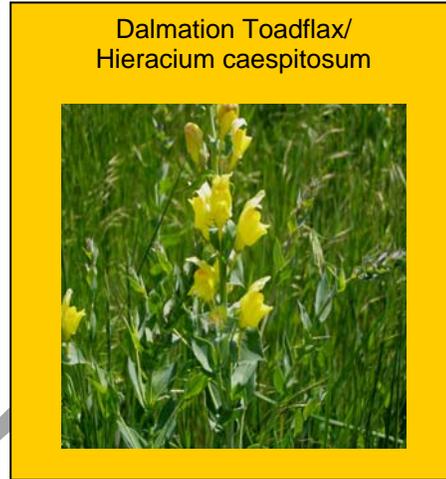
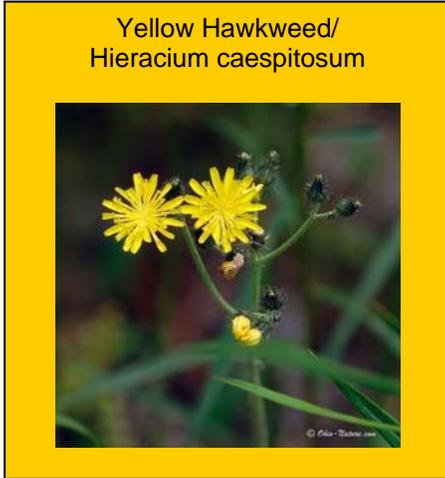


\*only the very eastern portion of SR 12 and SR 123

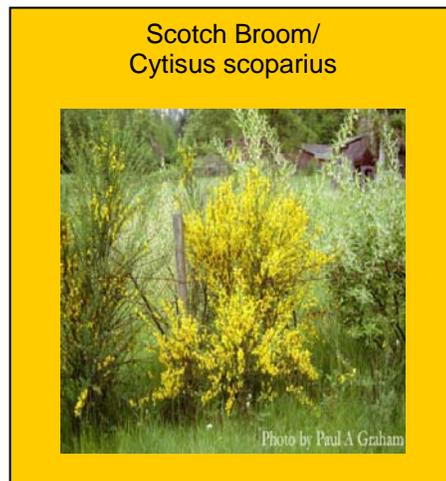
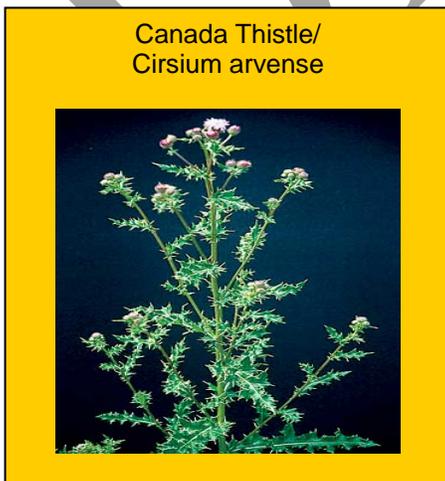
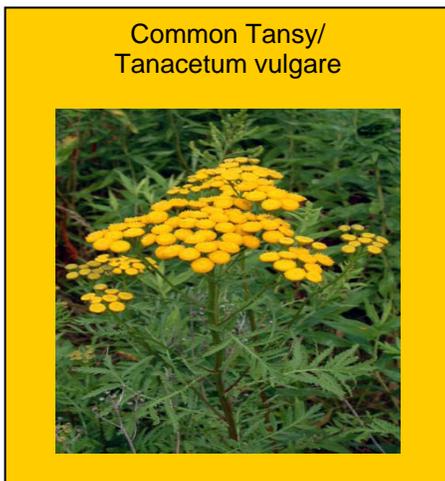
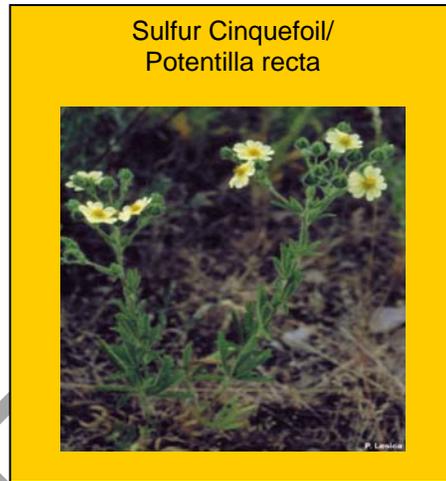
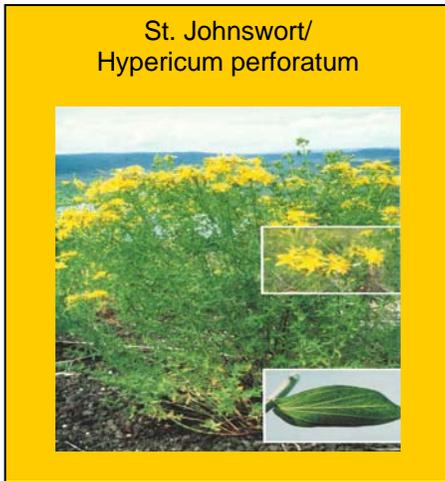
**Appendix D**

**Noxious Weed Identification**

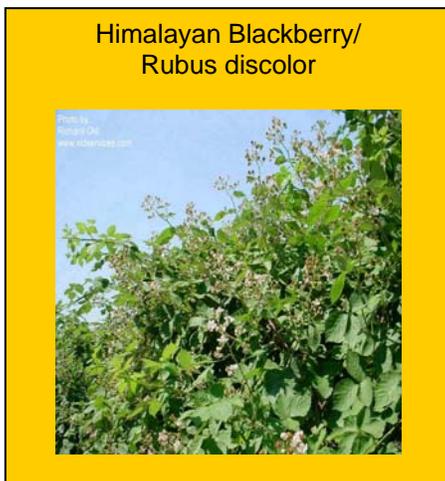
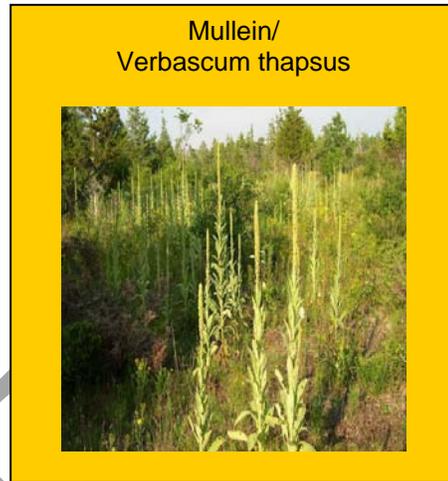
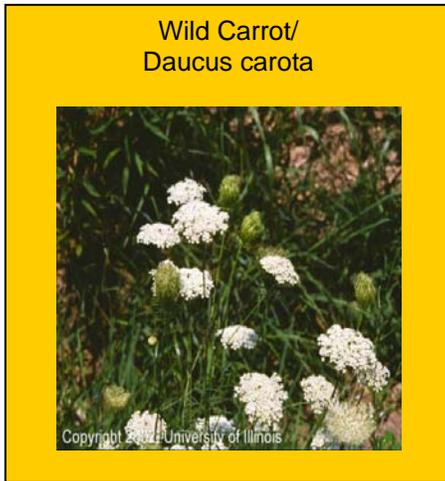
**Designated for control in SW area 2:**  
(Lewis and Yakima County)

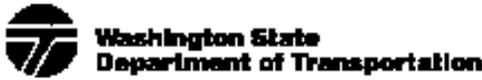


**Nuisance weeds in SW area 2:**  
(Lewis and Yakima County)



**Nuisance weeds species in SW area 2:  
(Lewis and Yakima 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 _____		
Check Appropriate 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"/> Intractor Brush Cutter	<input type="checkbox"/> Mower/Chain	
	<input type="checkbox"/> Manual Brush Cutting	<input type="checkbox"/> Intractor Mower	<input type="checkbox"/> Other _____	
Bio-Control	<input type="checkbox"/> Insect	<input type="checkbox"/> Pathogen	Type/Species _____	
	<input type="checkbox"/> Parasite			
Cultural	<input type="checkbox"/> Burning	<input type="checkbox"/> Grading	<input type="checkbox"/> Seeding	
	<input type="checkbox"/> Fertilizing	<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
---	----------------------	-----------------------------

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(e) 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	_____ _____ _____ _____ _____ _____		

<b>Entity</b>	<b>Mailing Address</b>	<b>Contact Person</b>	<b>Title</b>	<b>Phone</b>	<b>E-Mail</b>
City of Centralia	1100 No. Tower Centralia, WA 98531	Kahle Jennings	Public Works Director	(360) 330-7512	<a href="mailto:kjennings@cityofcentralia.com">kjennings@cityofcentralia.com</a>
City of Chehalis	2007 N.E. Kresky Ave. Chehalis, WA 98532	Rick Sahlin	Public Works Director	(360) 748-0238 Fax: (360) 748-0694	<a href="mailto:rsahlin@ci.chehalis.wa.us">rsahlin@ci.chehalis.wa.us</a>
City of Napavine	407 Birch Ave. SW Napavine, WA 98565	Kenneth Twining	Superintendent	(360) 262-9344 Fax: (360) 262-9199	<a href="mailto:ktwining@cityofnapavine.com">ktwining@cityofnapavine.com</a>
City of Winlock	712 N.W. Dexter Winlock, WA 98596	Greg Robinson	Public Works Superintendent	(360) 785-3550 cell (360) 520-1005	
City of Vader	317 8th St Vader, WA 98593	Wanda Brazla	Public Works Superintendent	(360) 295-3225	<a href="mailto:vaderpw@toledotel.com">vaderpw@toledotel.com</a>
City of Toledo	130 N Second St Toledo, WA 98591	Craig McCown	Public Works Superintendent	(360) 864-4564 Fax: (360) 864-4566	<a href="mailto:wwtp@toledotel.com">wwtp@toledotel.com</a>
City of Mossyrock	3963 US Hwy 12 Mossyrock, WA 98564	Dennis Montgomery	Public Works Superintendent	(360) 983-8001 Fax: (360) 983-8910	<a href="mailto:mossyrockwwt@tds.net">mossyrockwwt@tds.net</a>
City of Morton	117 Klasey Road Morton, WA 98356	Keith Cournyer	Public Work Superintendent	(360) 496-5210 Fax: (360) 496-6899	
Lewis County	351 NW North St. Chehalis, WA 98532	Bill Wamsley	Noxious Weed Coordinator	(360) 740-1215 Fax: (360) 740-2792	<a href="mailto:wamsleyb@wsu.edu">wamsleyb@wsu.edu</a>
Cowlitz County	207 4th Ave. N. rm #101 Kelso, WA 98626	Angelica Velazquez	Noxious Weed Coordinator	(360) 577-3117 Fax: (360) 425-7760	<a href="mailto:velazqueza@co.cowlitz.wa.us">velazqueza@co.cowlitz.wa.us</a>
Gifford Pinchot National Forest	10600 N.E. 51st. Circle Vancouver, WA 98682			(360) 891-5000 Fax: (360) 891-5045	