

South Central Region, Area 1

Integrated Roadside Vegetation Management Plan

2014



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

Table of Contents

Summary	1
Vicinity Map	2
Work Plan	3-8
Program Priorities	9
Roadside Maintenance Considerations	10
Typical Roadside Vegetation Management Zones	11
Special Considerations	12
Roadside Design and Construction Considerations.....	13
Integrated Vegetation Management (IVM) Decision Making Process.....	14
Roadside Vegetation Management Plan.....	15
1.0 Integrated Vegetation Management.....	15
1.1 Integrated Vegetation Management Planning and Tracking Database	15
1.1.1 Description.....	15
1.1.2 Sample Forms	15
1.1.3 Instructions for Use.....	15
1.2 Shoulder Maintenance (Zone 1 Bare-Ground)	15
1.2.1 Policy and Objectives	15
1.2.2 Action Thresholds	15
1.2.3 Methods (Timing and Procedures).....	16
1.2.4 Prescriptions	16
1.2.5 Locations by Milepost	16
1.3 Mowing Operations.....	16
1.3.1 Policy and Objectives	16
1.3.2 Methods (timing and procedures)	16-17
1.3.3 Prescriptions	17
1.4 Noxious Weed Control.....	17
1.4.1 Policy and objectives	17-20
1.4.2 Methods.....	20-21
1.4.3 Action Thresholds	21
1.4.4 Prescriptions	21
1.5 Nuisance Weed Control.....	21
1.5.1 Policy and objectives	21
1.5.2 List of Species Currently Present.....	21-22
1.5.3 Methods.....	22
1.5.4 Action Threshold For Nuisance Weed Control.....	22
1.5.5 Prescriptions	22
1.6 Tree and Brush Control	22
1.6.1 Policy and Practice	22
1.6.2 Methods.....	22-23
1.7 Hazard Tree Removal	22
1.7.1 Policy and Objectives	22
2.0 Special Maintenance Areas.....	24
2.1 Herbicide Sensitive Areas	24
2.1.1 Policy and Objectives	24

2.2	U.S. Forest Service Easement	24
2.3	Adopt-a-highway and Owner Will Maintain Agreements.....	24
	2.3.1 Policy and Objectives	24-25
	2.3.2 Locations by Milepost	25
2.4	Environmental Sensitive Areas.....	25
	2.4.1 Policy and Objectives	25
	2.4.2 Locations	25
2.5	Storm Water Management Facilities.....	25
	2.5.1 Policy and Objectives	25
	2.5.2 Methods	26
2.6	Wetland Mitigation Sites	26
	2.6.1 Policy and objectives	26
	2.6.2 Locations by Milepost	26

Appendix A	Integrated Vegetation Management Prescriptions
Appendix B	Herbicide Guidelines
Appendix C	Weed Locations (currently not in plan)
Appendix D	Special Maintenance Areas
Appendix E	Forms and Records
Appendix F	Stakeholders List

Summary

The Washington State Department of Transportation (WSDOT) manages approximately 580 miles of roadside right-of-way throughout King and Kittitas counties. This right-of-way is part of the state highway system including US 195, SR 27, SR 26, SR 23 as well as several other state routes in the area.

As a landowner in this area WSDOT is required to control all designated noxious weeds that occur on this right-of-way by state law (RCW 17.10 and 15.15.010). It is important to WSDOT to not only meet the legal requirements, but also to consider the needs and concerns of adjacent landowners in this area.

In order to better manage these roadsides WSDOT has developed an Integrated Vegetation Management Plan (IRVM) for this area. This plan serves as the primary guidance document for maintenance of roadsides in this area and will provide detailed weed control and planting guidance as well as overall policy and procedures. This plan supports WSDOT's long-range goals of managing these roadsides to:

- Reduce maintenance costs
- Improve weed control
- Enhance roadside vegetation by providing stable, sustainable plant communities

The attached plan consists of four main sections:

1. **Introduction:** This section provides an overview of the maintenance area discussed in the plan. This section also provides contacts, pertinent links and references and the annual work plan while giving the reader a general understanding of the WSDOT roadside program.
2. **Plan:** This is the main body of the document and includes detailed descriptions of specific maintenance activities, policies and objectives.
3. **Appendices:** This section contains prescriptions for weed control and revegetation, noxious and nuisance weed locations, locations of special maintenance areas, forms and records, and a list of local public and private stakeholders.

This plan is a dynamic document that will be developed and updated over time with input from a variety of sources. WSDOT welcomes comments and suggestions from local private and public entities. An electronic version of the South Central Region, Area 1 plan is available at http://www.wsdot.wa.gov/Maintenance/Roadside/mgmt_plans.htm or available in hard copy upon request. Please contact Galen Rogers at the numbers listed below for questions or comments.

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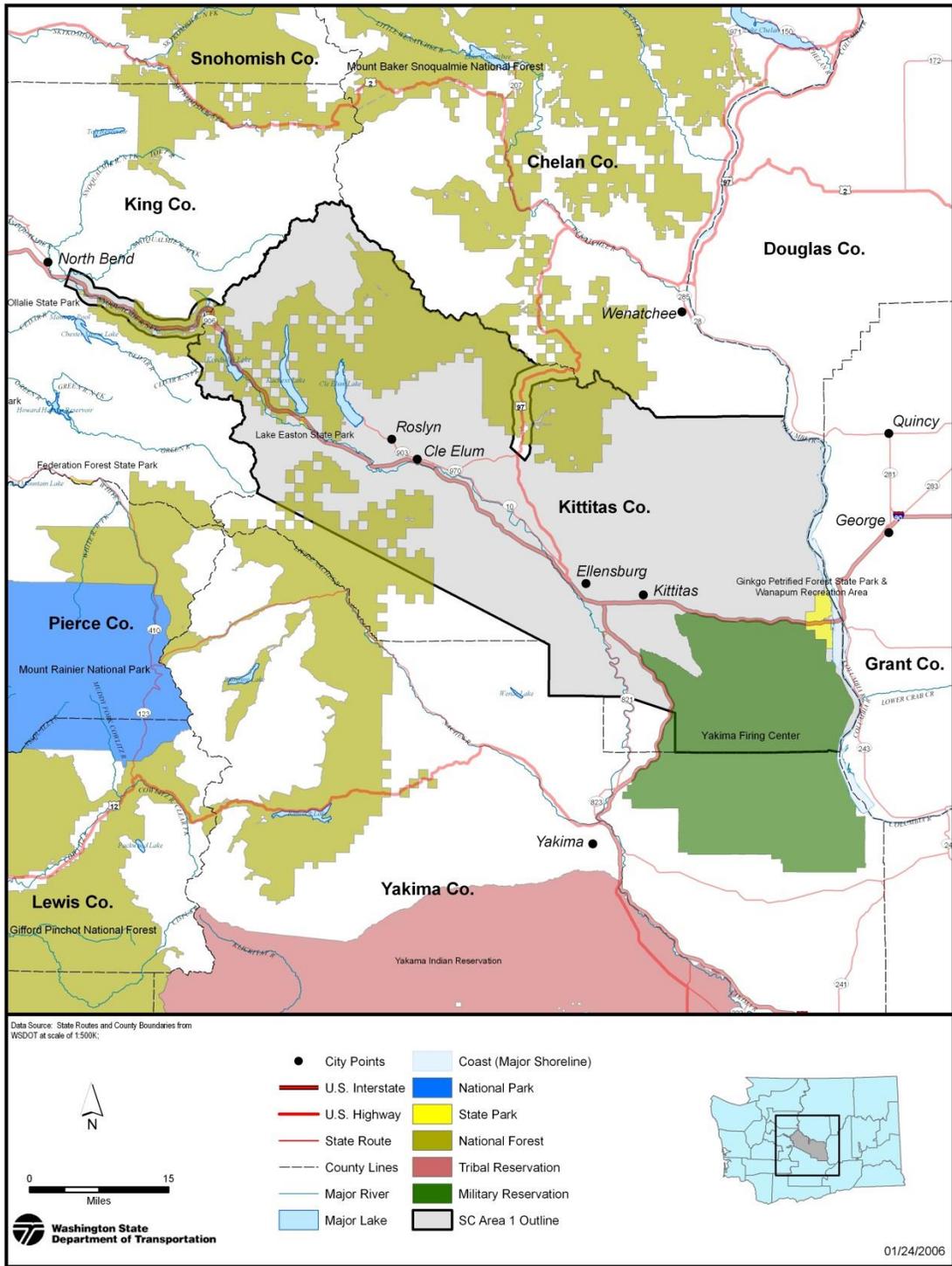
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Vicinity Map
Figure 1

2010 Work Plan

The purpose of this section is to identify the short and long term operational goals within South Central Region, Area 1. These goals will help direct decisions that effect roadside management and the construction of roadside. These goals will be updated and evaluated on a yearly basis during the annual Winter Planning Meeting.

Long-Term Goals (2009-2013)

Long-term goals should be achievable within a 5 year period of time and have clearly stated objectives. Long-term goals may be general in nature and should provide direction for short term operational goals.

- **General Weed Control**
 1. Improve consistency and predictability in Vegetation Management (VM) program. *Did not Accomplish*
 2. Maintain good communication with Kittitas and King County Weed Boards. *Accomplished*
 3. Update “owner will maintain” agreement. *Did not Accomplished*
 4. Establish working vineyard policy that allows focused weed control while reducing risk of impact to vineyards. *Accomplished*
- **Noxious Weed Control 3A2 Map Target: B**
 1. Reduce Toadflax infestations in North Bend, Easton and Wenatchee vicinities. *Accomplished*
 2. Reduce infestations of Kochia, Canada and Musk thistles in the Kittitas Valley Agriculture corridor. *Partially Accomplished, Canada thistle control inadequate*
 3. Eradicate European Hawkweed from I-90 ROW. *Made progress toward goal*
- **Nuisance Weed Control 3A3 Map Target B-**
 1. Nuisance weeds will only be controlled incidental to noxious weed control
- **Obstructions 3A4- Map Target: B-**
 1. Maintain hardware, intersections and low site distance locations to be free of vegetation obstructions. *Accomplished*

Short-Term Goals (2009)

Short-term goals are planned for implementation during the 2009 season. Short-term goals should be specific goals with clear objectives that can be measured and reported.

- **Noxious Weed Control 3A2- Map Target: B**
 1. Treat an estimated **1200** acres of roadside with selective herbicides for noxious weed control. *Accomplished 713 acres*
 2. Mow approximately **150** acres of noxious weeds on roadsides and gore areas. *Accomplished 107 acres*
 3. Mow North Bend areas infested with Dalmatian Toadflax in order to prepare site for fall herbicide treatments and Scotch Broom control. *Accomplished*
 4. Continue investment in biological control to target Spotted and Diffuse Knapweed and Dalmatian Toadflax infestations. *Did not Accomplish*
 5. Treat all visible European Hawkweed on I-90 ROW. *Made progress toward goal*
- **Nuisance Weed Control 3A3- Map Target: B-**
 1. Nuisance weeds will only be controlled incidentally to noxious weed control.
 2. Mow approximately **100** acres in support of gateway areas and nuisance weed control. *Accomplished 510 acres*
- **Obstructions 3A4- Map Target: B-**
 1. Apply approximately **20** acres of Bare-ground. *Did not Accomplish*
 2. Mow approximately **50** acres to control obstructions. *Accomplished 32 acres*
 3. Hand trim approximately **4** acres. *Accomplished*
 4. Remove approximately **30** danger trees. *Accomplished 150*

2011 Work Plan

The purpose of this section is to identify the short and long term operational goals within South Central Region, Area 1. These goals will help direct decisions that affect roadside management and the construction of roadside. These goals will be updated and evaluated on a yearly basis during the annual Winter Planning Meeting.

Long-Range (2009-2013)

Long-term goals should be achievable within a 5 year period of time and have clearly stated objectives. Long-term goals may be general in nature and should provide direction for short term operational goals.

- **General Weed Control**
 1. Improve consistency and predictability in Vegetation Management (VM) program.
 2. Maintain good communication with Kittitas and King County Weed Boards
 3. Contact "Owner Will Maintain" agreement holders annually
 4. Establish working vineyard policy that allows focused weed control while reducing risk of impact to vineyards.

- **Noxious Weed Control 3A2 - Map Target: B**
 1. Reduce Toadflax infestations in North Bend, Easton and Wenatchee vicinities.
 2. Reduce infestations of Kochia, Canada and Musk thistles in the Kittitas Valley Agriculture corridor
 3. Eradicate European Hawkweed from I-90 ROW

- **Nuisance Weed Control 3A3 - Map Target B-**
 1. Nuisance weeds will only be controlled incidental to noxious weed control

- **Obstructions 3A4 - Map Target: B-**
 1. Maintain hardware, intersections and low site distance locations to be free of vegetation obstructions.

2011 Annual Work Plan

The work plan is updated annually and should reflect the “*Long-Term Goals*” above and be directed by the “*Program Priorities*” below.

- **Noxious Weed Control 3A2 - Map Target: B**
 1. Treat an estimated **1000** acres of roadside with selective herbicides for noxious weed control
 2. Mow approximately **250** acres of noxious weeds on roadsides and gore areas.
 3. Continue investment in biological control to target Spotted and Diffuse Knapweed and Dalmatian Toadflax infestations.
 4. Treat all visible European Hawkweed on I-90 ROW
 5. Plan for **80** acres fall herbicide treatment annually to control Canada thistle, Knapweeds and Dalmatian Toadflax

- **Nuisance Weed Control 3A3 - Map Target: B-**
 1. Nuisance weeds will only be controlled incidentally to noxious weed control
 2. Mow approximately **100** acres in support of gateway areas and nuisance weed control.

- **Obstructions 3A4 - Map Target: B-**
 1. Apply approximately **20** acres of Bare-ground
 2. Mow approximately **50** acres to control obstructions?
 3. Hand trim approximately **4** acres
 4. Remove approximately **50** danger trees

2012 Annual Work Plan

The work plan is updated annually and should reflect the “*Long-Term Goals*” above and be directed by the “*Program Priorities*” below.

- **Noxious Weed Control 3A2 - Map Target: B**
 6. Treat an estimated **1000** acres of roadside with selective herbicides for noxious weed control. Accomplished approximately 800 acres
 7. Mow approximately **250** acres of noxious weeds on roadsides and gore areas. Accomplished approximately 140 acres
 8. Continue investment in biological control to target Spotted and Diffuse Knapweed and Dalmatian Toadflax infestations. Accomplished- did not release any this year.
 9. Treat all visible European Hawkweed on I-90 ROW. Accomplished
 10. Plan for **80** acres fall herbicide treatment annually to control Canada thistle, Knapweeds and Dalmatian Toadflax. Accomplished

- **Nuisance Weed Control 3A3 - Map Target: B-**
 3. Nuisance weeds will only be controlled incidentally to noxious weed control
 4. Mow approximately **100** acres in support of gateway areas and nuisance weed control. Accomplished approximately 50 acres.

- **Obstructions 3A4 - Map Target: B-**
 1. Apply approximately **20** acres of Bare-ground. Did not Accomplish
 2. Mow approximately **50** acres to control obstructions. Accomplished 23 acres
 3. Hand trim approximately **4** acres. Did not Accomplish
 4. Remove approximately **50** danger trees. Accomplished 283 trees

2013 Annual Work Plan

The work plan is updated on an annual basis and should reflect the priorities in the long-range work plan.

- **Noxious Weed Control 3A2-**
 1. Treat an estimated **1000** acres of roadside with selective herbicides for County Designated noxious weed control. **Accomplished 760 acres**
 2. Mow approximately **200** acres of noxious weeds on roadsides and gore areas. **Accomplished 98 acres**
 3. Evaluate area for bio-control needs, particularly Spotted, Diffuse Knapweed and Dalmatian Toadflax infestations. **Accomplished**
 4. Treat all visible European Hawkweed on I-90 ROW. **Accomplished**
 5. Eradicate Russian Knapweed- I-90 lower county, Approximately 5 acres vic. MP 132. **Accomplished**
 6. Apply **80** acres fall herbicide treatment annually to control Canada thistle, Knapweeds and Dalmatian Toadflax. **Accomplished**
 7. Develop a long-term Revegetation plan for agriculture area, I-90, SR-82 to Kittitas.

- **Nuisance Weed Control 3A3-**
 1. Nuisance weeds will only be controlled incidentally to noxious weed control
 2. Mow approximately **100** acres in support of gateway areas and nuisance weed control. **Accomplished 33 acres**

- **Obstructions 3A4-**
 1. Apply approximately **20** acres of Bare-ground. **Not Accomplished**
 - Pit sites
 - Rest area sewer lagoons
 2. Mow approximately **50** acres to control obstructions? **Accomplished 239 Acres-** Most of these acres probably should have either fallen under noxious or nuisance weed control. Some of this, perhaps 50% may have fallen under Obstructions.
 3. Treat or cut with brush cutter approximately **20-30** acres of brush. **Accomplished**
 4. Hand prune approximately **4** acres
 - Mcmanemy/Hwy 10
 5. Remove approximately **125** danger trees from the right-of-way. **Accomplished 431 trees**

- Other
 1. Put together living snow fence plan for Rocky Canyon
 - Plan for early spring planting

Annual Work Plan (2014)

The work plan is updated on an annual basis and should reflect the priorities in the long-range work plan.

- **Noxious Weed Control 3A2-**
 1. Treat an estimated **1000** acres of roadside with selective herbicides for County Designated noxious weed control
 2. Mow approximately **200** acres of noxious weeds on roadsides and gore areas.
 3. Evaluate area for bio-control needs, particularly Spotted, Diffuse Knapweed and Dalmatian Toadflax infestations.
 4. Treat all visible European Hawkweed on I-90 ROW
 5. Eradicate Russian Knapweed- I-90 lower county, Approximately 5 acres vic. MP 132 and MP 127
 - 6.
 7. Apply **80** acres fall herbicide treatment annually to control Canada thistle, Knapweeds and Dalmatian Toadflax
 8. Develop a long-term Revegetation plan for agriculture area, I-90, SR-82 to Kittitas.

- **Nuisance Weed Control 3A3-**
 1. Nuisance weeds will only be controlled incidentally to noxious weed control
 2. Mow approximately **100** acres in support of gateway areas and nuisance weed control.

- **Obstructions 3A4-**
 1. Apply approximately **120** acres of Bare-ground
 - Pit sites
 - Rest area sewer lagoons
 - Guardrail
 2. Mow approximately **50** acres to control obstructions.
 3. Treat or cut with brush cutter approximately **20-30** acres of brush.
 4. Hand prune approximately **4** acres
 - Mcmanemy/Hwy 10
 5. Remove approximately **125** danger trees from the right-of-way.
 6. Consider fall Krenite application on an annual cycle, approximately 30 acres per year.
 7. Treat Indian John Retention ponds with bare-ground application

- **Other**
 1. Put together living snow fence plan for Rocky Canyon.
 - Plan for early spring planting

Program Priorities -

Priorities are listed below in order, group 1 "Obstructions" is the top priority, group 3 "Nuisance Weeds" the lowest priority.

- **Obstructions**
 1. Control all safety related obstructions as they occur throughout the area. This includes brush, danger trees and other vegetation that obstruct regulatory signs, accesses or limits sight distance.

- **Designated noxious weeds**
 1. Eradicate Class A weeds
 - European Hawkweed, I-90 MP 40 - MP 42
 2. Control Designated Noxious Weeds in Kittitas County Agricultural Zone
 - I-90 MP 97 to MP 118 EB & WB
 - I-82 MP 0 to MP 5.5 NB & SB
 - SR-97 MP 133 to MP 138
 3. Control the following 4 priority species within the CWMA vicinity: I-90 MP 41 - MP 69:
 - Orange hawkweed
 - Scotch Broom
 - Meadow Knapweed
 - Tansy Ragwort
 4. Whitetop in lower Kittitas County
 5. Control Toadflax at Wenatchee O.P. and North Bend
 6. Control remaining designate noxious weeds area-wide

- **Nuisance weeds**
 1. Mow out East Ellensburg Interchange exit 109 before September 1st
 2. Indian John Rest Area Lagoons- Maintain lagoon slopes to be free of vegetation with fall bare-ground treatment and spring summer follow-up
 3. Control nuisance weeds and woody debris around guardrail
 4. Control nuisance weeds on stockpiles
 5. Control nuisance weeds around culvert ends
 6. Control nuisance weeds around electric huts
 7. Treat catch basins for mosquitoes for control of West Nile Virus
 8. Treat nuisance weeds in Agricultural Zone that have the potential to impact adjacent crops

Roadside Maintenance Considerations

The primary objectives for maintenance of roadside vegetation are:

- Provide safe highway operation
- Comply with legal regulations for control of noxious weeds
- Protection of the environment

Visual Quality

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/fulltext/M25-31/RCP.pdf) (November 2011) <http://www.wsdot.wa.gov/Publications/Manuals/fulltext/M25-31/RCP.pdf>

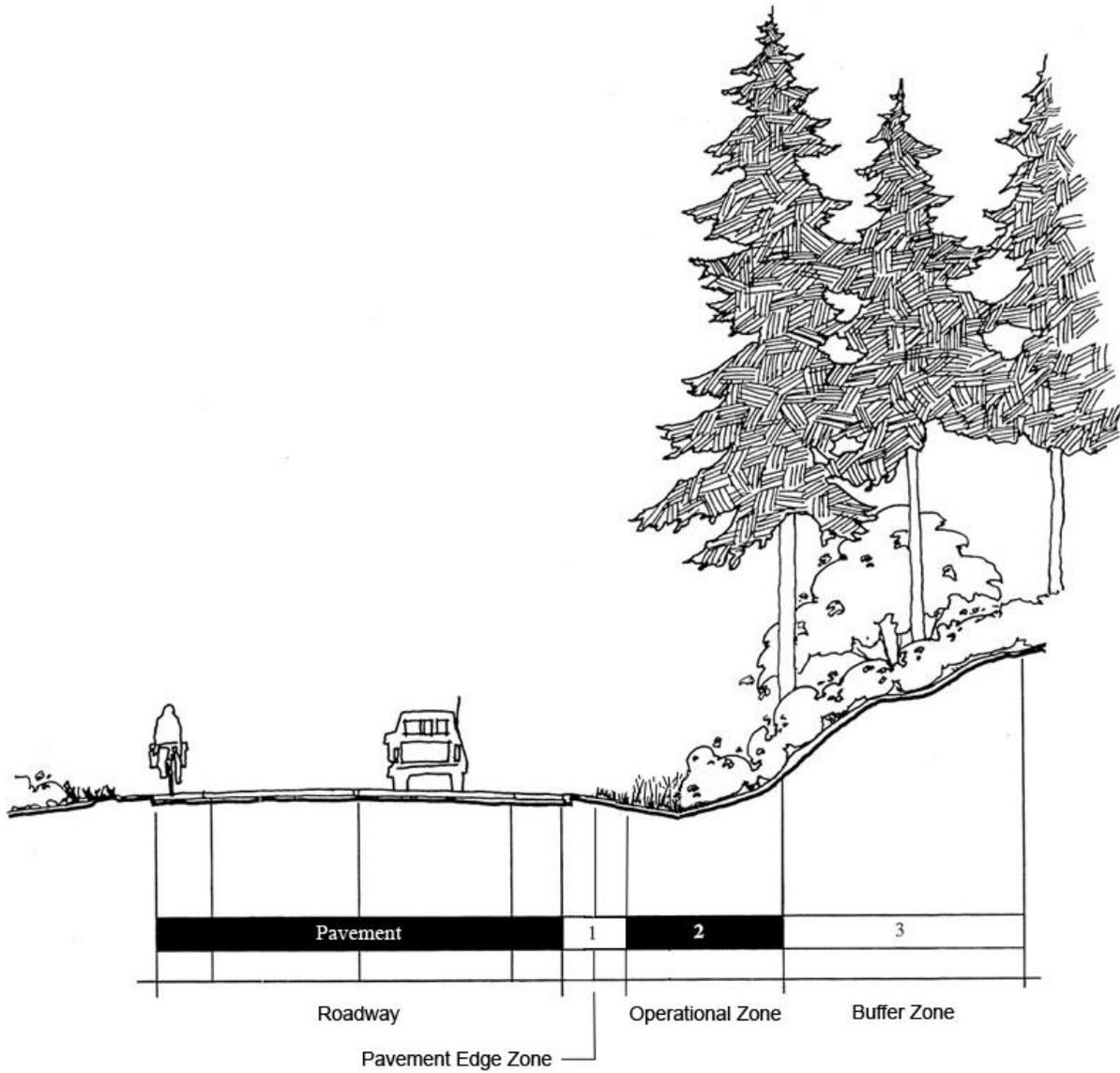
Operational Zones

WSDOT roadsides are divided into several zones for the purposes of assigning management objectives, maintenance intensities, 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 maintenance zones will occur along state highway in South Central Region, Area 1. In many cases the narrow width of the right-of-way or adjoining land-use, limits the operational zones to Zone 1 and a narrow Zone 2 only. Roadside vegetation management zones are as follows:

Zone 1 – The pavement edge zone is maintained in a manner and width necessary to address highway operations 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. A vegetation-free Zone 1 is maintained using non-selective soil residual herbicides. Routine annual mowing may be necessary in some cases where vegetation is established up to the edge of pavement.

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, trimming and/or herbicide treatment as necessary to selectively remove undesirable trees, brush and weeds and encourage desirable vegetation. Any plant with an existing or potential trunk diameter of 4” or greater is considered undesirable in Zone 2.

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.



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

Special Considerations

Herbicide Sensitive Areas

An Herbicide Sensitive Areas consist of all locations within 60' of jurisdictional water bodies. WSDOT limits the use of herbicides in these areas to reduce the potential risk of environmental impact to these sensitive resources. Only products that have successfully undergone an internal risk assessment process will be used in these areas (See Herbicide Safety below).

Special Maintenance Areas

This plan also defines and identifies areas with unique roadside maintenance requirements or where arrangements exist due to the surrounding land use, neighbor concerns or specific highway related functions. Special maintenance areas in highway roadsides sections with agreements for maintenance by neighbors are further defined in **Special Maintenance Areas, Section 3.**

Public Notification of Herbicide Applications

WSDOT is required by law to notify chemically sensitive individuals on file with Washington State Department of Agriculture, where the residing property abuts the highway right-of-way and the residence is within ½ mile of the property line. Notification to chemically sensitive individuals is accomplished by letter and/or phone conversation prior to each application. For specific herbicide application schedules, the roadside vegetation maintenance personnel can be reached at 509.577.1908.

Herbicide Safety

When applying herbicides WSDOT takes precaution to avoid any impact on human and environmental health, and to ensure herbicides do not move off target. Applications are made only by trained and licensed employees following all state and federal regulations as well as all recommendations and restrictions given on the individual product labels as approved by the US Environmental Protection Agency.

WSDOT has also conducted a risk assessment for the herbicide products and application methods used on state highways. Toxicological impacts of WSDOT practices were evaluated for human health (both operators and the general public), for aquatic ecosystems, and terrestrial wildlife. The findings of this assessment are summarized in a series of fact sheets for the individual herbicides used by WSDOT. These fact sheets can be viewed and downloaded through the Internet at: http://www.wsdot.wa.gov/Maintenance/Roadside/herbicide_use.htm or copies may be obtained by calling the WSDOT Headquarters Maintenance Office at 360.705.7850.

Roadside Design and Construction Considerations

Highway and utility construction in many cases has a significant impact on drainage, soils and vegetation adjacent to the paved roadway. WSDOT policy and practice for restoring the operational, environmental and visual functions disturbed by construction is based on the guidelines found in the Roadside Classification Plan (RCP) (WSDOT 2011), and the Roadside Manual (WSDOT M25-30, June 2014).

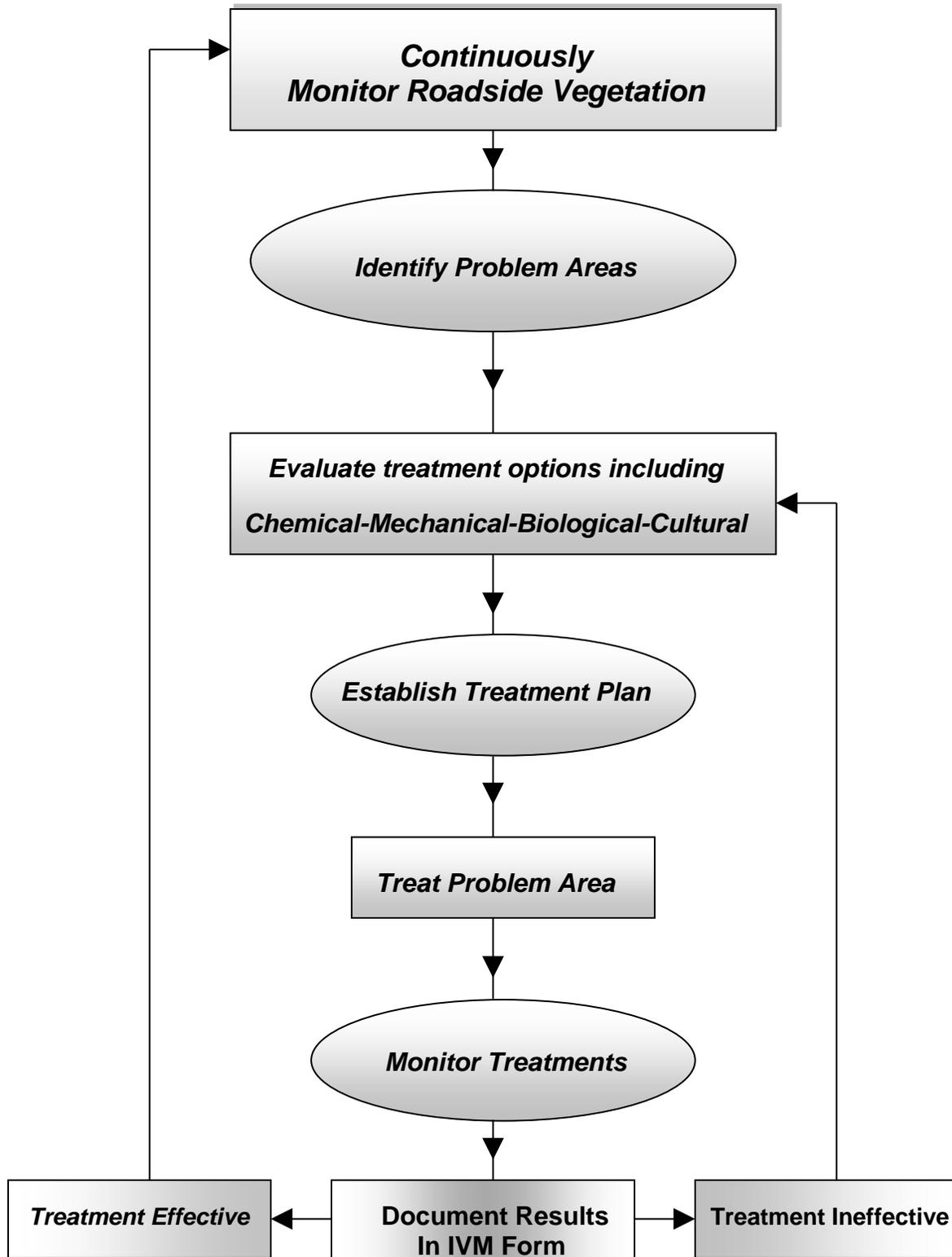
Internal agency coordination between the Design, Construction, and Maintenance programs is imperative to a comprehensive roadside vegetation management plan. A commitment to increasing communication in these areas is an important component in an ongoing effort to reduce lifecycle costs and improve roadside vegetation. This commitment has been recognized and agreed to by the regional management team.

Below is a list of design/construction projects that may have impacts to roadsides in the next 2-4 years:

- I-82 Thrall Road to Manastash- Add climbing lanes- Currently unfunded
- I-90 Lake Easton vic. to Big Creek Br. vic. EB - Replace/Rehab Concrete. Completion in Fall 2012
- SR 903 - Cle Elum to National Forest Boundary – Paving, currently in the design phase
- I-90 Snoqualmie Pass East, Hyak to Keechelus Dam, Currently under construction, Completion of phase 1C by 2016
- *WSDOT South Central Region Projects Link:*
<http://www.wsdot.wa.gov/Regions/SouthCentral/Projects/>

Below is a list of permitted utility projects that are scheduled for construction within the next 2-4 years.

No utility projects are planned at this time.



The IVM Decision-Making Process
Figure 3

Roadside Vegetation Management Plan

1. INTEGRATED VEGETATION MANAGEMENT

Vegetation management activities are planned and carried out using the principles of Integrated Vegetation Management (IVM) and the decision making process described in Figure 3 (page 14). The goals of the IVM program are to:

- Provide effective control of noxious weeds
- Reduce maintenance life cycle costs
- Establish stable roadsides with desirable vegetation
- Preserve and enhance environmental quality

1.1. Integrated Vegetation Management Planning and Tracking Database

1.1.1. Description

One of the keys to the successful use of IVM is carrying out activities in accordance with a long-range plan and to follow up with monitoring and evaluation of treatment results. To facilitate this, IVM forms and a database have been created for statewide use by WSDOT maintenance. This system is being tested as part of the initial development of Roadside Vegetation Management Plans and will be modified and refined as technology in this area continues to develop over the coming years.

1.1.2. Sample forms

A copy of the Integrated Vegetation Management Form and Application Record are included in **Appendix E, Forms and Records**.

1.1.3. Instructions for use

Maintenance supervisors and technicians can access the IVM Record through the existing pesticide application record keeping system available from the area office. The IVM form should be used whenever evaluation of a method or product is desired. Entries should include future evaluation dates as well as a description of the site and current conditions.

1.2. Shoulder Maintenance (Zone 1 Bare-Ground)

1.2.1. Policy and Objectives

Prior to 2006 the edge of pavement was routinely treated with a zone 1 bare ground application. In many areas remnants of this practice is still visible in the form of continued bare ground as a result of lingering chemicals and lack of organic matter in the soil. At this time no shoulders in South Central Region Area 1 are routinely maintained with bare-ground residual applications. Zone 1 is maintained with selective herbicide applications in an as needed basis. In some limited cases zone 1 is maintained with a bare-ground distance, build-up and safety needs.

1.2.2. Action Thresholds (Zone 1 Bare-Ground):

An action threshold refers to the point at which action must be taken to control an infestation of weeds. The action thresholds for treatment of Zone 1 bare-ground, where present, are listed below.

- Sight distance limited by vegetation within zone 1
- Persistent shoulder build-up that causes standing water on the roadway.
- Special safety considerations as approved by the Area Superintendent or assigned designee

1.2.3.Methods (timing and procedures)

Zone 1 bare ground applications, where needed, will occur in the spring, typically beginning in early April. Herbicide Sensitive Areas will be maintained with a chemical that has been approved for use within this 60-foot buffer or by alternative mechanical applications. Special care will be given to these sensitive areas to insure that there are no impacts to the aquatic environment.

1.2.4.Prescriptions

See **Appendix A, Zone 1 Bare Ground Maintenance Prescriptions**

1.2.5.Locations by Milepost,

Currently there are no routine zone 1 bare-ground applications made in South Central Region area 1.

1.3. Mowing Operations

1.3.1.Policy and Objectives

Mowing will be accomplished throughout the South Central Region, Area 1 on an as needed basis. Mowing needs and prescriptions will vary by location. Mowing can be an effective form of weed control, but done incorrectly can cause damage to desirable vegetation and enhance the growing environment for unwanted weeds. It's important when conducting a mowing operation to consider a number of factors including goals, timing, target species, deck height and frequency.

1.3.2.Methods (Timing and Procedures)

Prior to conducting a mowing operation consider the following elements. Review items 1-7 below, then review and follow the appropriate prescriptions in Appendix A. There will be no mowing of desirable vegetation including grass, forbs, shrubs or woody species without prior authorization of the Maintenance Area Superintendent.

- 1. Identify Goals Of Mowing Operation:** Before prescribing mowing as a preferred alternative, it is important to clearly understand what the goals are of this operation. These goals should not only be understood by the manager or decision maker, but also must be clearly communicated and understood by the operator as well. Goals may include; control of seed production, maintenance of sight distance, control of vegetation around hardware features, control of noxious or nuisance weeds in an environmental or crop sensitive area or the removal of weed skeletons for the control of newly emerging weeds.
- 2. Identify Appropriate Timing:** When mowing in a stand of established dry land perennial grass, particularly native varieties, it is important to consider timing. Mowing shall not occur until after desirable grasses have reached dormancy or set seed, typically in July-August. If the goal is to control seed production of undesirable plants in an area where no desirable vegetation is present, mowing should take place as late as possible and prior to seed development. This will increase the likelihood that the target plant will not produce seed.
- 3. Identify Target:** Identify target plant or plants to be controlled and ensure that the mowing operation will not spread these weed or exacerbate the existing problem. Some weeds, such as Japanese

knotweed, can be easily spread through mowing. Ensure that the operator understands the target species and any desirable species in the area.

4. **Deck Height:** The mower deck height must be maintained at least 6-8 inches from the ground to reduce the likelihood of exposing bare soil. It is also important to maintain this deck height if the mowing operation will include desirable grasses. Close mowing may be allowed in special cases where no desirable species occurs and restoration work will immediately follow.
5. **Clean Mower:** Mowing can easily spread weed seed from infested areas to uninfested areas. It is important to clean the mower after each operation to ensure that mowing operation is not contributing to the spread of noxious and nuisance weeds.
6. **Consider Alternatives:** As with all IVM operations it is important to consider alternative methods. Mowing in South Central Region, Area 1 is not a routine maintenance activity. It is a secondary form of weed control to be used on an as needed basis.
7. **Communicate:** Communication with the mower operator is critical to a successful mowing operation. The operator must understand the goals, timing, target species and desirable species before the mowing operation begins.

1.3.3.Prescriptions

See **Appendix A, IVM Mowing Prescriptions**

1.4. Noxious Weed Control

1.4.1.Policy and Objectives

WSDOT is required to control and prevent the spread of all noxious weeds on lands owned or managed by the agency. Noxious weed control is a high priority for WSDOT as a result of this legal mandate as well as the fact that if they are left unchecked, levels of infestation can begin to spread at exponential rates from year to year. Noxious weeds are invasive, non-native plant species that can quickly dominate native plant communities and spread to other areas or regions. New infestations of noxious weeds often appear first in highway corridors after being transported from other areas by vehicles or transportation of agricultural products. Without timely control, new infestations can further spread along transportation corridors and to adjacent property. The overall cost and economic impact to the agricultural community and the health of native ecosystems can be significant.

WSDOT prioritizes weed control based on three legally defined weed species classification categories. Chapter 16-750 of the Washington Administrative Code lists weed species in classes A, B, and C. Noxious weeds include all plants listed as class A, and those in classes B and C that are designated for control within each individual county.

Class A

Class A noxious weeds are non-native species with a limited distribution in the state. Immediate treatment of these new infestations is required by

State law and is the top weed control priority to prevent spread into adjacent areas. South Central Region, Area 1 is located primarily within Noxious Weed Regions 2 and 5.

http://www.nwcb.wa.gov/siteFiles/Class_B_Weed_Regions.pdf

Currently there are no known Class A weeds identified within the WSDOT operating right-of-way in South Central Region, Area 1.

Class B and C Designate Weeds

Class B and C weeds are more widespread than Class A weeds, 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. Containment, gradual reduction, and prevention of further spread are the chief management concerns of Designate species. Class B and C noxious weeds designated for control within Kittitas and King Counties and currently present within WSDOT right-of-way include:

Kittitas County:

- Absinth wormwood (*Artemisia absinthium*)
- Baby's breath (*Gypsophila paniculata*)
- Blueweed (*Echium vulgare*)
- Buffalobur (*Solanum rostratum*)
- Bugloss, annual (*Anchusa arvensis*)
- Bugloss, common (*Anchusa officinalis*)
- Butterfly bush (*Buddleia davidii*)
- Camelthorn (*Alhagi maurorum*)
- Common Catsear (*Hypochaeris radicata*)
- Common fennel (*Foeniculum vulgare*)
- Common tansy (*Tanacetum vulgare*)
- Common teasel (*Dipsacus fullonum*)
- Cornflower (*Centaurea cyanus*)
- Dalmatian toadflax (*Linaria dalmatica* ssp. *Dalmatica*)
- Eurasian watermilfoil (*Myriophyllum spicatum*)
- Field bindweed (*Convolvulus arvensis*)
- Gorse (*Ulex europaeus*)
- Hairy whitetop (*Cardaria pubescens*)
- Hairy willowherb (*Epilobium hirsutum*)
- Hawkweed, mouseear (*Hieracium pilosella*)
- Hawkweed, orange (*Hieracium aurantiacum*)
- Hawkweed, queen-devil (*Hieracium glomeratum*)
- Hawkweed, smooth (*Hieracium laevigatum*)
- Hawkweed, tall (*Hieracium piloselloides*)
- Hawkweed, yellow (*Hieracium caespitosum*)
- Herb-Robert (*Geranium robertianum*)
- Hoary alyssum (*Berteroa incana*)
- Hoary cress (*Cardaria draba*)
- Houndstongue (*Cynoglossum officinale*)
- Indigobush (*Amorpha fruticosa*)
- Jointed goatgrass (*Aegilops cylindrical*)
- Knapweed, brown (*Centaurea jacea*)
- Knapweed, diffuse (*centaurea diffusa*)
- Knapweed, meadow (*Centaurea jacea x nigra*)
- Knapweed, Russian (*Acroptilon repens*)

- Knapweed, spotted (*Centaurea stoebe*)
- Knotweed, Bohemian (*Bohemian knotweed*)
- Knotweed, giant (*Polygonum sachalinense*)
- Knotweed, Himalayan (*Polygonum polystachyum*)
- Knotweed, Japanese (*Polygonum cuspidatum*)
- Kochia (*Kochia scoparia*)
- Longspine sandbur (*Cenchrus longispinus*)
- Loosestrife, garden (*Lysimachia vulgaris*)
- Loosestrife, purple (*Lythrum salicaria*)
- Maretail (*Conyza Canadensis*)
- Oxeye daisy (*Leucanthemum vulgare*)
- Perennial pepperweed (*Lepidium latifolium*)
- Perennial sowthistle (*Sonchus arvensis* ssp. *Arvensis*)
- Poison hemlock (*conium maculatum*)
- Policeman's helmet (*Impatiens glandulifera*)
- Puncturevine (*Tribulus terrestris*)
- Rush skeletonweed (*Chondrilla juncea*)
- Russian thistle (*Salsola iberica*)
- Saltcedar (*Tamarix ramosissima*)
- Scentless mayweed (*Matricaria perforate*)
- Scotch broom (*Cytisus scoparius*)
- Smoothseed alfalfa dodder (*Cuscuta approximate*)
- Spikeweed (*Hemizonia pungens*)
- Spiny cocklebur (*Xanthium spinosum*)
- Spurge, laurel (*Daphne laureola*)
- Spurge, leafy (*Euphorbia esula*)
- Spurge, myrtle (*Euphorbia myrsinites*)
- St. Johnswort (*Hypericum perforatum*)
- Sulfur cinquefoil (*Potentilla recta*)
- Tansy ragwort (*Senecio jacobaea*)
- Thistle, bull (*Cirsium vulgare*)
- Thistle, Canada (*Cirsum arvense*)
- Thistle, musk (*Carduus nutans*)
- Thistle, plumeless (*Carduus acanthoides*)
- Thistle, Scotch (*Onopordum acanthium*)
- Velvetleaf (*Abutilon theophrasti*)
- White byrony (*Bryonia alba*)
- White cockle (*Silene latifolia* ssp. *Alba*)
- Wild carrot (*Daucus carota*)
- Wild chervil (*Anthriscus sylvestris*)
- Yellow nutsedge (*Cyperus esculentus*)
- Yellow starthistle (*Centaurea solstitialis*)
- Yellow toadflax (*Linaria vulgaris*)
- Yellowflag Iris (*Iris pseudacorus*)

King County

- Absinth wormwood (*Artemisia absinthium*)
- Blueweed (*Echium vulgare*)
- Bugloss, annual (*Anchusa arvensis*)
- Bugloss, common (*Anchusa officinalis*)
- Common reed (*Phragmites australis*)
- Dalmatian toadflax (*Linaria dalmatica* ssp. *Dalmatica*)
- Gorse (*Ulex europaeus*)
- Hairy willowherb (*Ephilobium hirsutum*)

- Hawkweed, mouseear (*Hieracium pilosella*)
- Hawkweed, orange (*Hieracium aurantiacum*)
- Hawkweed, smooth (*Hieracium laevigatum*)
- Hawkweed, tall (*Hieracium piloselloids*)
- Hoary alyssum (*Berteroa incana*)
- Houndstongue (*Cynoglossum officinale*)
- Indigobush (*Amorpha fruticosa*)
- Knapweed, diffuse (*Centaurea diffusa*)
- Knapweed, meadow (*Centaurea jacea x nigra*)
- Knapweed, Russian (*Acroptilon repens*)
- Knapweed, spotted (*Centaurea stoebe*)
- Loosestrife, garden (*Lysimachia vulgaris*)
- Loosestrife, purple (*Lythrum salicaria*)
- Perennial pepperweed (*Lepidium latifolium*)
- Poison hemlock (*Conium maculatum*)
- Policeman's helmet (*Impatiens glandulifera*)
- Rush skeletonweed (*Chondrilla juncea*)
- Spurge, leafy (*Euphorbia esula*)
- Sulfur cinquefoil (*Potentilla recta*)
- Tansy ragwort (*Senecio jacobaea*)
- Thistle, musk (*Carduus nutans*)
- Thistle, plumeless (*Carduus acanthoides*)
- Thistle, Scotch (*Onopordum acanthium*)
- Velvetleaf (*Abutilon theophrasti*)
- White byrony (*Bryonia alba*)
- Wild chervil (*Anthriscus sylvestris*)
- Yellow nutsedge (*Cyperus esculentus*)
- Yellow starthistle (*Centaurea solstitialis*)

1.4.2. Methods

Control of noxious weed species can be very difficult; therefore it is important to incorporate the concepts of IVM. Regardless of the specific method used to control noxious weeds, it is important to fully understand the life cycle of the weeds that are being controlled.

- **Chemical:** In many cases herbicides are used as a means of early control due to levels of infestations and area requiring control. Timing of herbicide treatments within the growth stage of the weed species is critical to achieving complete control of perennial species.
- **Mechanical:** Mowing, blading, disking and hand pulling are often used in conjunction with other control methods. Mowing considerations are covered in section 1.3 of this document.
- **Biological:** Biological controls are being used widely throughout WSDOT within the operating right-of-way. It is important to consider climate, level of infestation and available control species when selecting an appropriate biological control. It is also imperative that biocontrols be placed in an area that won't be adversely effected by mechanical or chemical control methods.
- **Revegetation/Enhancement:** A variety of other measures may be taken to promote natural vegetative competition through seeding, planting, and soil enhancement. Documentation of these methods and related success is essential to the success of long-term control

measures. IVM forms will be completed for each of these sites and are located in Appendix E.

1.4.3.Action Thresholds

The action threshold for noxious weed control is met whenever seed production of a noxious weed is imminent. WSDOT is required by state law to control and prevent the spread of all noxious weeds on WSDOT right-of-way (RCW 17.10.040). Control efforts will be initiated prior to the noxious weed producing seed.

1.4.4.Prescriptions

See **Appendix A, IVM Prescriptions, Noxious Weed Control**

1.5. Nuisance Weed Control

1.5.1.Policy and objective

Nuisance weed control, while not required by state law, provides many positive benefits to the overall condition of the roadside including:

- Stabilization of shoulders and banks
- Improved storm water treatment
- Protection and enhancement of native plant communities
- Reduces spread of weeds
- Enhances visual quality

Depending on crew availability and budget, nuisance weeds will be controlled throughout the roadsides of South Central Region, Area 1 as part of the overall Integrated Vegetation Management process. Priority control measures will be given to new infestations or those infestations that threaten desirable roadside vegetation. In some cases, where practical, nuisance weed infestations may be treated in conjunction with of noxious weed.

For established infestations currently identified in this plan, weed populations will be contained and gradually reduced by applying appropriate vegetation management prescriptions as funds and resources are available. Control options range from manual cutting, mechanical removal, revegetation and biological control, to targeted selective herbicide application, or combinations thereof.

1.5.2.List of species currently present

Numerous nuisance weeds occur throughout South Central Region, Area 1 within WSDOT right-of-way that are not targeted for control. In some cases they are controlled incidentally or for site-specific reasons.

Common nuisance weed species that occur on WSDOT right-of-way within South Central Region, Area 1 include:

- Babys Breath (*Gypsophila paniculata*)
- Cereal Rye (*Secale cereale*)
- Common Mullen (*Verbascum thapsus*)
- China Lettuce (*Lactuca serriola*)
- Maretail (*Conyza canadensis*)

- Mustard Species
- Russian Thistle (*Salsola iberica sennen*)
- Teasel (*Dipsacus sylvestris*)
- Scotch Broom (*Cytisus scoparius*)

1.5.3.Methods

Control measures for nuisance weeds are very similar to those of noxious weeds and are dependent on available resources. Species that are wide spread are treated routinely throughout the season, often controlled incidental to noxious weeds.

1.5.4.Action Threshold For Nuisance Weed Control

Action will be taken at the discretion of the area superintendent. WSDOT is not required to control nuisance weeds, however, action is advised where funding is available and one or more of the following instances occur as a result of a nuisance weed infestation.

- Impact to adjacent land owners
- Impact to desirable vegetation
- Nuisance weed presence reduces effectiveness of noxious weed control due to height or density
- New infestation where local control is achievable

1.5.5.Prescriptions

See **Appendix A, IVM Prescriptions, Nuisance Weed Control**

1.6. Tree and Brush Control

1.6.1.Policy and Practice

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 3 and side trimmed if they encroach on site distance or other traffic operational requirements.
- Large coniferous or deciduous tree species such as Douglas fir, bigleaf maple, alder, or cottonwood left to grow in Zone 2, can reach substantial size over a relatively short period of time and should be removed when young.

1.6.2.Methods

Removal of undesirable tree and brush species is accomplished in a variety of manners including hand cutting, herbicide applications, hand pulling, mowing or combinations thereof. A thorough understanding of the species to be controlled and consideration of proper timing is important with any of these control methods to reduce damage, minimize visual impact and be cost effective. Below are specific considerations for the various control methods:

- Mowing: In many cases it is effective to mow back the majority of the existing vegetation to the outside edge of zone 2, then follow with spot mowing or herbicide treatments of undesirable species as needed, leaving desirable species to form a competitive cover.
- Hand Cutting: When possible, hand cuttings can be chipped in place and applied to the roadside as mulch where needed. In many cases this can be used to improve soils, reduce erosion and improve vegetation.
- Timing: Consideration should be given to the visual impact of trimming as well as effectiveness of the operation. Chemical control will not be used on deciduous trees and shrubs until after the first of September, except for cut stump treatments.
- Chemical Control: Chemical control will not be used on conifers greater than 2' in height.
- Transplanting: Whenever possible, safe and practical, seedling trees will 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 or groups to collect seedlings for use as transplants.
- Prescriptions: See **Appendix A**, IVM Prescriptions, Tree and Brush Control.

1.7. Hazard Tree Removal

1.7.1. Policy and Practices

Trees within the right-of-way are routinely monitored by maintenance staff. Hazard trees may be:

- Dead
- Diseased
- Leaning
- Structurally damaged or unsound
- Shading, in some cases trees cause shading and create excessive frost problems on the roadway. In these cases canopy thinning or removal may take place to mitigate the risk.

Trees that are identified as an imminent threat to the highway or traffic will be evaluated using best horticultural judgment and removed as soon as possible.

2. SPECIAL MAINTENANCE AREAS

Special Maintenance Areas include any sections of roadside where there are unique maintenance requirements or existing arrangements with any external organizations. Special Maintenance Areas include highways passing through the Wenatchee National Forest, community entrances or enhancement areas, areas maintained by cities, bicycle paths, storm water retention ponds, state parks, wellheads, environmentally sensitive areas, school zones, roadsides adjacent to individual properties with current or annual no-spray agreements and new technologies.

2.1. Herbicide Sensitive Areas

2.1.1. Policy and objectives

There are a number of herbicide sensitive areas located within the area where herbicide use will be limited or restricted in order to reduce the potential of environmental impact. In these locations vegetation will be managed using limited herbicides use or non-chemical alternatives.

The Washington State Department of Agriculture maintains a list of individuals who have been diagnosed with Multiple Chemical Sensitivity (MCS). WSDOT is required by law to notify these individuals when making herbicide applications to roadside locations if the highway right-of-way is adjacent to their property and their principle residence is within one-half mile of the application. Concerned individuals can obtain further information by contacting the area maintenance office in Cle Elum at 509.577.1908.

2.2. U.S. Forest Service Easement

In some locations, Interstates and State Routes are operated by WSDOT under easement from the U.S. Forest Service. This arrangement is governed by a Memorandum of Understanding between the two agencies. Road sections operated or partially operated under easement from the USFS include:

- I-90 MP 34 and MP 71 East and Westbound
- SR 903
- SR 906

In accordance with this agreement WSDOT provides annual notification to the U.S. Forest Service, Cle Elum Ranger District of proposed weed control operations. This notification is typically provided in the spring of each year and followed up every two years to discuss the overall weed control program.

2.3. Adopt-a-Highway and Owner Will Maintain Agreements

2.3.1. Policy and objectives

The Adopt-a-Highway program allows private citizens, volunteer groups, and businesses an opportunity to contribute to an enhanced roadside appearance through direct partnership with WSDOT. The program improves the overall appearance of the roadside primarily through litter control, although other activities that improve the visual and environmental condition of the roadside are permitted as well including limited planting and maintenance of specific areas. Other partnership opportunities are possible through general permits and agreements. Volunteer groups that do enhancement planting on WSDOT roadsides are typically required to establish and maintain the plantings. Communities may partner with WSDOT to develop and maintain selected Community Enhancement Areas as described in the Roadside Classification Plan.

Neighboring property owners may enter into an agreement with WSDOT where they take responsibility for the vegetation management activities along the area where their property abuts state right-of-way. These “Owner Will Maintain” agreements are established through a General Permit and are required to be renewed on an annual basis. These agreements are typically implemented in cases where a neighboring property owner desires a higher level of care in front of their business or residence, or prefers maintaining the area to avoid WSDOT herbicide applications near their home or business.

2.3.2. Locations by Milepost

Locations where partnership agreements exist for accomplishment of roadside maintenance are listed in **Appendix D, Special Maintenance Areas, Table 3.0.**

2.4. Environmentally Sensitive Areas

2.4.1. Policy and Objectives

As a state agency, WSDOT is committed to conducting its activities in accordance with the dictates of sound environmental protection practices. This includes pollution prevention, avoid, minimize and appropriately mitigate adverse environmental impacts, and to comply with all environmental laws and regulations applicable to our business and activities.

Numerous environmentally sensitive areas occur within South Central Region, Area 1, such as lakes, streams and wetlands. Special care will be taken to avoid and minimize impacts to these resources. Herbicide applications in these areas will follow normal label requirements. Other IVM treatments that take place in these areas, such as mowing or revegetation efforts will be subject to the Regional Road Maintenance Endangered Species Act Program Guidelines.

In compliance with the Regional Road Maintenance Endangered Species Act Program Guidelines, as agreed upon with the National Marine Fisheries Service, WSDOT has identified, mapped and located in the field all highway sections within 300 feet of rivers, wetlands and water bodies.

2.4.2. Locations

Environmentally sensitive areas are identified in the field with green guideposts and identified in an area atlas. For more information on the Regional Road Maintenance ESA Program Guidelines refer to: <http://www.wsdot.wa.gov/maintenance/roadside/esa.htm> or contact Gregor Myhr at 360.705.7853.

2.5. Storm Water Management Facilities

2.5.1. Policies and Objectives

Storm water management facilities include bio-filtration, swales, retention ponds and infiltration ponds.

Storm water management facilities will be managed for noxious and nuisance weeds following the same guidelines mentioned in previous sections. The primary objectives, with regard to vegetation management within these facilities, are to maintain retention and detention functions to improve water quality.

2.5.2.Methods

Noxious weed control will be conducted at all storm water management facilities as necessary. Control of nuisance weeds will be coordinated with nuisance weed control along the adjacent roadside. 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 unwanted vegetation and debris as well.

Refer to vegetation management prescriptions for specific weed, tree and brush species in Sections 1 and 2 of this document for timing and control methods.

Currently there are no active storm water management facilities in South Central Region, Area 1.

2.6. Wetland Mitigation Sites

2.6.1.Policy and Objectives

Wetland mitigation results from unavoidable impacts to naturally occurring wetlands from highway construction. In these cases new wetlands are created on WSDOT right-of-way and vegetation is managed to provide environmental functions similar to those eliminated in other areas by the highway's presence.

Wetland mitigation sites are carefully monitored 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 process so the maintenance actions are not required unless noxious weeds or hazardous trees become an issue. However, it is important that maintenance be aware of the locations of wetland mitigation sites to avoid impacting the required environmental functions of the sites.

2.6.2.Locations by Milepost

See **Appendix D, Special Maintenance Areas, Table 3.0**

Routine Maintenance Activities

Zone 1 Maintenance - Annual Maintenance (Option A)

Location Type	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
Gravel shoulder or guardrail sections	4' vegetation free zone	Annual herbicide application	Spray truck w/ fixed nozzle mounted 18" from ground	Non-selective residual herbicide Payload @ 10 ozd Oust/SFM 75 @ 3 ozd <u>No Buffer Limitations</u>	Fall and/or Spring	None required

Zone 1 Bare-Ground Maintenance - Annual Cycle

Location Type	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
Where needed on site specific areas or guardrail sections Beware of Tree Damage	1'-4' area free of vegetation	Annual herbicide application	Spray truck w/ fixed nozzle mounted 18" from ground	Non-selective residual herbicide Perspective @ 10 ozd. Oust/SFM @ 3 ozd. <u>No Buffer Limitations</u>	Spring March/April	Monitor

SC Region Area 1 - IVM Prescriptions

Noxious Weed Control

Chemical Control

Noxious Weed Control - **General Weed Control (A)**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	After emergence	Eradication and control of listed noxious weeds.	Spot/Band	Pickup or truck mounted sprayer	E-2 @ 48 ozl Spreader 90 @ 32 oz per 100 gallons carrier No Spray Within 60' of Water	Early growing season first/second flush	Reapply as necessary. Seed and fertilize to reduce weed competition.

Noxious Weed Control - **General Weed Control (B)**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones Beware of Tree Damage	After emergence	Eradication and control of listed noxious weeds.	Spot/Band	Pickup or truck mounted sprayer	Perspective @ 5 oz Spreader 90 @ 32 oz per 100 gallons carrier No Buffer Limitations	Early growing season first/second flush	Reapply as necessary. Seed and fertilize to reduce weed competition.

Noxious Weed Control - **General Weed Control (C)**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	After emergence	Eradication and control of listed noxious weeds.	Spot/Band	Pickup or truck mounted sprayer	Opensight @ 2.5-3 oz Spreader 90 @ 32 oz per 100 gallons carrier No Buffer Limitations	Early growing or Fall treatments	Reapply as necessary. Seed and fertilize to reduce weed competition.

Noxious Weed Control - **Thistles/Knapweeds - Rosette/Bolting Stage**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	As soon as plants appear	Eradication and control of listed noxious weeds.	Herbicide	Pickup or truck mounted sprayer	Milestone @ 7 oz. Spreader 90 @ 32 oz per 100 gallons carrier No Buffer Limitations	Early growing season	Repeat as necessary. Seed and fertilize to reduce weed competition.

Noxious Weed Control - **Rush Skeletonweed - Rosette/bolting Stage**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	As soon as plants appear	Eradication and control of listed noxious weeds.	Spot treatment w/ herbicide	Pickup or truck mounted sprayer	Milestone @ 5 oz. Phase @ 32 oz per 100 gallons carrier No Buffer Limitations	Early growing season	Reapply as necessary. Seed and fertilize to reduce weed competition.

Noxious Weed Control

Noxious Weed Control - *Dalmatian Toadflax* -

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	As soon as plants appear	Eradication and control of listed noxious weeds.	Spot treatment w/ herbicide	Backpack sprayer, pickup, etc.	Tordon 22k @ 32 ozl Telar @ 1 ozl Phase @ 32 oz per 100 gallons carrier No Spray Within 60' of Water	Early growing season	Reapply as necessary. Seed and fertilize to reduce weed competition

Noxious Weed Control - *Canada Thistle* - **Late Season Seed Prevention**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	As soon as plants appear	Eradication and control of listed noxious weeds.		Pickup or truck mounted sprayer	Amine @ 32 oz Milestone @ 7 oz Spreader 90 @ 32 ozl per 100 gallons carrier No Spray Within 60 of Water	Late season	Repeat as necessary. Seed and fertilize to reduce weed competition.

Noxious Weed Control- *Houndstongue*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	As soon as plants appear	Eradication and control of listed noxious weeds.		Pickup or truck mounted sprayer	Opensight @ 2.5-3 oz Spreader 90 @ 32 oz per 100 gallons carrier No Buffer Limitations	Early growing season	Repeat as necessary. Seed and fertilize to reduce weed competition.

Noxious Weed Control- *Whitetop, Wild Carrot* (Hairy White-Top, Hoary Cress) (A)

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	As soon as plants appear	Eradication and control of listed noxious weeds.		Pickup or truck mounted sprayer	Metcel VMF @ 1 oz Amine (2,4-D) @ 48 oz Phase @ 32 oz per 100 gallons carrier No Spray Within 60 of Water	Early growing season	Repeat as necessary. Seed and fertilize to reduce weed competition.

Noxious Weed Control- *Whitetop, Wild Carrot, Scotch Broom* (Hairy White-Top, Hoary Cress) (B)

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones Beware of Tree Damage	As soon as plants appear	Eradication and control of listed noxious weeds.		Pickup or truck mounted sprayer	Perspective @ 5 oz Phase @ 32 oz per 100 gallons carrier No Buffer Limitations	Early growing season	Repeat as necessary. Seed and fertilize to reduce weed competition.

Noxious Weed Control - *Broadleaf in Reseeded Areas* - Under 2" (A)

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	As soon as plants appear	Eradication and control of listed noxious weeds.	Band application	Pickup or truck mounted sprayer	Buctril @ 20 oz or generic equivalent Spreader 90 @ 32 oz per 100 gallons carrier No Spray Within 60' of Water	Early Season	Repeat as necessary. Seed and fertilize to reduce weed competition.

Noxious Weed Control

Noxious Weed Control - **Broadleaves in Reseeded Areas - Over 2" (B)**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	As soon as plants appear	Eradication and control of listed noxious weeds.	Band application	Tank sprayer	Buctril @ 20 ozl Vista @ 12 ozl Vanquish @ 2-4 ozl Spreader 90 @ 32 oz per 100 gallons carrier No Spray Within 60 of Water	Early Season	Repeat as necessary. Seed and fertilize to reduce weed competition.

Biological Control

Noxious Weed Control - **Diffuse Knapweed (Biological Control)**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	Flowering	Reduce/control host plant	Biological	None	Larinus minutus <u>No Buffer Limitations</u>	Spring Summer	Monitor and repeat or redeploy as needed

Noxious Weed Control - **Yellow Starthistle (Biological Control)**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	As soon as plants appear	Reduce/control host plant	Biological	None	Eustenopus villosus <u>No Buffer Limitations</u>	Spring Summer	Monitor and repeat or redeploy as needed

Noxious Weed Control - **Poison Hemlock (Biological Control)**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	As soon as plants appear	Reduce/control host plant	Biological	None	Agonopterix alstroemeriana <u>No Buffer Limitations</u>	Spring Summer	Monitor and repeat or redeploy as needed

Noxious Weed Control - **Dalmation Toadflax (Biological Control)**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	As soon as plants appear	Reduce/control host plant	Biological	None	Macinus Jenthus <u>No Buffer Limitations</u>	Spring Summer	Monitor and repeat or redeploy as needed

Noxious Weed Control - **Purple Loostripe**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	Establishment of small plant community	Reduce/control of host plant.	Biological	None	Galerucella californiensis <u>No 60 Buffer Limitations</u>	Late spring or	Reapply as necessary.

Tree and Brush Control

Tree and Brush Control - Alder, Maple, Cottonwood (trees under 6' ht.)

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
Zone 2	As soon as seedlings become visible w/in 30' of fog line (no guardrail present)	Control young trees in operational zone	Foliar spray, spray to wet cover entire plant or portion of plant to be controlled	Truck mounted sprayer where possible, backpack sprayer where necessary	Krenite S @ 320 oz/acre No 60 Buffer Limitations	Late fall to avoid brown out	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Tree and Brush Control - Conifers (trees under 2' ht.)

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
Zone 1 or 2	As soon as seedlings become visible w/in 30' of fog line (no guardrail present)	Control of seedling trees that may impact roadside function if allowed to grow.	Hand pulling transplant if possible	Weed Wrench optional	Mechanical No 60 Buffer Limitations	Anytime	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Tree and Brush Control - Conifers (trees over 2' ht.)

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
Zone 2 or 3	Whenever tree has been identified as defective or likely to fall on the highway	Control of trees that may impact roadside function if allowed to grow.	Hand cutting Chip debris in zone 2 if necessary	Power saws, chipper,	Mechanical No 60 Buffer Limitations	Anytime	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Nuisance Weed Control

Noxious Weed Control - **General Weed Control (A)**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	After emergence	Eradication and control of listed noxious weeds.	Spot/Band	Pickup or truck mounted sprayer	E-2 @ 48 ozl Spreader 90 @ 32 oz per 100 gallons carrier No Spray within 60' of Water	Early growing season first/second flush	Reapply as necessary. Seed and fertilize to reduce weed competition.

Noxious Weed Control - **General Weed Control (B)**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones Beware of Tree Damage	After emergence	Eradication and control of listed noxious weeds.	Spot/Band	Pickup or truck mounted sprayer	Perspective @ 5 oz Spreader 90 @ 32 oz per 100 gallons carrier No Buffer Limitations	Early growing season first/second flush	Reapply as necessary. Seed and fertilize to reduce weed competition.

Noxious Weed Control - **General Weed Control (C)**

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
All zones	After emergence	Eradication and control of listed noxious weeds.	Spot/Band	Pickup or truck mounted sprayer	Opensight @ 2.5-3 oz Spreader 90 @ 32 oz per 100 gallons carrier No Buffer Limitations	Early growing or Fall treatments	Reapply as necessary. Seed and fertilize to reduce weed competition.

Mowing Prescriptions

Note: Mowing should be accomplished to meet specific goals and objectives specified in the "Management Goal" section below.

Zone 2 Maintenance - Weed seed Control

Location Type	Management Goals	Method	Equipment	Timing	Planning and Follow-up
As needed in Zone 2 or 3	1) Limit noxious weed seed production 2) Improve roadside vegetation 3) Control of annual weeds 5) Improve conditions for desirable species	Mow single pass at 10-12 inches	mower, attenuator	Mowing should take place late in the growth cycle of the target plant species but prior to seed development. This will limit regrowth and potential seed production.	1) Communicate goals with operator prior to undertaking operation 2) Inspect after operation is complete to ensure target species are controlled and seeds have not developed

Zone 2 Maintenance - Crop/Sensitive Area

Location Type	Management Goals	Method	Equipment	Timing	IVM Follow-up
As needed in Zone 2 or 3	1) Limit noxious weed seed production 2) Improve roadside vegetation 3) Control of annual weeds 4) eliminate potential risk of herbicide application. 5) Improve conditions for desirable species	Mow single pass at 10-12 inches	mower, attenuator	Mowing should take place late in the growth cycle of the target plant species but prior to seed development. This will limit regrowth and potential seed production.	1) Communicate goals with operator prior to undertaking operation 2) Inspect after operation is complete to ensure target species are controlled and seeds have not developed

Zone 2 Maintenance-Safety/Sight Distance

Location Type	Management Goals	Method	Equipment	Timing	IVM Follow-up
As needed in zone 1, 2 or 3	1) Improve sight distance for safety 2) Incidental control of annual noxious weeds 3) Incidental control of seed production 5) Improve conditions for desirable species	Mow single pass at 10-12 inches	mower, attenuator	Mowing should take place as late in the growing season as possible while still maintaining good sight distance	1) Communicate goals with operator prior to undertaking operation 2) Monitor area for regrowth and adequate sight distance 3) re-mow as necessary to provide safe sight distance

Zone 2 Maintenance- Remove Overstory (old weed debris)

Location Type	Management Goals	Method	Equipment	Timing	IVM Follow-up
As needed in Zone 2 or 3	1) Remove old vegetation debris in order to control emerging weeds 2) Remove old vegetation debris that may be restricting desirable grasses 3) Improve conditions for desirable species	Mow single pass at 10-12 inches	mower, attenuator	Mowing should take place late fall/winter after grass is dormant	1) Communicate goals with operator prior to undertaking operation

Zone 2 Maintenance- New Seeding

Location Type	Management Goals	Method	Equipment	Timing	IVM Follow-up
As needed in Zone 1, 2 or 3	(1 Reduce weed pressure 2) Improve roadside vegetation 3) Eliminate weed seed source	Mow single pass maintaining deck height above desirable grass	mower, attenuator	Prior to seed set of weed species or when needed to reduce competition with desirable species	1) Communicate goals with operator prior to undertaking operation 2) Inspect after operation is complete to ensure target species are controlled

Planting Area A

Note: Seed mixes are listed as Pounds Live Seed not bulk rate.

Planting Prescriptions

Seed Mix 1

(West Side)

Seed Mix Description: This is a general roadside seed mix for the George Vicinity. Additional species may be appropriate for this area depending on planting location in relation to the roadway, soil type, and management goals.

Grass Species	Pounds Pure Live Seed (PLS) Per Acre
Western Mannagrass <i>Glyceria occidentalis</i>	6.07
Alpine Timothy <i>Phleum alpinum</i>	1.54
Romers Fescue <i>Festuca</i>	2.81
Blue Wildrye "Middle Fork John Day" <i>Elymus glaucus</i>	5.67
Tufted Hairgrass <i>Deschampsia caespitosa</i>	0.35
Mountain Brome "Trout Lake" <i>Bromus marginatus</i>	6.87
Total Lbs PLS/Acre	23.31

Planting Prescriptions

Optional Species

Grass Species

Optional Shrubs and Forbs Species

Planting Area B

Note: Seed mixes are listed as Pounds Live Seed not bulk rate.

Planting Prescriptions

Seed Mix 1

(Hyak Vicinity)

Seed Mix Description: This is a general roadside seed mix for the George Vicinity. Additional species may be appropriate for this area depending on planting location in relation to the roadway, soil type, and management goals.

Grass Species	Pounds Pure Live Seed (PLS) Per Acre
Mountain Brome "Trout Lake" <i>Bromus marginatus</i>	12.35
Blue Wildrye "Middle Fork John Day" <i>Elymus glaucus</i>	5.17
Idaho Fescue "Winchester" <i>Festuca idahoensis</i>	0.43
Tufted Hairgrass <i>Deschampsia caespitosa</i>	0.01
Creeping Red Fescue <i>Festuca rubra</i>	0.03
Total Lbs PLS/Acre	17.99

Optional Species
Grass Species
Optional Shrubs and Forbs Species

Planting Area C

Note: Seed mixes are listed as Pounds Live Seed not bulk rate.

Planting Prescriptions

Seed Mix 1

(Easton Vicinity)

Seed Mix Description: This is a general roadside seed mix for the George Vicinity. Additional species may be appropriate for this area depending on planting location in relation to the roadway, soil type, and management goals.

Grass Species	Pounds Pure Live Seed (PLS) Per Acre
Mountain Brome "Trout Lake" <i>Bromus marginatus</i>	11.37
Blue Wildrye "Middle Fork John Day" <i>Elymus glaucus</i>	4.09
Idaho Fescue "Winchester" <i>Festuca idahoensis</i>	0.44
Bluebunch Wheatgrass Anatone/Goldar <i>Pseudoroegneria spicata</i>	1.26
Crested Wheatgrass "Douglas" <i>Agropyron cristatum</i>	0.85
Total Lbs PLS/Acre	18.01

Optional Species
Grass Species
Optional Shrubs and Forb Species

Planting Area D

Note: Seed mixes are listed as Pounds Live Seed not bulk rate.

Planting Prescriptions

Seed Mix 1

(Easton to CleElum)

Seed Mix Description: This is a general roadside seed mix for the George Vicinity. Additional species may be appropriate for this area depending on planting location in relation to the roadway, soil type, and management goals.

Grass Species	Pounds Pure Live Seed (PLS) Per Acre
Bluebunch Wheatgrass "Wahluke" (<i>Pseudoroegneria spicata</i>)	10.63
Sandberg Bluegrass "Hanford" (<i>Poa sandbergii</i>)	0.41
Thickspike Wheatgrass "Schwindemar" (<i>Agropyron trachycaulum</i>)	4.64
Sand dropseed (<i>Sporobolus cryptandrus</i>)	0.03
Total Lbs PLS/Acre	15.71

Optional Species
Grass Species
Basin Wildrye <i>(Elymus cinereus)</i>
Needle and Thread Grass <i>(Achillea millefolium)</i>
Indian Ricegrass "Nezpar" <i>(Oryzopsis hymenoides)</i>
Optional Shrubs and Forb Species
Rubber Rabbitbrush <i>(Chrysothamnus nauseosus)</i>
Basin Big Sage <i>(Artemisia tridentata)</i>
Snowy Buckwheat <i>(Eriogonum niveum)</i>
Yarrow <i>(Achillea millefolium)</i>
Arrow-leaf Balsamroot <i>(Balsamorhiza sagittata)</i>

Planting Area E

Note: Seed mixes are listed as Pounds Live Seed for drill seeding

Planting Prescriptions

Seed Mix 1

(Indian John Hill)

Seed Mix Description: This is a general roadside seed mix for the George Vicinity. Additional species may be appropriate for this area depending on planting location in relation to the roadway, soil type, and management goals.

Grass Species	Pounds Pure Live Seed (PLS) Per Acre
Bluebunch Wheatgrass "Anatone" (<i>Pseudoroegneria spicata</i>)	3.50
Bluebunch Wheatgrass "Witmar" (<i>Pseudoroegneria spicata</i>)	3.50
Sandberg Bluegrass "Wallowa or Canbar" (<i>Poa sandbergii</i>)	0.50
Crested Wheatgrass "Douglas" (<i>Agropyron cristatum</i>)	1.5
Idaho Fescue "Winchester or LeGrande" (<i>Festuca Idahoensis</i>)	3.50
Mt. Brome "Trout Lake" (<i>Bromus carinatus</i>)	2.00
Blue Wildrye "MFJD or Tucannon" <i>Elymus glaucus</i>	1.50
Total Lbs PLS/Acre	16.00

Optional Species
Grass Species
Basin Wildrye <i>(Elymus cinereus)</i>
Needle and Thread Grass <i>(Achillea millefolium)</i>
Indian Ricegrass "Nezpar" <i>(Oryzopsis hymenoides)</i>
Optional Shrubs and Forb Species
Rubber Rabbitbrush <i>(Chrysothamnus nauseosus)</i>
Basin Big Sage <i>(Artemesia tridentata)</i>
Snowy Buckwheat <i>(Eriogonum niveum)</i>
Yarrow <i>(Achillea millefolium)</i>
Arrow-leaf Balsamroot <i>(Balsamorhiza sagittata)</i>

Planting Area F

Note: Seed mixes are listed as Pounds Live Seed not bulk rate.

Planting Prescriptions

Seed Mix 1

(Ellensburg Vicinity)

Seed Mix Description: This is a general roadside seed mix for the George Vicinity. Additional species may be appropriate for this area depending on planting location in relation to the roadway, soil type, and management goals.

Grass Species	Pounds Pure Live Seed (PLS) Per Acre
Bluebunch Wheatgrass "Wahluke" (<i>Pseudoroegneria spicata</i>)	7.50
Sandberg Bluegrass "Hanford" (<i>Poa sandbergii</i>)	1.20
Thickspike Wheatgrass "Schwindemar" (<i>Agropyron trachycaulum</i>)	5.00
Siberian Wheatgrass "vavilov" (<i>Agropyron fragile spp sibericum</i>)	1.10
Crested Wheatgrass "Nordan" (<i>Agropyron densertorum</i>)	1.10
Sand dropseed (<i>Sporobolus cryptandrus</i>)	0.10
Total Lbs PLS/Acre for Drill Seeding	16.00

Optional Species
Grass Species
Basin Wildrye <i>(Elymus cinereus)</i>
Needle and Thread Grass <i>(Achillea millefolium)</i>
Indian Ricegrass "Nezpar" <i>(Oryzopsis hymenoides)</i>
Optional Shrubs and Forb Species
Rubber Rabbitbrush <i>(Chrysothamnus nauseosus)</i>
Basin Big Sage <i>(Artemisia tridentata)</i>
Snowy Buckwheat <i>(Eriogonum niveum)</i>
Yarrow <i>(Achillea millefolium)</i>
Arrow-leaf Balsamroot <i>(Balsamorhiza sagittata)</i>

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

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

Herbicides Approved for Use on WSDOT Rights of Way

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Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/ Recommendations	WSDOT Restrictions	Cautions
Imazapic	Plateau	Amino acid synthesis inhibitors - ALS inhibitor (2)	All zones	Pre-emergent control of undesirable grasses	WSDOT tests plots show a significant impact on desirable perennial grasses at rates above 6 oz per acre.	Westside - Restricted use Eastside - 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		Westside - Restricted use Eastside - 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	Westside - Restricted use Eastside - 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

Herbicides Approved for Use on WSDOT Rights of Way

When making herbicide applications:

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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
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	Westside - Restricted use Eastside - 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		Westside - Restricted use Eastside - 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

Appendix D

Special Maintenance Areas

Table 3.0

Definitions: Locations area distinguishes between opposing sides of the highway by right shoulder (RS) and median shoulder (LS) in relation to direction of travel, indicated by increasing (INC) or decreasing (DEC) mile markers.

Descriptions: Brief explanation of special treatment required

SR	Direction	Shoulder	BEG MP	END MP	Type	Description
010			95.34		Swauk Creek Pit Site	
010			94.10		Kountze Pit Site	
010			93.00		Bristol Flats Pit Site	
082	INC	RS	0.23	0.87	Ramp	
082	INC	RS	2.86	3.23	Ramp	
082	INC	RS	7.40	7.99	Ramp	
082	INC	RS	11.37	12.20	Ramp	
082	DEC	RS	11.85	11.13	Ramp	
082	DEC	RS	8.03	7.09	Ramp	
082	DEC	RS	3.19	2.58	Ramp	
082	DEC	RS	0.49	0.05	Ramp	
082			11.00		Military Interchange Stockpile Site	
090	INC	RS	34.32	35.06	Ramp (USFS Easement alternating sections)	
090	INC	RS	37.46	37.61	Ramp (USFS Easement alternating sections)	
090	INC	RS	41.93	42.87	Ramp (USFS Easement alternating sections)	
090	INC	RS	45.26	46.02	Ramp (USFS Easement alternating sections)	
090	INC	RS	47.20	48.07	Ramp (USFS Easement alternating sections)	
090	INC	RS	52.01	52.31	Ramp (USFS Easement alternating sections)	
090	INC	RS	52.67	53.23	Ramp (USFS Easement alternating sections)	
090	INC	RS	54.50	55.16	Ramp (USFS Easement alternating sections)	
090	INC	RS	61.33	62.09	Ramp (USFS Easement alternating sections)	
090	INC	RS	62.73	63.28	Ramp (USFS Easement alternating sections)	
090	INC	RS	63.83	64.26	Ramp (USFS Easement alternating sections)	
090	INC	RS	70.01	70.80	Ramp (USFS Easement alternating sections)	
090	INC	RS	71.32	72.04	Ramp (USFS Easement alternating sections)	
090	INC	RS	73.84	74.39	Ramp	
090	INC	RS	77.88	78.48	Ramp	
090	INC	RS	79.38	79.86	Ramp	
090	INC	RS	80.08	80.68	Ramp	
090	INC	RS	82.76	82.95	Ramp	
090	INC	RS	84.22	84.63	Ramp	
090	INC	RS	85.65	86.19	Ramp	
090	INC	RS	88.76	89.50	Ramp	
090	INC	RS	93.40	94.04	Ramp	
090	INC	RS	100.88	101.48	Ramp	
090	INC	RS	105.50	106.22	Ramp	
090	INC	RS	109.47	109.92	Ramp	
090	INC	RS	110.40	111.47	Ramp	

Appendix D

Special Maintenance Areas

Table 3.0

Definitions: Locations area distinguishes between opposing sides of the highway by right shoulder (RS) and median shoulder (LS) in relation to direction of travel, indicated by increasing (INC) or decreasing (DEC) mile markers.

Descriptions: Brief explanation of special treatment required

SR	Direction	Shoulder	BEG MP	END MP	Type	Description
090	INC	RS	115.20	115.97	Ramp	
090	INC	RS	125.51	126.38	Ramp	
090	INC	RS	136.17	136.61	Ramp	
090	DEC	RS	136.46	136.10	Ramp	
090	DEC	RS	125.93	125.16	Ramp	
090	DEC	RS	115.17	114.09	Ramp	
090	DEC	RS	110.79	110.11	Ramp	
090	DEC	RS	109.80	109.46	Ramp	
090	DEC	RS	106.38	105.58	Ramp	
090	DEC	RS	101.26	100.65	Ramp	
090	DEC	RS	93.84	93.28	Ramp	
090	DEC	RS	89.45	88.84	Ramp	
090	DEC	RS	86.06	85.48	Ramp	
090	DEC	RS	84.39	84.19	Ramp	
090	DEC	RS	83.09	82.75	Ramp	
090	DEC	RS	80.58	79.32	Ramp	
090	DEC	RS	78.31	77.68	Ramp	
090	DEC	RS	74.32	73.65	Ramp	
090	DEC	RS	71.75	71.32	Ramp	
090	DEC	RS	70.60	69.77	Ramp	
090	DEC	RS	64.06	63.41	Ramp	
090	DEC	RS	63.08	62.39	Ramp	
090	DEC	RS	55.07	54.42	Ramp	
090	DEC	RS	53.21	52.35	Ramp	
090	DEC	RS	52.21	51.78	Ramp	
090	DEC	RS	48.05	47.28	Ramp	
090	DEC	RS	45.89	45.14	Ramp	
090	DEC	RS	42.70	41.77	Ramp	
090	DEC	RS	39.90	39.61	Ramp	
090	DEC	RS	37.74	37.38	Ramp	
090	DEC	RS	35.01	34.19	Ramp	
090	Both	RS	41.59	68.47	National Forest	
090	Both	RS	69.33	70.01	Lake Easton State Park	
090	Both	RS	133.49	136.35	Ginkgo Petrified Forest State Park	
090			Exit 34		Tanner Pit Site	
090			40.00		Weyerhaeuser Pit Site	
090			Exit 93		Elk Heights Stockpile Site	
090			136.40		Vantage Stockpile Site	
090			74.06		West Nelson Pit Site	

Appendix D

Special Maintenance Areas

Table 3.0

Definitions: Locations area distinguishes between opposing sides of the highway by right shoulder (RS) and median shoulder (LS) in relation to direction of travel, indicated by increasing (INC) or decreasing (DEC) mile markers.

Descriptions: Brief explanation of special treatment required

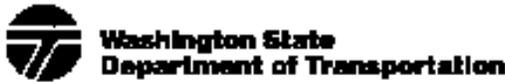
SR	Direction	Shoulder	BEG MP	END MP	Type	Description
090			103.60		Klocke Road Stockpile Site	
090			71.60		Easton Pond Stockpile Site	
090			86.30		Scott Pitt Site	
090			104.56		Mill Ditch Pit Site	
090			Exit 84		West Cle Elum Site	
090			Exit 93		Elk Heights South Pit Site	
090			100.93		Thorp I/C Pit Site	
090			106.20		Dollarway Pit Site	
090			Exit 80		Bullfrog Stockpile Site	
090			125.80		Ryegrass Storage Site	
090			117.80		Munday Rd. Quarry Site	
090			54.30		Kyake I/C Stockpile Site	
090			Exit 70		Lake Eastern Terrace	
090			90.57	92.79	Stormwater Ponds	Pond
090			122.39	122.65	Dispersion Areas	Natural Dispersion
090			125.67	125.90	Dispersion Areas	Natural Dispersion
090			129.66	129.89	Dispersion Areas	Natural Dispersion
090			129.91	130.14	Dispersion Areas	Natural Dispersion
090			131.87	132.11	Dispersion Areas	Natural Dispersion
090			131.93	132.17	Dispersion Areas	Natural Dispersion
097	INC	RS	134.01	134.25	City of Ellensburg	Maintain by city
097	INC	RS	134.70	135.10	City of Ellensburg	Maintain by city
097	DEC	RS	135.10	134.70	City of Ellensburg	Maintain by city
097	DEC	RS	134.25	134.01	City of Ellensburg	Maintain by city
097	Both		135.35	120.25	Cantilever Mntd - RR at crossing	
097			137.30		Dry Creek Stockpile Site	
097			144.65		Horse Canyon Pit Site	
821			24.64		Tjossem Pit Site	
903	INC	RS	0.81	2.69	City of Cle Elum	Maintain by city
903	INC	RS	4.67	6.24	City of Roslyn	Maintain by city
903	DEC	RS	6.24	4.67	City of Roslyn	Maintain by city
903	DEC	RS	2.69	0.81	City of Cle Elum	Maintain by city
906	Both	RS	0.00	0.83	US Forest Service	

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Descriptions: Brief explanation of special treatment required

SR	Direction	Shoulder	BEG MP	END MP	Type	Description
970	INC	RS	0.05	0.25	Ramp	
970	INC	RS	0.52	0.88	Ramp	
970	DEC	RS	0.50	0.36	Ramp	
970	DEC	RS	0.21	0.03	Ramp	
970			9.95		Lauderdale Stockpile Site	



Integrated Vegetation Management Record

Orig. Code 455110	County Kittitas	Date 4/18/2006	Vegetation Management Zone(s) <input type="checkbox"/> Zone 1 <input checked="" type="checkbox"/> Zone 2 <input type="checkbox"/> Zone 3	
Area SE I-90 MP 111 to MP 113		Location Site #7 Part 2, continued from Record # 121 RT		
Check Appropriate Boxes:				
<input type="checkbox"/> NB	<input checked="" type="checkbox"/> EB	<input checked="" 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		Sensitive Sites		
<input type="checkbox"/> Yes		<input type="checkbox"/> Aquatic		
		<input type="checkbox"/> Wetlands		
Target				
<input type="checkbox"/> Noxious Weeds		<input type="checkbox"/> Brush/Trees		<input checked="" type="checkbox"/> Other
<input type="checkbox"/> Nuisance Weeds		<input type="checkbox"/> Hazard Tree		List Target/Species: Fertilized grass stand
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 checked="" type="checkbox"/> Enhance Vegetation	<input type="checkbox"/> Slope Stabilization
				<input type="checkbox"/> Aesthetic
				<input type="checkbox"/> Other
Long term IV/M plan (Describe goals/objectives and a step-by-step approach over time)				
This was a test plot to gain information on the benefit of fertilizer on a diminishing grass stand. Our objective is to improve the existing grass stand which is sparse and weak. Applied N 60 - P 20 - K 20 , at 30 Gals. per acre. Applied fertilizer to zone 2 , 16 feet wide.				
Approximate Acres to Accomplish		2		
Activities				
		Planned date of Treatment		Actual date of Treatment
Manual	<input type="checkbox"/> Digging	<input type="checkbox"/> Pulling	<input type="checkbox"/> Planting	
	<input type="checkbox"/> Logging	<input type="checkbox"/> Staking	<input type="checkbox"/> Other	
Mechanical	<input type="checkbox"/> Aerial Saw Work	<input type="checkbox"/> Tractor Brush Cutter	<input type="checkbox"/> Mower/Chop	
	<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"/> Parasite			
Cultural	<input type="checkbox"/> Burning	<input type="checkbox"/> Grading	<input type="checkbox"/> Seeding	
	<input checked="" type="checkbox"/> Fertilizing	<input type="checkbox"/> Grazing	<input type="checkbox"/> Soil Amendment	
			<input type="checkbox"/> Other	
Chemical		Record Number		
#1 Evaluation and Date				
#2 Evaluation and Date				
#3 Evaluation and Date				

STAKEHOLDERS LIST

City of Ellensburg.....	501 N. Anderson Street Ellensburg, WA 98926 (509) 962-7230
City of Kittitas.....	PO Box 719 Kittitas, WA 98934 (509) 968-0220
City of Vantage	470 Lakeview Ave. Vantage, WA 98950 (509) 856-2333
City of Cle Elum	119 W 1 st St, Cle Elum WA 98922 (509) 674-2262
Kittitas County Noxious Weed Board	507 N. Nanum Ellensburg, WA 98926 Todd Davis (509) 962-7007
King County Noxious Weed Control Board	201 S. Jackson St. Suite 600 Seattle, WA 98104 Sean MacDougall 206-296-0290
Department of Fish and Wildlife	201 North Pearl St. Ellensburg, WA 98926 (509) 925-4467
Department of Natural Resources	713 Bowers Rd. Ellensburg, WA 98926 (509) 925-8522
US Forrest Service	803 West 2 nd St. Cle Elum WA 98922 (509) 852-1100
Burlington Northern Santa FE Railroad.....	608 West 3 rd Ave. Ellensburg, WA 98926 (509) 925-5018
Washington State Patrol.....	291 Thorp Hwy Ellensburg, WA 98926 (509) 925-5303
Kittitas County Reclamation District	315 North Water St. Ellensburg, WA 98926 (509) 925-6158
Westside Irrigation Company	8545 Hwy 97 Ellensburg, WA. 98926 John Bailey (509) 551-1736

Town Ditch.....	1300 East University Way, Ellensburg, WA 98926 (509) 925-5498
Bull Ditch.....	1360 Berry Rd. Ellensburg, WA 98926 Morrie Sorensen (509) 925-9436
Cascade Ditch	8063 Hwy 10 Ellensburg, WA 98926 (509) 962-9583
Washington State Parks (Eastern Region).....	2201 North Duncan Rd. Wenatchee, WA 98801 Tom Ernberger (509) 662-0420
Yakama Nation	4690 State Route 22, Toppenish, WA 98948 (509) 865-5121 ext. 6301