

Southwest Region, Area 3

Integrated Roadside Vegetation Management Plan

2014



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

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Summary

This plan explains the Washington State Department of Transportation's (WSDOT) policy and practice for maintenance of roadside vegetation for Maintenance Area 3 within the agency's Southwest Region. This area manages vegetation within approximately 215 miles of state highway corridor, primarily in Pacific and Wahkiakum Counties. Highways in the area are mostly rural and forested, with a number of small towns and associated semi-urban classification. All highways in the area are high in scenic quality, and tourism is a major component of the local economy. A map of the area is included as **Figure 1** on the following page.

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

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

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

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

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

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

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

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SW Region, Area 3 Map
Figure 1

Roadside Management Considerations

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

Visual Quality

It is also important to maintain appropriate visual standards in the appearance of the roadside. This is particularly important in Area 3, with much of the local economy dependent on the tourist industry. All maintenance activities will be conducted in a way that minimizes visual impacts such as wide spread “brown-out” from herbicides or shattered limbs from side trimming. Roadside should look as natural as possible throughout the year. Appropriate visual quality for roadsides throughout the state is defined in the WSDOT Roadside Classification Plan (November 2011) <http://www.wsdot.wa.gov/Publications/Manuals/fulltext/M25-31/RCP.pdf>

Operational Zones

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

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

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

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

Roadside Maintenance Activities

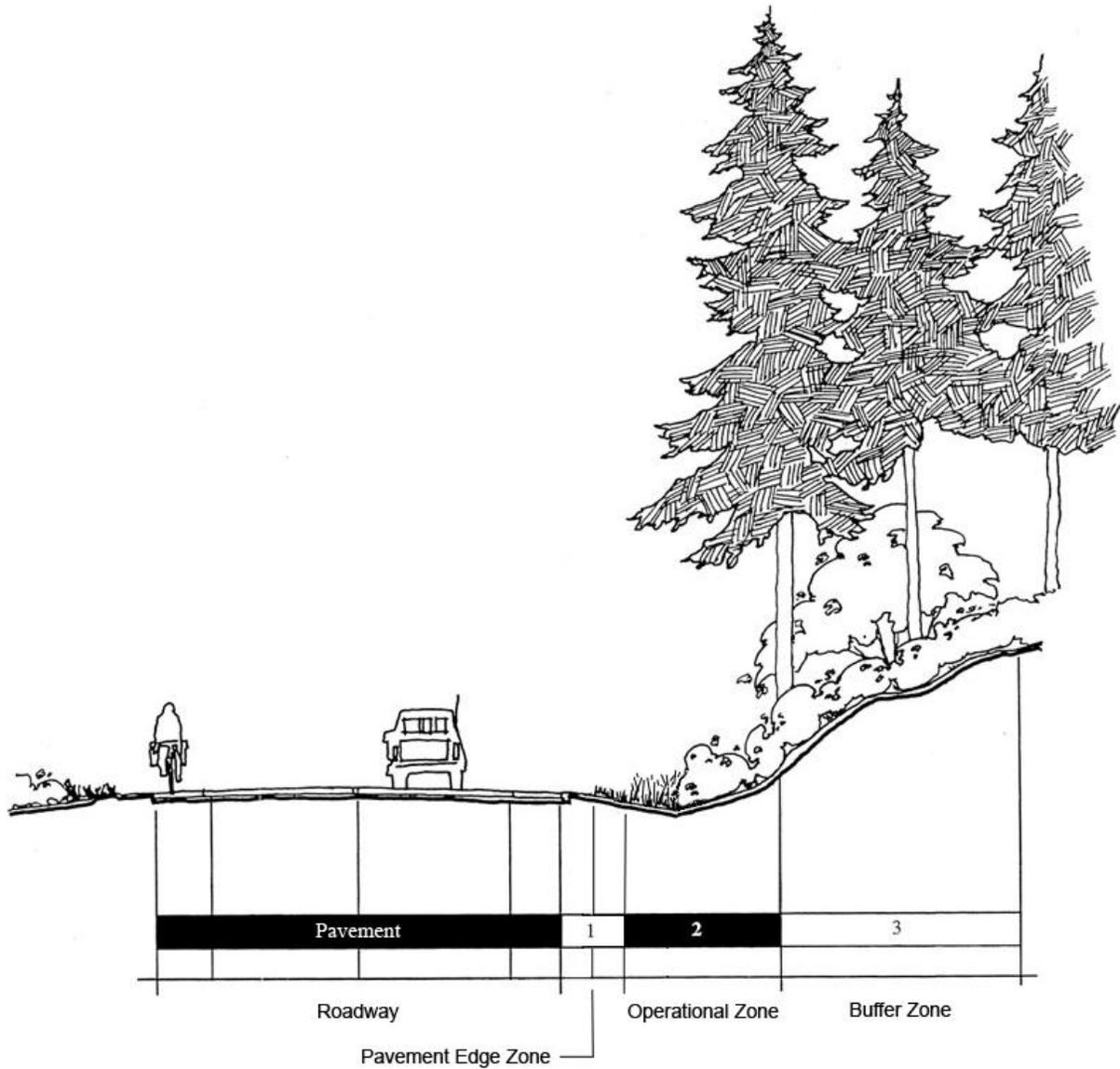
All roadside maintenance activities are to be planned and conducted in a way that discourages or eliminates unwanted vegetation and promotes desirable vegetation. This is the basic premise of Integrated Vegetation Management. In every case it is essential that the results of maintenance activities are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

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

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

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

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



Pavement Edge Zone

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

Operational Zone

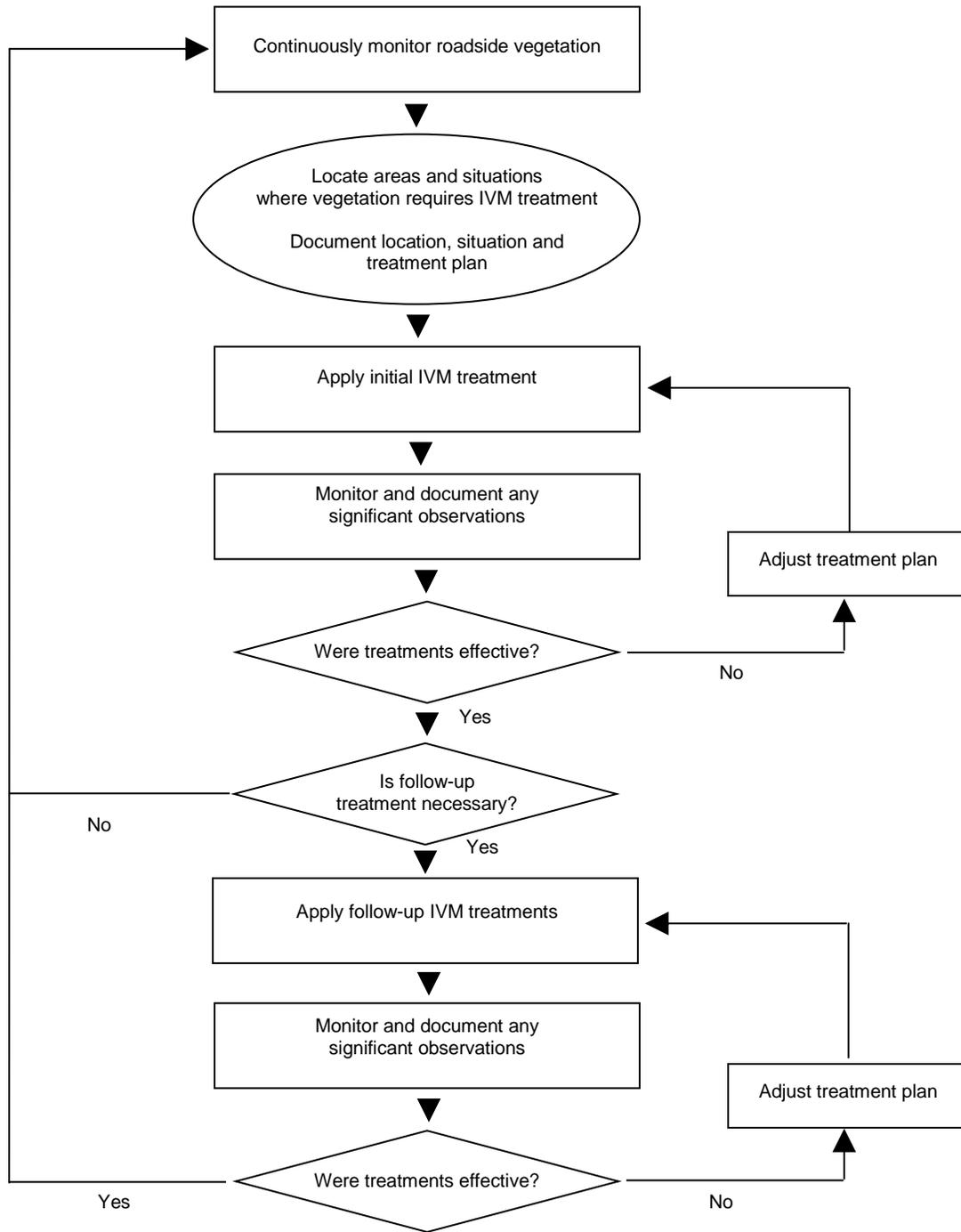
No Vegetation with Stem Diameter Greater than 4"
 Maintained using IVM techniques for sign visibility, sight distance, errant vehicle recovery and weed control.

Buffer Zone

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

Typical Roadside Vegetation Management Zones

Figure 2



The IVM Decision-Making Process

Figure 3

Area IVM Work Plan 2014

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

Control of Vegetative Obstructions

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

Pavement Edge Maintenance/Zone 1

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- On US101 from MP 28.9 to MP 67.1 A zone 1 application of Ranger Pro, Insist, Landmark XP and Milestone DM will be sprayed at a 3' width.
- On SR6 from MP 0 to MP 29.8 and SR105 from MP 0 to MP 25.7 will receive a Glyphosate only application, twice a year. Once during early spring and then again in late summer. The two methods will be evaluated after the season.
- Application widths will be widened out where necessary around guardrail ends and traffic pull-outs.
- Herbicide products and rates are described in the prescription for Bareground Treatment in **Appendix A**.
- All roadsides will also be mowed one time, one mowing pass starting in mid-June, widening out where necessary to address traffic and sign visibility locations.
- In all areas where zone 1 is treated, a one pass mowing will occur prior to treatment

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- SR 4 - 3' wide spray width in all of zone 1 including guardrail and structures from MP 0-50.36
- SR 401 – 3' wide spray width in all of zone 1 including guardrail and structures from MP 0-12.13
- SR 100 – 3' wide spray width in all of zone 1 including guardrail and structures from MP 0.23-4.02
- SR 101 – 3' wide spray width in all of zone 1 including guardrail and structures from MP 0.5-3.86, 5.48-10.96, 12.25-12.88, 13.42-28.89
- SR 103 – 12" wide spray width in all of zone 1 including guardrail and structures from MP 3-10.6 and 11.86-19.9
- SR 409 – 12" wide spray width(6" on pavement, 6" in zone 1)
- Single pass mowing on SR 4 except for intersections and areas with sight distance problems. SR 409 will received a single pass mowing 3 times a year

Tree and Brush Control/Zone 2

- Area 3 will use a combination of selective mowing and selective herbicide treatments to prevent trees and unwanted brush species from establishing in Zone 2. Mowing beyond one pass will only be conducted as needed when part of a multi-year IVM approach to control unwanted trees and brush.
- Occasional selective spot treatment of seedling trees and brush with herbicides will occur in conjunction with weed control throughout the spring and summer.
- Larger trees and brush and encroaching branches will be controlled with mechanical cutting and/or herbicide treatments in mid to late fall.
- Tree trimming with a man lift will occur on SR6 between MP 21.9 and 22.1 and between 27.4 and 29.4.
- Danger trees will be removed as soon as they are identified
- Small trees in Zone 2 with a slope will be hand cut on US 101 between MP 45 - MP 47, and MP 48 – 49.1, SR 105 between MP 7.6 – MP 7.8 and between MP 12.7 – MP 12.8.
- On a two year rotation, small Alders, Conifers and Blackberry will be removed using a brush mower.

Noxious Weed Control

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

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- US 101: MP 31 NB Gorse, 32.8 NB Tansy, 35 SB Scotch broom, 37.7 NB & SB Knotweed & Scotch broom, 39.6 SB Scotch broom, 46.9 SB Scotch broom, 52.5 SB Scotch broom & Gorse, 53.5 SB Gorse, 55.5 SB Purple Loosestrife, 55.6 NB & SB Scotch broom, 56.8 SB Knotweed, 57.7-57.8 NB Knotweed, 58-59 Knotweed & Scotch broom, 59-60 NB & SB Scotch broom, 62-63.1 NB & SB Scotch broom, 65.2 SB Knotweed, 66.5-67.2 NB & SB Scotch broom
- SR 6: MP 1.7 WB Knotweed, 2.2 WB Knotweed, 2.6 WB Scotch broom, 3.7 WB Scotch broom, 6.4 WB & EB Knotweed, 14.3 WB Scotch broom, 16.2 WB Scotch broom, 16.6 WB & EB Scotch broom, 18-18.1 EB Scotch broom, 18.5 EB Scotch broom, 24.4 EB Knapweed, 25.4 WB Teasel, 26 WB Teasel, 26.3 EB Knapweed, 26.9-27.7 WB & EB Wild Chervil.
- SR 105: MP 0 NB Scotch broom, 0.8 SB Scotch broom, 1-1.1 SB Scotch broom, 1.2-1.4 NB Scotch broom & Knotweed, 1.6 SB Knotweed, 5.5 NB Scotch broom, 8.7-9.4 SB Scotch broom & Knotweed, 10-10.3 SB Scotch broom, 10.9 SB Knotweed, 11-11.5 SB Knotweed & Scotch broom, 12.5-12.6 NB Scotch broom, 13.3 NB Scotch broom, 14.9-17.5 NB & SB Scotch broom, 19.1 NB Gorse, 19.6-20 NB & SB Gorse & Knotweed, 20.2-21 NB & SB Scotch broom & Knotweed, 21.2 NB & SB Scotch broom, 22-25 NB & SB Scotch broom, Gorse & Knapweed.

Nuisance Vegetation Control

Nuisance vegetation control includes control/management of weed species that are recommended but not mandated by state and/or county law. It also includes work such as mowing of grass and weeds in areas where a more neatly maintained appearance is desired such as in gateway interchanges or highways in urbanized

areas. Because nuisance vegetation control is lower priority after safety related and legally mandated activities, the location and work actions listed below may be postponed depending on availability of resources. For 2014, the overall approach to control of nuisance vegetation, and locations where focused efforts will be applied if time and resources allow include:

- The only nuisance vegetation control in this area will be occasional incidental treatment of non-county designated noxious weed species when spot treating for tansy ragwort, knotweed, broom and gorse during the course of those operations.

Southwest Region, Area 3 – Roadside Vegetation Management Plan

1. ROUTINE MAINTENANCE ACTIVITIES

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

1.1. Bare Ground Shoulder Maintenance (Zone 1)

In some locations/situations it is most efficient and effective to maintain a vegetation free band of shoulder rock along the edge of pavement. In most cases this is achieved through the annual application of herbicides. Annual herbicide applications are required where a vegetation-free condition is specified.

1.1.1. Guidelines

- A vegetation-free Zone 1 is maintained with the annual application of herbicides only under guardrail installations, in designated sections along the bay or the river, where large rip rap has been installed directly adjacent to the edge of pavement to armor against wave erosion, and in other select locations as designated, where needed to facilitate surface runoff of stormwater.
- Where maintained, the vegetation-free is 3' band width or less.

1.1.2 Methods

- Herbicide being applied to Zone 1 will consist of a non-selective, post emergent product (glyphosate) and a soil residual pre-emergent product (mixture of sulfometuron-methyl and chlorsulfuron).
- Zone 1 treatments will typically be applied in May or first part of June, depending on the annual pattern of rainfall and plant growth.
- Pavement edge zones may be treated with selective broadleaf herbicides, as necessary in July and August to control pavement damaging weeds such as horsetail and prolific infestations of noxious and/or nuisance weeds in former Zone 1 areas.
- Pavement edges will be monitored for surface drainage problems resulting from sod build-up and will be graded in select locations as necessary to allow for hydraulic flow of storm water off the roadway surface.
- Treatment prescriptions are listed in **Appendix A, Zone 1 Maintenance – Bare Ground Treatment**

1.1.3 Locations

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

1.2. Mowing/Trimming (Zone 2)

- Regular mowing cycles are required in most locations where a vegetation-free Zone 1 is not maintained and grass is established up to the edge of pavement. Even in some locations where a vegetation-free Zone 1 is maintained, seasonal grass growth near the road edge is tall enough to interfere with traffic operations and

safety. In addition, some locations, particularly on secondary highways with narrow rights-of-way, regular periodic side trimming is required to prevent growth of shrubs/brush or side branches on trees from interfering with traffic operations and safety.

1.2.1.Guidelines

- All shoulder sections throughout the area without guardrail will be routinely mowed as necessary to preserve sight distance, visibility of highway delineators, and to prevent vegetation encroachment onto paved shoulders.
- Mowing cycles typically repeat twice per year with one pass adjacent to the edge of pavement. If a ditch line is present, the mowing pass will only extend to the bottom of the ditch.
- Intersections, curves and driveway approaches may be mowed earlier and more often if necessary to maintain traffic sight distance. Some of these locations may also be mowed wider than one pass if necessary to maintain adequate sight distance.
- Trimming of encroaching brush with side-arm mowers will also be done routinely, but only where and when necessary to preserve sight distance and to keep guardrail and signs exposed. Care will be taken when trimming with side arm mowers to avoid leaving shattered branch ends or bare disturbed soils.

1.2.2.Methods

- Depending on weather pattern and corresponding vegetation growth, the first mowing cycle will typically start in late April or the first of May, beginning with low-lying and wet areas near the coast.
- Again, depending on weather and plant growth, the second mowing cycle typically takes place beginning in mid-June and extends through July.
- See **Appendix A, Routine Maintenance Prescriptions, Zone 2 Maintenance**

1.3. Hazard Tree Monitoring and Removal (Zone 3)

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

1.3.1. Guidelines

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

surface. When such areas are identified, the surrounding canopy may be thinned through selective removal of large trees on the right-of-way.

1.3.2. Methods

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

2. INTEGRATED VEGETATION MANAGEMENT ACTIVITIES

All roadside vegetation maintenance activities technically fall under IVM. IVM is a coordinated decision making process that uses the most appropriate vegetation management methods and strategy, along with a monitoring and evaluation system, to achieve long-term roadside maintenance goals and objectives in an environmentally and economically sound manner. Even routine activities should be evaluated for effectiveness and refined whenever possible to reduce annual maintenance requirements. However, for the following activities the ultimate goal is to eliminate and prevent the future growth of unwanted plants, and to promote and enhance desirable vegetation. Activities are planned and carried out using the decision making process diagrammed in **Figure 3** on page 6. The goal in utilizing the IVM approach is the establishment of stable, low maintenance native or naturalized plant communities on the roadside that are compatible with:

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

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

2.1. Integrated Vegetation Management Planning and Tracking Database

2.1.1.Guidelines

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

2.2. Noxious Weed Control

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

2.2.1.Guidelines

- Noxious weed control is a high priority for WSDOT because of state law requiring control of designated species. Transportation rights-of-way are high priority locations for control of noxious weed species within the state because they cross and link so many adjacent properties and land uses.

- Whenever possible designated noxious weed species and infestations locations will be documented and treated following plans as defined by IVM record forms in the database.
- Washington State Law classifies noxious weeds in three classes: A, B, and C. All Class A species are required control wherever they occur statewide. The law allows for individual county weed boards to designate individual Class B and C weeds for control within the counties depending on how widespread and potentially harmful they are at the local level.
- For SW Region, Area 3 the following weeds designated for control are known to exist on state highway rights-of-way in Pacific and Wahkiakum Counties. The two short sections of highway in the area that extend into Lewis and Cowlitz Counties will be considered to have the same list.

Class A

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

Class B

Class B weeds are more widespread than Class A, with control mandated by law only if infestations are generally limited and the species are designated within the individual counties by the County Noxious Weed Control Boards. For SW Region, Area 3 the same weed list applies to all counties and consists of the following designated species which are known to exist on WSDOT right-of-way in this area:

Common Name/Botanical Name
Gorse/ <i>Ulex europaeus</i>
Knotweed sp./ <i>Polygonum sp.</i>
Ragwort tansy/ <i>Senecio jacobaea</i>

Other designated Class B species are known to occur occasionally on the highway rights-of-way, or are present in ongoing infestations adjacent to the right-of-way. Area maintenance personnel will work with the county weed boards to continually monitor the roadside for new infestations and whenever possible, remove any designated species before they go to seed.

Class C

Class C noxious weeds are widely established throughout Washington or may impact the agricultural industry. All Class C noxious weeds on state right-of-way in Pacific and Wahkiakum Counties in SW Region, Area 3 are managed as nuisance weeds and described in **Section 2.3**.

2.2.2. Methods

- Because noxious weed species are often difficult to control, herbicides treatments are often the primary, initial means of control. Timing of applications is critical to maximize the effectiveness of herbicide treatments.
- If infestations are limited to a few plants, hand pulling is also effective when the entire root system is also removed. Maintenance employees are encouraged to be aware of and look for new noxious

weed occurrences, and to stop and pull these plants whenever possible.

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

2.2.3. Locations

- Priority locations for control of designated noxious weed species in SW Region, area 3 can be found using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

2.3. Nuisance Weed Control

2.3.1. Guidelines

- For the purposes of this plan, nuisance weed species are defined as species listed as Class B and C weeds on the state noxious weed lists, but not required for control within individual counties.
- Nuisance weed control, while not required by state law, provides many positive benefits to the overall condition of the roadside, enhances ecological function by maintaining and enhancing native plant communities, reduces the potential for continuing spread of weed infestations, and enhances visual quality.
- Nuisance weed species will be controlled when time and budget allows.
- Priority will be given to locations with the highest chance for success including relatively new infestations and where there is potential for infestations to spread to un-infested areas of the right-of-way or to un-infested neighboring properties.
- Species designated as nuisance weeds in SW Region, Area 3 that are known to exist on the highway right-of-way include:

Common Name/Botanical Name
Bull thistle/ <i>Cirsium vulgare</i>
Canada thistle/ <i>Cirsium arvense</i>
Common Mullein/ <i>Verbascum thapsus</i>
Common tansy/ <i>Tanacetum vulgare</i>
Himalayan blackberry/ <i>Rubus discolor</i>
Poison hemlock/ <i>Conium maculatum</i>
Scotch broom/ <i>Cytisus scoparius</i>
St. Johnswort/ <i>Hypericum perforatum</i>
Wild chervil/ <i>Anthriscus sylvestris</i>

2.3.2. Methods

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

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

2.3.3. Locations

- Reoccurring nuisance weed infestations occur in SW Region, Area 3 have not been mapped. Any locations targeted for nuisance weed control will be documented with an IVM Treatment Record.

2.4. Tree and Brush Control

2.4.1. Guidelines

- Trees and brush are controlled for safety reasons including preservation of sight distance at curves and intersections, and for visibility of signs, and preventing trees with large trunk diameter from growing too close to traffic lanes.
- Native large shrub and small tree species should be allowed to grow and mature in Zone 2 and selectively trimmed if they begin to encroach on site distance or other traffic operational requirements.
- Large coniferous or hardwood deciduous tree species such as Douglas fir, big leaf maple, alder, or cottonwood left to grow in Zone 2 and in some cases parts of Zone 3, can reach substantial size over a relatively short period of time and should be removed when young.
- Any tree with a trunk diameter of 4" or greater is considered a hazard for errant vehicles in Zone 2 and should be removed. This zone is also referred to as the Design Clear Zone and is typically maintained to a width of 30' from the traffic lane edge. Actual minimum widths are determined by roadway alignment, traffic speed and volume, and cross-section of the roadside, as specified in the WSDOT Design Manual, Chapter 700.04.
<http://www.wsdot.wa.gov/Publications/Manuals/M22-01.htm>

2.4.2. Methods

- Removal of undesirable tree and brush species, or encroaching tree branches is typically accomplished by hand cutting, hand pulling, properly timed selective mowing or trimming, properly timed herbicide applications, or combinations thereof.
- Timing of activities has a significant effect on how the vegetation grows back. Herbicide applications made by hand, directly to the cut surfaces of unwanted plants may be used to reduce or eliminate grow back.
- Care will be taken to make control operations look as natural as possible. Operations will be planned and executed to avoid leaving bare disturbed soil, shattered branch ends, and/or widespread brown/dead vegetation from herbicide treatments.

- Chemical control methods will not be used on conifers greater than 2 feet in height and/or large dense patches of young trees, to avoid negative visual impacts from “brown-out”.
- Chemical control methods will not be used on deciduous plants until after the first of September, except for stump treatments in conjunction with mechanical cutting to eliminate grow-back.
- In some cases when tree and brush species are cut by hand, the debris can be fed through a chipper and placed back on the roadside in the form of mulch for soil enhancement and weed prevention.
- In some locations it is most effective to mow back the majority of the existing vegetation and then selectively treat undesirable re-growth with herbicides in succeeding years, allowing desirable vegetation to grow up and form a competitive cover.
- When possible, safe and practical, seedling of desirable trees may be dug or pulled by hand and transplanted to areas where there growth will be beneficial and appropriate. Agreements may be signed to allow private citizens to collect seedlings for use as transplants.
- See **Appendix A, IVM Prescriptions, Tree and Brush Control.**

3. SPECIAL MAINTENANCE AREAS

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

3.1. City Maintenance Areas

3.1.1.Guidelines

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

3.1.2.Locations

- Areas where roadsides are maintained by cities can be referenced using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.2. Herbicide Sensitive Areas

3.2.1.Guidelines

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

3.2.2.Locations

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

3.3. Adopt-a-Highway and Neighbor Maintained Agreements

3.3.1.Guidelines

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

3.3.2.Locations

- Areas with existing agreements for others to maintain a portion of the roadside, along with notes describing arrangements for each location can be referenced using a web base map viewer application at: [IVM Map Viewer](#)

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- Negotiations are ongoing for a site at the entrance to the town of Seaview, but currently no agreement is in place.

3.4. Wetland Mitigation Sites

3.4.1.Guidelines

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

3.4.2.Locations

- All wetland mitigation sites within SW Region, Area 3 along with notes describing dates constructed and permit requirements for each location can be referenced using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.5. Protected Terrestrial Species

3.5.1.Guidelines

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

3.5.2.Locations

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

3.6. Railroad Crossings

3.6.1.Guidelines

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

3.6.2.Locations

- Locations of all railroad crossing in SW Region, Area 3 can be referenced using a web base map viewer application at: [IVM Map Viewer](#) Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.7. IVM Treatment Sites

3.7.1.Guidelines

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

3.7.2.Locations

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

Zone 1 Maintenance - Bareground Treatment

	OPTION 1	OPTION 2		
TREATMENT TYPE:	Pavement Edge	Pavement Edge		
MANAGEMENT GOALS:	Vegetation free	Vegetation free		
METHOD:	Annual herbicide application	Annual herbicide application		
EQUIPMENT:	Spray truck w/ boom mounted nozzles	Spray truck w/ boom mounted nozzles		
MATERIALS:	Milestone 6 ozl./acre + Landmark 8 ozd./acre + Ranger Pro 64 ozl./acre + Insist 90 16ozl./acre	Ranger Pro 64 ozl./acre + Insist 90 16 ozl./acre		
TIMING:	Spring	Spring time for SR 103 & 409		
IVM FOLLOW-UP:	Evaluate control	Evaluate control		
REMARKS:	Typically applied in a 2 to 3 ft. band.			

Zone 2 Maintenance - Tree and Brush

	OPTION 1	OPTION 2		
TREATMENT TYPE:	Deciduous tree and brush	Tree and brush		
MANAGEMENT GOALS:	Control vegetation obstruction	Control vegetation obstruction		
METHOD:	Herbicide treatment	Herbicide treatment		
EQUIPMENT:	Spray truck w/ boom mounted nozzles	Spray truck w/ boom mounted nozzles		
MATERIALS:	Krenite S 320ozl. / acre + Syl-Tac 16 oz. / acre	Element 3A 128ozl./acre + Metcel 2ozd. / acre + Syl-Tac 16 ozl. / acre		
TIMING:	Late summer before leaf turn	Late summer to early fall		
IVM FOLLOW-UP:	Evaluate control	Evaluate control		
REMARKS:	Avoid brown out by spraying late in the season and spray only to appropriate height.			

Noxious and Nuisance Weed Control - General

OPTION 1

TREATMENT TYPE:	Chemical application			
ACTION THRESHOLD:	As soon as plant appears			
MANAGEMENT GOALS:	Eradication and control of listed noxious weeds.			
METHOD:	Spot treatment w/ herbicide.			
EQUIPMENT:	Handgun			
MATERIALS:	Capstone 144 oz. / acre StylTac 16 oz. / acre			
TIMING:	Growing season			
IVM FOLLOW-UP:	Reapply as necessary			
REMARKS:				

Appendix B

Herbicide Guidelines

Herbicides Approved for Use on WSDOT Rights of Way

When making herbicide applications:

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

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

Appendix B

Herbicide Guidelines

Herbicides Approved for Use on WSDOT Rights of Way

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

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

Appendix B

Herbicide Guidelines

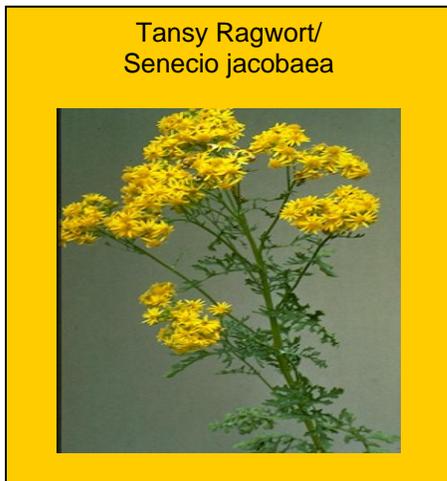
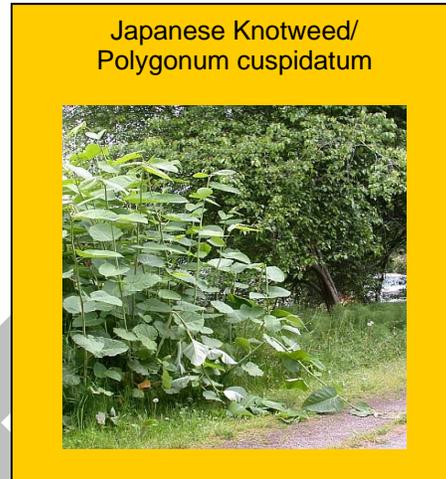
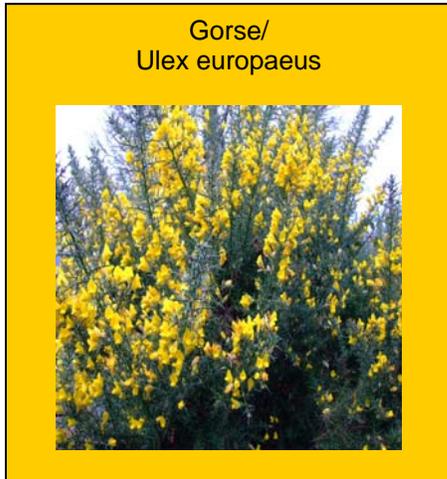
Herbicides Approved for Use on WSDOT Rights of Way

When making herbicide applications:

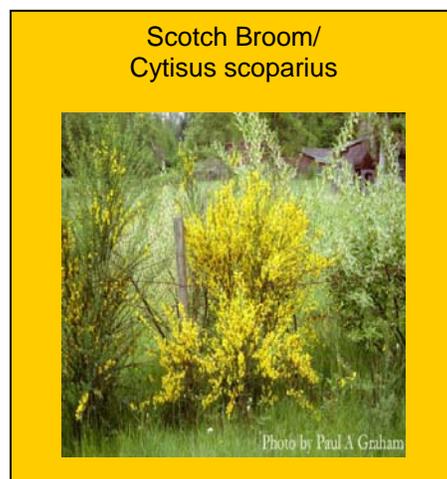
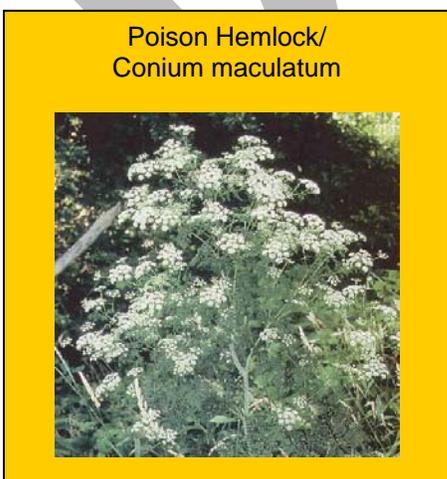
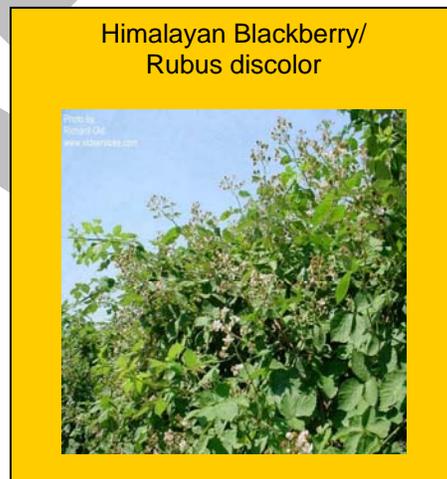
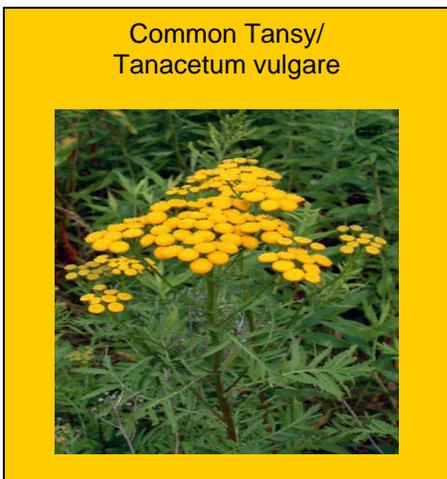
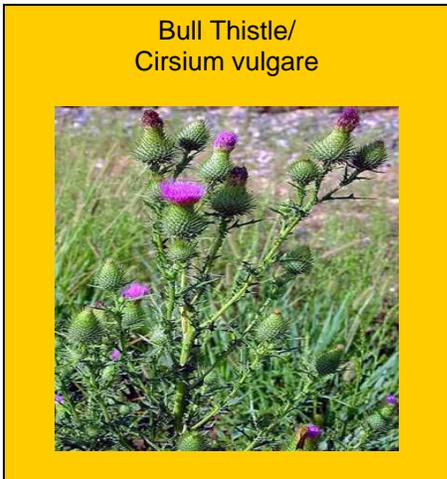
1. Always read and follow product labels
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Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/ Recommendations	WSDOT Restrictions	Cautions
Pyraflufen	Edict Edict 2SC	Cell membrane disrupter - PPO inhibitor (14)	Noxious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

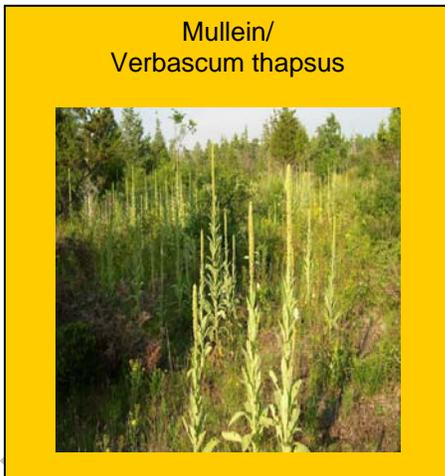
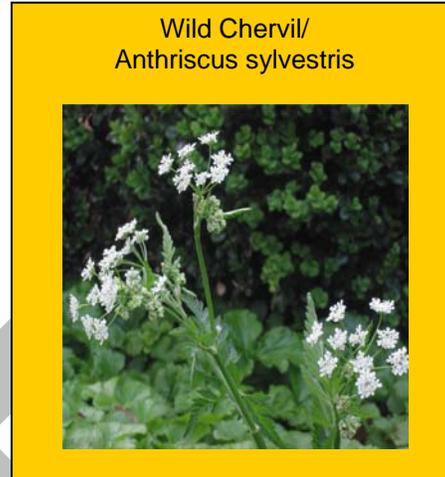
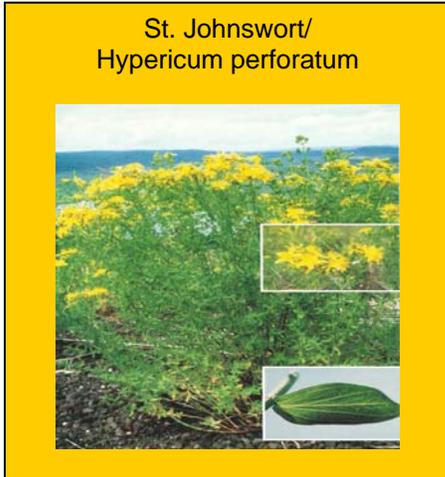
Designated for control in SW area 3:
(Pacific, Lewis, and Wahkiakum County)



Nuisance weeds in SW area 3:
(Pacific, Lewis, and Wahkiakum County)



Nuisance weeds in SW area 3:
(Pacific, Lewis, and Wahkiakum County)





Integrated Vegetation Management Record

Proj. Code	County	Date 6/13/2007	Vegetation Management Zone(s) <input type="checkbox"/> Zone 1 <input type="checkbox"/> Zone 2 <input type="checkbox"/> Zone 3	
Area SR _____ MP _____ to MP _____		Location _____		
Class Appropriate Items:				
<input type="checkbox"/> NB	<input type="checkbox"/> EB	<input type="checkbox"/> Roadside	<input type="checkbox"/> Landscaped Area	<input type="checkbox"/> Interchange
<input type="checkbox"/> SB	<input type="checkbox"/> WB	<input type="checkbox"/> Shoulder	<input type="checkbox"/> Rest Area	<input type="checkbox"/> Bridge
		<input type="checkbox"/> Median	<input type="checkbox"/> Park-n-Ride	<input type="checkbox"/> Ramp
			<input type="checkbox"/> Mitigation Site	<input type="checkbox"/> Stormwater
			<input type="checkbox"/> Yard/Stockpile	<input type="checkbox"/> Third Party Damage
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Aquatic
				<input type="checkbox"/> Wetlands
Target: <input type="checkbox"/> Noxious Weeds <input type="checkbox"/> Brush/Trees <input type="checkbox"/> Other _____				
<input type="checkbox"/> Nuisance Weeds <input type="checkbox"/> Hazard Tree				
List Target/Species: _____				
Reason for Action:				
<input type="checkbox"/> Noxious Weeds	<input type="checkbox"/> Nuisance Weeds	<input type="checkbox"/> Fire Prevention	<input type="checkbox"/> Restore Native Veg.	<input type="checkbox"/> Zone 1 Pilot
<input type="checkbox"/> Site Distance	<input type="checkbox"/> Hazard Vegetation	<input type="checkbox"/> Customer Request	<input type="checkbox"/> Enhance Vegetation	<input type="checkbox"/> Slope Stabilization
				<input type="checkbox"/> Aesthetic
				<input type="checkbox"/> Other _____
Long term IVM plan (Describe goals/objectives and a step-by-step approach over time)				
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Approximate Acres to Accomplish _____				
Activities				
			Planned date of Treatment	Actual date of Treatment
Manual	<input type="checkbox"/> Digging	<input type="checkbox"/> Pulling	<input type="checkbox"/> Planting	
	<input type="checkbox"/> Logging	<input type="checkbox"/> Sealing	<input type="checkbox"/> Other _____	
Mechanical	<input type="checkbox"/> Aerial Saw Work	<input type="checkbox"/> Tractor Brush Cutter	<input type="checkbox"/> Mower/Churn	
	<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		
	<input type="checkbox"/> Parasite	Type/Species _____		
Cultural	<input type="checkbox"/> Burning	<input type="checkbox"/> Grading	<input type="checkbox"/> Seeding	
	<input type="checkbox"/> Fertilizing	<input type="checkbox"/> Grading	<input type="checkbox"/> Soil Amendment	<input type="checkbox"/> Other _____
Chemical	_____	Record Number		
#1 Evaluation and Date				
<div style="border: 1px solid black; padding: 5px;"> <div style="float: right; text-align: right;">▲</div> <div style="clear: both;"></div> <div style="float: right; text-align: right;">▼</div> </div>				
#2 Evaluation and Date				
<div style="border: 1px solid black; padding: 5px;"> <div style="float: right; text-align: right;">▲</div> <div style="clear: both;"></div> <div style="float: right; text-align: right;">▼</div> </div>				
#3 Evaluation and Date				
<div style="border: 1px solid black; padding: 5px;"> <div style="float: right; text-align: right;">▲</div> <div style="clear: both;"></div> <div style="float: right; text-align: right;">▼</div> </div>				

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

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

Appendix E

IVM Stakeholders List

Entity	Mailing Address	Contact Person	Title	Phone	E-Mail
Pacific County Vegetation Management	P.O. Box 88 South Bend, WA 98586	Jeff Nesbitt	Coordinator	(360) 875-9425	jnesbitt@co.pacific.wa.us
Wahkiakum County Noxious Weed Board	25 River St. Cathlamet, WA 98612			(360) 795-3852	heathenl@co.wahkiakum
Lewis County Noxious Weed Board	351 NW North St. Chehalis, WA 98532-1900	Bill Wamsley	Coordinator	(360) 740-1215 Fax: (360) 740-2792	wamsleyb@wsu.edu
Cowlitz County Noxious Weed Board	207 4th Ave. N #101 Kelso, WA 98626	Angelica Velazuez	Coordinator	(360) 577-3117 Fax:(360) 425-7760	velazqueza@co.cowlitz.wa.us
City of Raymond	300 First St. Raymond, WA 98577	M. Dean Parsons	Public Works Director	(360) 942-4107	deanparsons@willapabay.org
City of South Bend	P.O. Box 9 South Bend, WA 98586-0009	Steve Russell	Public Works Engineer	(360) 875-5571	sbcity@techline.com
City of Long Beach	115 Bolstad Ave. West Long Beach, WA 98631	Mike Kitzman	Parks Supervisor	(360) 642-4421 Fax: (360) 642-8841	parks@longbeachwa.gov
City of Cathlamet	100 Maint St. Cathlamet, WA 98612	Duncan Cruickshank	Public Works Superintendent	(360) 795-8032 Fax: (360) 795-8500	duncan@townofcathlamet.com
City of Ilwaco	P.O. Box 548 Ilwaco, WA 98624			(360) 642-3145 Fax: (360) 642-3155	info@ilwacowashington.com
Willapa National Wildlife Refuge	3888 State Route 101 Ilwaco, Wa 98612-9707	Charlie S.		(360) 484-3482	charlie_stenvall@fws.gov
Julia Butler Hansen National Wildlife Refuge	P.O. Box 566 Cathlamet, WA 98612			(360) 795-3915	
Shoalwater Indian Tribe	2373 Tokeland Rd. Tokeland, WA 98590			1-800-633-5218	webmaster@shaowaterbay-nsn.gov