

Olympic 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) Guidelines for maintenance of roadside vegetation for Maintenance Area 3 within the agency's Olympic Region. This area manages vegetation within approximately 260 miles of state highway corridor, in Clallam and Jefferson Counties. The area includes some of the most scenic highways in the state. State Route (SR) 112 is designated as National Scenic Byway. The northernmost loop of United States (US) 101 through Jefferson and Clallam Counties travels through two sections of the Olympic National Park. Major cities within the area boundaries include Port Angeles/Sequim, Port Townsend, and Forks. 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 practices along with locations for planned routine maintenance practices, high-priority noxious 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

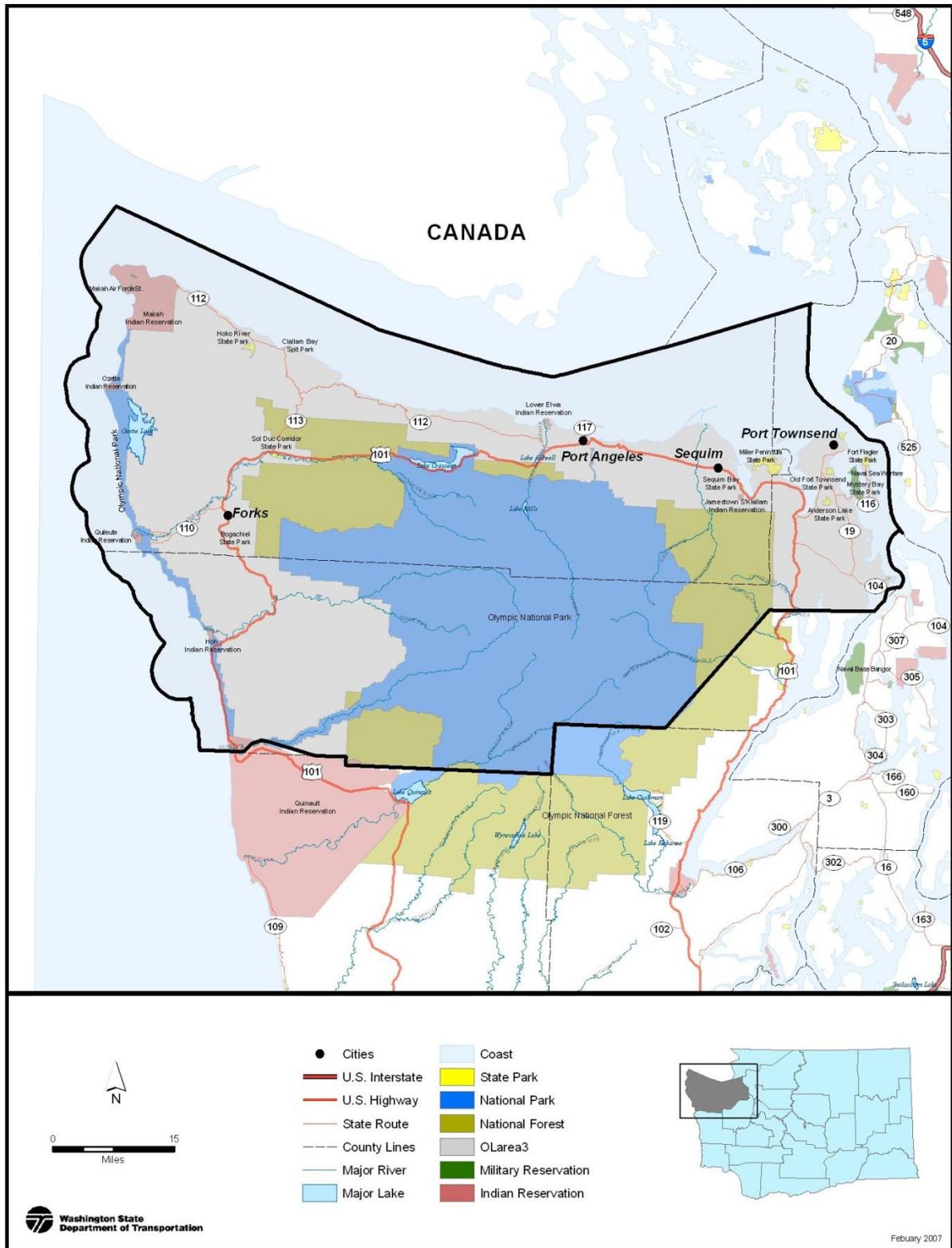
This plan is organized around the major categories of roadside vegetation maintenance work. The major categories include: Zone 1 (or pavement edge maintenance), Routine Mowing, Noxious Weed Control, Nuisance Weed Control, Tree and Brush Control, and Special Maintenance Areas.

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 Steve Russell or Ray Willard at the numbers listed below for questions or comments:

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Olympic 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.

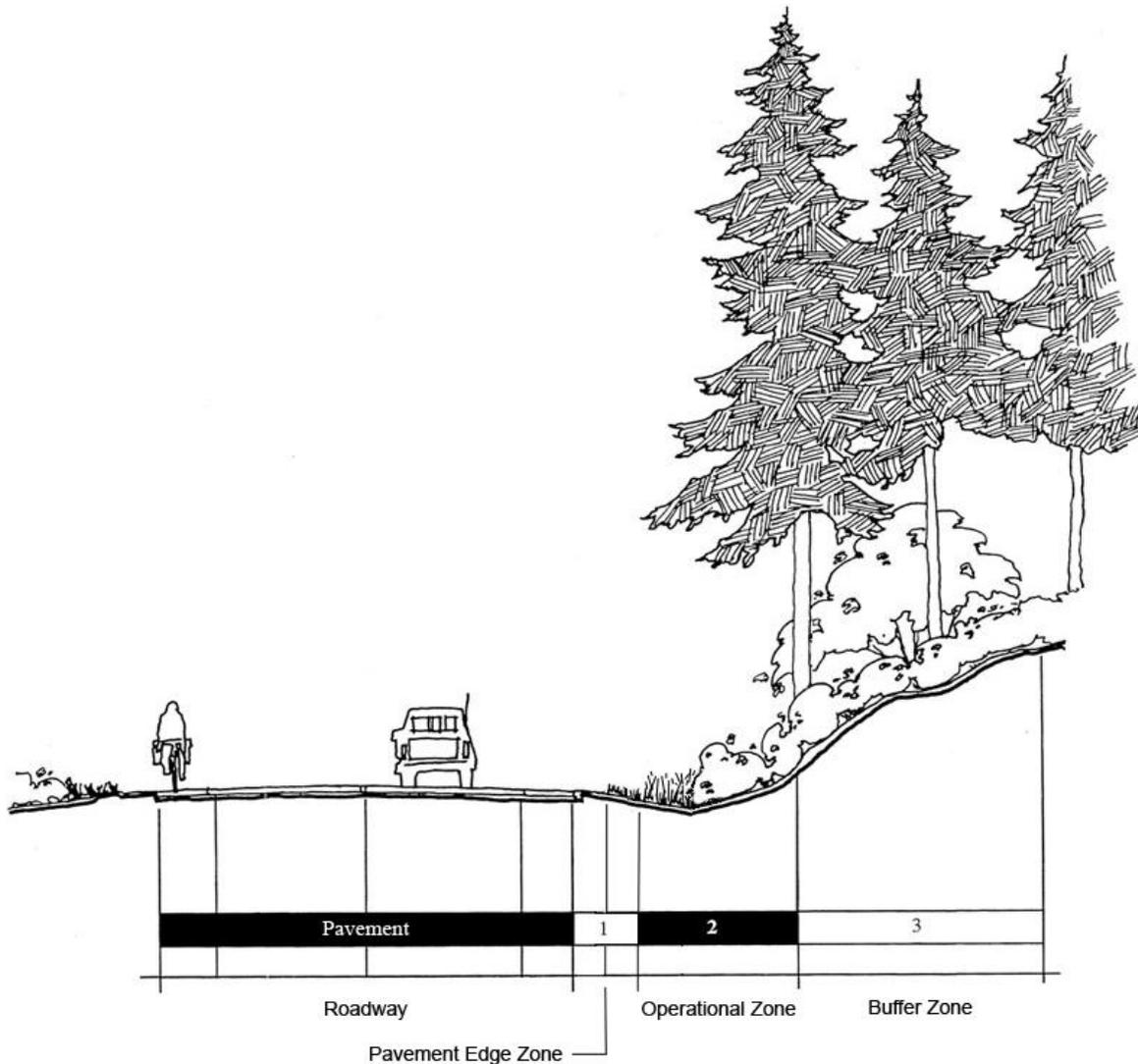
Routine Maintenance Activities – When vegetation maintenance activities are required to keep the area of roadside being treated in an annually controlled condition, activities are considered routine. This is more critical for areas of vegetated roadside near the travel lanes, edge of pavement, and around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

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

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

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

For all planned herbicide applications made on US Forest Service land WSDOT will submit a Pesticide Use Proposal Form (see Appendix D) to the Forest Service R6 Pesticide Use Coordinator at the start of each season, or at least one week prior to any scheduled application. At the end of each season the WSDOT HQ Maintenance Office will submit a report outlining herbicide use performed for highway sections in each National Forest.



Pavement Edge Zone

Low Growing or Routinely Mowed Vegetation and/or Vegetation-Free Strip

Maintained using mechanical and/or chemical methods for sight distance, stormwater drainage and filtration, noxious weed control, pavement preservation and roadside hardware maintenance.

Operational Zone

No Vegetation with Stem Diameter Greater than 4"

Maintained using IVM techniques for sign visibility, sight distance, errant vehicle recovery and weed control.

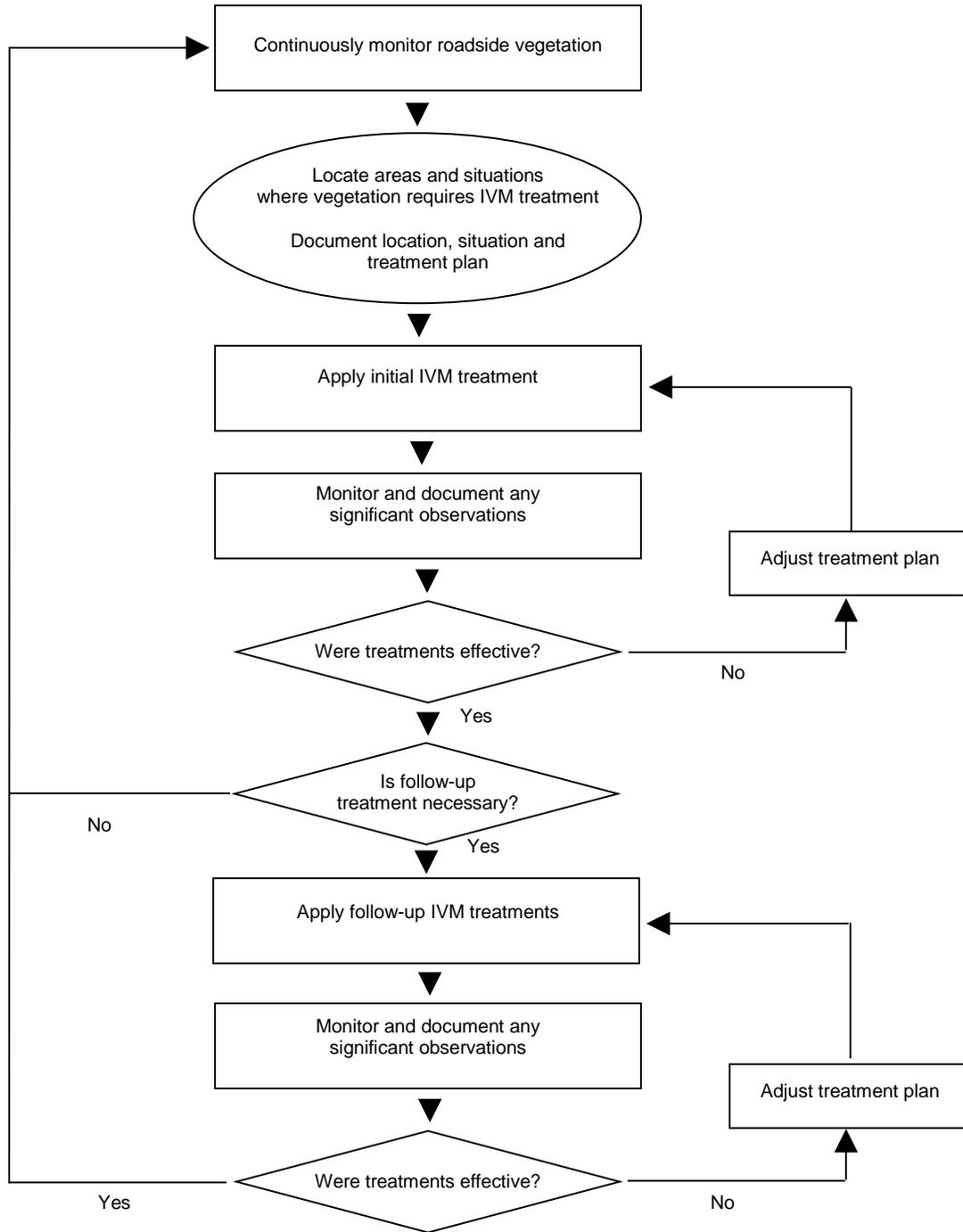
Buffer Zone

Native or Naturally Occurring Vegetation

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

Typical Roadside Vegetation Management Zones

Figure 2



The IVM Decision-Making Process
Figure 3

Area IVM Goals – 2014

The purpose of this section is to identify the highest priority roadside vegetation management needs in Olympic Region, Area 3 and to describe in general the approach the area will take in addressing these needs in the coming years. Information here is presented in relation to the three major groups for roadside vegetation maintenance performance: Control of Vegetative Obstructions, Noxious Weed Control, and Nuisance Weed Control. This section is intended to supplement the information in the following section, ***Olympic 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

- US101, SR104, SR110, & SR113 - Zone 1 is maintained with an annual application of herbicides. The width of treatment is between 2 to 3 feet, which may vary depending on the slope of the shoulder. Areas that fall within water buffer areas are maintained by using herbicides that have been approved by the EPA and WSDOT's risk assessment program. Excessive sod build up will be removed to improve hydraulic flow of water off roadway surfaces.
- Herbicide treatments where used will be a mixture of a non-selective post emergent (glyphosate) and a light residual pre-emergent
- All shoulders will be mowed as needed, typically consisting of spot mowing in spring to address sight distance issues and then one complete single pass mowing in mid to late summer, coordinated with weed control efforts to avoid the spread weed seeds.
- SR112, SR116, SR20 and SR19 - Zone 1 is only maintained around the base of guardrail and where there are narrow shoulders with the use of herbicides. Areas not treated with herbicide will be controlled by routine mowing and routine annual grading of shoulders for sod build up for hydraulic flow of storm water off the roadway surface.
- Olympic National Park (MP219.70 – MP231.40, MP154.30 - MP166.85) We will not spray. Vegetation control per Park standards.

Tree and Brush Control/Zone 2

- Wherever possible tree and brush control will be conducted using herbicides in the fall for emerging plants in Zone 2 with potential to cause sight distance or clear zone problems with exception to SR 112 and SR 116
- Selective trimming with a side arm mowing head will also be conducted as needed on an annual basis area wide.
- In locations where unwanted trees have grown for several years in Zone 2, they will be cut or mowed and stump treated with herbicides area wide.
- On corridors with narrow rights-of-way where tree limbs encroach on traffic or begin to hang low over the road, selective pruning will be done using a lift truck and hand saws area wide.

Noxious Weed Control

Noxious weeds are those species legally designated by state and county regulations for required control by all property owners. Because laws are enforced with fines and/or

control work and billing of property owners by county administration, work under this group is considered second priority after critical safety related locations have been addressed. Control of designated noxious weed species is typically carried out on all highways throughout the area on an as needed basis. However, some locations merit more focused attention and effort to apply multi-year IVM treatments or coordinate with adjacent landowners. The general area-wide approach and areas of focused attention for 2010 include:

- European Hawkweed There are patches of European hawkweed on SR101 MP 213.7 – 214.6 and 217.7 – 218.2. They have been treated with Garlon 3A this last fall. If the hawkweed comes back again we will treat it with Transline using a back pack sprayer.
- Yellow hawkweed There are patches on SR 101 MP 215.9 – 216 and 172.4-172.9. There is also a patch on SR 110 MP 9.5 – 9.7. They have been using Garlon 3A and the patches are getting smaller.
- Orange hawkweed There patches on SR 101 MP 160.4 – 160.6, 181.2 – 181.7 and 194.2 – 194.6. If the orange and yellow hawkweed comes back strong we will go to using Transline on it also.
- Tansy ragwort We have tansy ragwort all over. We found the best way to control this is to pull it. Plan to keep working on this control as much as possible. If we get a chance and the weather we will spray this spring with Garlon 3A when the plants are still small.
- Other priority locations include:
 - Treat giant hogweed with glyphosate in a backpack sprayer, US101 MP 274.20
 - Treat poison hemlock prior to bolt with Escort, SR20 MP 9-10, SR19 MP 4.4-12.5 in various spots, SR104 MP 9.9, US101 MP 259.6, 261.7, 264.2, 266.8 and 270 to 270.2.
 - Treat yellow hawkweed with Transline, SR104 MP 6-7
 - Treat orange hawkweed with Transline, US101 MP 234.4-234.6
 - Treat meadow knapweed with Transline, SR112 MP 45.8-46.2
 - Treat diffuse knapweed with Transline, US101 MP 260-267

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:

- Control knotweed in late summer with glyphosate and imazapyr, US101, MP 185.85(right), 202.5(left), and 206
- Control knotweed in late summer with glyphosate and imazapyr, SR110 around ends of Bogachiel Bridge, MP 8.64
- Control teasel with Transline, US 101, MP 264.5 and 281.3
- Monitor scotch broom growth at the US101/SR104 interchange and retreat with the Brown Brush Monitor and Garlon as necessary. If only sparse re-growth of broom occurs spot treat only with Garlon.

1. ROUTINE MAINTENANCE ACTIVITIES

Roadside maintenance activities are considered routine when a regularly occurring cycle of treatment is required to keep vegetative growth from interfering with highway operational and maintenance objectives. Typical routine maintenance activities are maintenance of a vegetation-free band at the edge of pavement where required, and certain types of mowing and trimming operations.

1.1. Bare Ground Shoulder Maintenance(Zone 1)

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

1.1.1.Guidelines

- In Olympic Region, Area 3, a vegetation-free Zone 1 is maintained only under guardrail and in select locations as indicated in this plan.
- Annual Zone 1 treatments are intended to remove and/or prevent all vegetation growth in a solid band adjacent to the pavement edge. Limited re-growth of grasses and other non-weed species in the year following each treatment is acceptable.
- Zone 1 is maintained with the annual application of herbicides under all guardrail installations and throughout the area.
- Where guardrail comes within 10' of water at bridge abutments and stream crossings, treatments will be made with a backpack sprayer or hand-gun and hose reel while on foot.

1.1.2 Methods

- Herbicides being applied to Zone 1 in most cases include a mixture of non-selective, pre and post emergent products.
- For SR 112, due to local concerns over herbicide use, only non-selective post emergent aquatic label products will be used.
- Applications typically occur beginning mid-May depending on weather patterns and plant growth.
- 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 1 and 2)

Regular mowing cycles are required in locations where seasonal grass growth next to the pavement is tall enough to interfere with traffic operations and safety. In some locations, particularly on secondary highways with narrow rights-of-way, periodic trimming is required to prevent growth of shrubs/brush or side branches on trees from interfering with traffic operations and safety.

1.2.1.Guidelines

- Routine annual mowing of roadside grass stands occurs throughout the area in at least one pass, at least once per year immediately adjacent to the edge of pavement, to prevent vegetation from encroaching on traffic operations.
- Additional annual mowing or trimming will be conducted throughout the growing season as needed for select locations to preserve site distance at curves, intersections and any other highway entry points.
- In areas beyond the single mowing pass, mowing is only used occasionally as part of planned IVM treatments for target specific weed and/or tree and brush control as described below in **Section 2**.
- Other areas that may be routinely mowed include grass areas in park and ride lots, narrow grass strips along sidewalks in urban areas, and fence-lines adjacent to neighboring properties as deemed necessary by the Area Superintendent.

1.2.2.Methods

Mowing

- Timing and mowing heights are set to encourage root development and health of the grass stands.
- Single pass mowing consists of one pass up to the maximum width of mowing equipment but may be as narrow as practical depending on mowing equipment, the presence of existing visual lines such as ditches, and the configuration of roadside cut and fill slopes.

Trimming

- Whenever possible, side arm brush trimming will be conducted as late in the season as possible or even through the winter months if time allows, to avoid negative visual impacts during the tourist season. Early trimming in late winter or early spring, prior to leaf out is appropriate when soil and weather conditions permit.
- Chemical control methods on evergreen trees or foliar applications to other undesirable vegetation will occur after mid-September to avoid brown outs and potential contact with edible berries.

1.2.3.Locations

- Routine single pass mowing occurs throughout the area each year as necessary.

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 at removal of unwanted vegetation and establishment of desirable vegetation. However, large trees with health or structural problems can pose a significant threat to the highway, therefore both monitoring for the presence of potential hazard trees and removal when necessary are consider routine and ongoing roadside maintenance activities.

1.3.1. Guidelines

- Hazard tree removal is considered a routine maintenance activity because maintenance is constantly on the lookout for any trees that pose an imminent threat to the highway or traffic.
- Whenever hazard trees are identified they are routinely removed as soon as possible.
- Hazard trees may be dead, diseased, leaning, or structurally unsound. Best horticultural judgment will be used in evaluating trees that appear diseased or

structurally unsound or are believed to pose a long-term threat to determine the best course of action.

- Another consideration in removal of trees is the contribution to shading in areas prone to frost and ice formation on the highway surface. When such areas are identified, the surrounding canopy may be thinned through selective removal of large trees on the right-of-way.

1.3.2. Methods

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

2. INTEGRATED VEGETATION MANAGEMENT ACTIVITIES

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

2.2. Noxious Weed Control

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

2.2.1. Guidelines

- Noxious weed control is a high priority for WSDOT because of state law requiring control of designated species (RCW 17.10). 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 and can act as conduits for the spread of weeds.
- Whenever possible treatment of designated noxious weed species and infestations locations will be treated following prescriptions as defined in this plan and documented with 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.

- The weed lists for Clallam and Jefferson Counties are similar and for the purposes of this plan the lists below will apply area-wide:

Class A

Class A noxious weeds are non-native species with a limited distribution in the state. The following Class A noxious weeds are known to exist on WSDOT right-of-way in Olympic Region, Area 3:

Common Name/Botanical Name
Giant hogweed/ <i>Heracleum mantagazzianum</i>
European hawkweed/ <i>Hieracium sabaudum</i>

Class B

Class B weeds are more widespread than Class A, with control mandated by law only if infestations are generally limited and the species are designated within the individual counties by the County Noxious Weed Control Boards. The following designated Class B species are known to exist on WSDOT right-of-way in Olympic Region, Area 3:

Common Name/Botanical Name
Dalmation toadflax/ <i>Linaria dalmatica ssp. dalmatica</i>
Hoary alyssum/ <i>Berteroa incana</i>
Meadow knapweed/ <i>Centaurea jacea x nigra</i>
Orange hawkweed/ <i>Hieracium aurantiacum</i>
Poison hemlock/ <i>Conium maculatum</i>
Common Reed/ <i>Phragmites australis</i>
Purple loosestrife/ <i>Lythrum salicaria</i>
Spotted knapweed/ <i>Centaurea stoebe</i>
Sulfur cinquefoil/ <i>Potentilla recta</i>
Tansy ragwort/ <i>Senecio jacobaea</i>
Wild chervil/ <i>Anthriscus sylvestris</i>
Yellow hawkweed/ <i>Hieracium caespitosum</i>

Special Designations

Due to problems with noxious weed seed distribution from material moved from pit sites, Clallam County has designated two additional species for required control in pit sites. These species are considered nuisance weeds by WSDOT in non-pit sites in the area.

Common Name/Botanical Name
Scotch broom/ <i>Cytisus scoparius</i>
Japanese, Giant, Himalayan, Bohemian Knotweed / <i>Polygonum</i>

Class C

Class C noxious weeds are widely established throughout Washington or may impact the agricultural industry. Counties may require control of certain Class C weeds at their own discretion. Unless otherwise required, WSDOT classifies Class C species as “nuisance” weeds and provides control as part of the general roadside vegetation management program. Nuisance weeds and treatment options are described in Section 2.4 of this document.

2.2.2. Methods

- Because noxious weed species are often difficult to control, herbicides treatments are often the primary, initial means of control.
- If infestations are limited to a few plants, hand pulling is also effective when the entire root system is also removed. Maintenance employees are encouraged to be aware of and look for new noxious weed occurrences, and to stop and pull these plants whenever possible.
- In conjunction with weed control treatments, a variety of other measures may be taken to promote natural vegetative competition through seeding, planting, and soil enhancement. The IVM Record and database are essential to tracking the execution and success of these control measures.
- For recommended treatments specific to noxious weed species, see **Appendix A, IVM Prescriptions, Noxious Weed Control**

2.2.3. Locations

- Priority locations for control of designated noxious weed species in Olympic 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.
- There is one weed species in the area that is not on the state's noxious weed list but is known to be a highly invasive non-native. **Common teasel/*Dipsacus fullonum*** is only present in two locations on the right-of-way in the area and is therefore being considered a priority control nuisance weed.
- Nuisance weed control, while not required by state law, provides many positive benefits to the overall condition of the roadside, enhances ecological function by maintaining and enhancing native plant communities, reduces the potential for continuing spread of weed infestations, and enhances visual quality.
- Nuisance weed species will be controlled when time and budget allows.
- Priority will be given to locations with the highest chance for success including relatively new infestations and where there is potential for infestations to spread to un-infested areas of the right-of-way or to un-infested neighboring properties.
- Species designated as nuisance weeds in Olympic Region, Area 3 that are known to exist on the highway right-of-way include:

Common Name/Botanical Name
Scotch broom/ <i>Cytisus scoparius</i> (outside pit areas)
Himalayan blackberry/ <i>Rubus discolor</i>
Canada thistle/ <i>Cirsium arvense</i>
Bull thistle/ <i>Cirsium vulgare</i>
Common fennel/ <i>Foeniculum vulgare</i>
Common teasel/ <i>Dipsacus fullonum</i>

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

2.3.2.Methods

- Control measures for nuisance weed are dependent on the type of plant.
- Knotweed sp. where occurring within normally mowed areas will be mowed around and treated with herbicides late in the season, as resources allow.
- 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

- Locations for priority nuisance weed control activities will be identified in the **Area IVM Goals** section of the plan beginning on Page 7.

2.4. Tree and Brush Control

2.4.1.Guidelines

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

2.4.2.Methods

- Removal of undesirable tree and brush species is typically accomplished by properly timed selective mowing, properly timed herbicide applications, hand cutting, hand pulling, or combinations thereof.
- In some locations it is most effective to mow back the majority of the existing vegetation and then selectively treat undesirable re-growth with herbicides in succeeding years, allowing desirable vegetation to grow up around and form a competitive cover.
- In some cases when tree and brush species are cut by hand, the debris can be fed through a chipper and placed back on the roadside in the form of mulch for soil enhancement and weed prevention.

- Timing of activities has a significant effect on how the vegetation grows back. Herbicide applications made by hand, directly to the cut surfaces of undesirable plants may be used to reduce or eliminate grow back.
- Chemical control methods will not be used on conifers greater than 2 feet in height and/or large dense patches of seedling trees, to avoid unnecessary negative visual impacts from “brown-out”.
- Chemical control methods will not be used on deciduous trees and shrubs until after the first of September, except for as stump treatments in conjunction with mechanical cutting to eliminate grow-back.
- When possible, safe and practical, seedling of desirable trees may be dug or pulled by hand and transplanted to areas where there growth will be beneficial and appropriate. Agreements may be signed to allow private citizens to collect seedlings for use as transplants.
- See **Appendix A, IVM Prescriptions, Tree and Brush Control.**

3. SPECIAL MAINTENANCE AREAS

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

3.1. Interchanges/Intersections

3.1.1.Guidelines

- Interchange areas are sometimes developed to a greater level than general roadside areas to include storm water management facilities, pedestrian areas, and permanent vegetation designed for screening, and visual enhancements for community entrances.

3.1.2.Locations

- Interchanges and intersections with unique maintenance considerations along with a description of special maintenance activities can be referenced using a web base map viewer application at: [IVM Map Viewer](#) Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.2. City Maintenance Areas

3.2.1.Guidelines

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

3.2.2.Locations

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

3.3. Herbicide Sensitive Areas

3.3.1.Guidelines

- WSDOT has identified certain areas where herbicide use will be limited to reduce any potential risk to human health or the environment. There are also areas where highways cross Federal or Tribal lands and herbicide use is restricted by the land owner's regulations.
- Herbicide applications, when allowed in these areas for noxious or nuisance weed control, or in combination with mechanical methods for control of undesirable trees, will be made selectively by hand.

3.3.2.Locations by Milepost

- Herbicide sensitive areas and reason/type of limitations on herbicide use can be referenced using a web base map viewer application at: [IVM Map Viewer](#)

Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

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

3.4.1.Guidelines

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

3.4.2.Locations

- Areas with existing agreements for others to maintain a portion of the roadside, along with notes describing arrangements for each location can be referenced using a web base map viewer application at: [IVM Map Viewer](#). This application is available to WSDOT employees and approved non-WSDOT users only. Any other requests for this information outside WSDOT should be directed to the area superintendent or the state roadside maintenance program manager.

3.5. Pit Sites and Stockpile Sites

WSDOT pit sites are often actively used for construction projects over an extended period of time and as maintenance stockpile sites. Other maintenance stockpile sites area found adjacent to the highway that are used to temporarily store maintenance sand, debris cleared from the roadway, and drainage components.

3.5.1.Guidelines

- Pit sites and maintenance stockpile sites will be managed for noxious and nuisance weeds as required.
- Maintenance stockpile sites immediately adjacent to the highway will be maintained as part of routine Zone 2 maintenance.
- For security and visual quality, vegetative screening will be used where possible to screen maintenance stockpile sites from the highway.
- Clallam County requires control of Scotch broom and knotweed species in these locations.

3.5.2.Locations table by MP

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

3.6. Storm Water Management Facilities

3.6.1.Guidelines

- Storm water management facilities include bio-filtration swales, retention ponds and infiltration ponds.
- Storm water management facilities are managed for noxious and nuisance weeds, and hazard trees following the same guidelines mentioned in previous sections. The primary objectives with regards to vegetation management within these facilities are maintenance of the functionality in terms of the designed volume of retention and water flow, and the maintenance of the surrounding fence

- Trees and brush should be cleared along both sides of the perimeter fencing for a width of approximately 8 feet as needed.
- Inlets and outfalls should be kept clear of vegetation and debris.

3.6.2.Locations

- Storm water management facilities, along with notes describing general maintenance requirements for each location can be referenced using a web base map viewer application at: [IVM Map Viewer](#)
Data and locations represented on this map are for general reference and planning purposes only and are subject to change without notice. WSDOT cannot guarantee complete accuracy.

3.7. Wetland Mitigation Sites

3.7.1.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.

3.7.2.Locations

- All wetland mitigation sites within Olympic 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.

3.8. IVM Treatment Sites

3.8.1.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.

3.8.2.Locations

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

Zone 1 Maintenance - Bareground Treatment

	OPTION 1	OPTION 2	OPTION 3	
TREATMENT TYPE:	Pavement Edge	Pavement Edge	Pavement Edge	
MANAGEMENT GOALS:	Vegetation free	Vegetation free	Vegetation free	
METHOD:	Annual herbicide application	Annual herbicide application	Annual herbicide application	
EQUIPMENT:	Spray truck w/ boom mounted nozzles	Spray truck w/ boom mounted nozzles	Spray truck w/ boom mounted nozzles	
MATERIALS:	Frequency 4 ozl./acre + Sulfomet 3 ozd./acre + Ranger Pro 64 ozl./acre	Perspective 8 ozd./acre + Sulfomet 3 ozd./acre + Ranger Pro 64 ozl./acre	Payload 10 ozd./acre + Sulfomet 3 ozd./acre + Ranger Pro 64 ozl./acre	
TIMING:	Spring	Spring	Spring	
IVM FOLLOW-UP:	Evaluate control	Evaluate control	Evaluate control	
REMARKS:	Typically applied in a 2 to 3 ft. band.			

Zone 2 Maintenance - Tree and Brush

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
TREATMENT TYPE:	Tree and Bush	Tree and Bush	Tree and Bush	Tree and Bush
MANAGEMENT GOALS:	Control vegetation obstruction	Control vegetation obstruction	Control vegetation obstruction	Control vegetation obstruction
METHOD:	Spot spray w/ herbicide	Stump Treatment	Stump Treatment /blanket spray	Spot spray w/ herbicide
EQUIPMENT:	Backpack	1 Gal. spray jug	Handgun	Handgun
MATERIALS:	Element 3A 48ozl./acre	Element 3A dilute 1 to1 with water	Element 3A 48 oz/acre *water 5-100 gallons/acre	Element 3A 48ozl./acre + Metcel VMF 1ozd./acre
TIMING:	Growing season	Anytime	Growing season	Growing season
IVM FOLLOW-UP:	Evaluate control	Evaluate control	Evaluate control	Evaluate control
REMARKS:	Avoid brown out by spraying late in the season and spray only to appropriate height. *If carrier is less than 50 gallons a non-ionic surfactant should be used			

Noxious and Nuisance Weed Control - General

	OPTION 1	OPTION 2	OPTION 3	
TREATMENT TYPE:	Chemical application	Chemical application	Chemical application	
ACTION THRESHOLD:	Whenever present (dependent on available resources)	Whenever present (dependent on available resources)	Whenever present (dependent on available resources)	
MANAGEMENT GOALS:	Eradication of noxious weed	Eradication of noxious weed	Eradication of noxious weed	
METHOD:	Spot treatment w/ herbicide	Spot treatment w/ herbicide	Spot treatment w/ herbicide	
EQUIPMENT:	Truck mounted sprayer where possible, backpack sprayer where necessary.	Spray Jug	Handgun	
MATERIALS:	Metcel VMF 1ozd./acre + Element 3A 48ozl./acre	Transline 21ozl./acre	Element 7 ozl./acre	
TIMING:	Early growth stage	Early growth stage	Early growth stage	
IVM FOLLOW-UP:	Reapply if necessary following year. Restore site w/ native vegetation.	Reapply if necessary following year. Restore site w/ native vegetation.	Reapply if necessary following year. Restore site w/ native vegetation.	
REMARKS:	Option 1: Poison Hemlock, Wild Chervil, Tansy Ragwort --- Option 2: Knapweeds, Hawkweeds,			

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
Dicamba	Vanquish Veteran 720 Dicamba HD E2 Escalade Range Star Viewpoint	Growth regulator - benzoic acids synthetic 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

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Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/ Recommendations	WSDOT Restrictions	Cautions
Dichlobenil	Norosac 4G Casoron	Cell wall (cellulose) synthesis inhibitor (20)	Ornamental planting beds	Pre-emergent weed control in ground cover beds. Post emergent control of grasses.	Highly effective for pre-emergent control of unwanted weeds in ornamentals	Restricted for use within 60' of all water	Dichlobenil is highly toxic to aquatic insects
Diflufenzopyr	Overdrive	Auxin transport inhibitor (19)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment		No WSDOT use restrictions beyond those specified on labels	Refer to product label
Diuron	Karmex Diuron 4 L Diuron 80 DF Parrot Sahara DG Imazuron	Photosynthetic inhibitor - photosystem II, site B (7)	Zone 1 bare-ground	Nonselective pre-emergent grass and weed control	Cost effective weed control for Zone 1 in Eastern Washington	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 Escalade	E2 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
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 marehstail, 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

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

Noxious Weed Identification

Designated for control in Olympic Region area 3:
(Jefferson and Clallam County)

Giant Hogweed/
Heracleum mantegazzianum



European Hawkweed/
Hieracium sabaudium



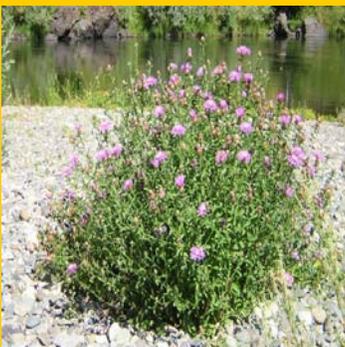
Dalmatian Toadflax/
Linaria dalmatica



Hoary Alyssum/
Berteroa incana



Meadow Knapweed/
Centaurea jacea



Orange Hawkweed/
Hieracium aurantiacum



Noxious Weed Identification

Designated for control in Olympic Region area 3:
(Jefferson and Clallam County)

Poison Hemlock/
Conium maculatum



Common reed/
Phragmites australis



Purple loosestrife/
Lythrum salicaria



Spotted Knapweed/
Centaurea stoebe



Sulfur cinquefoil/
Potentilla recta



Tansy Ragwort/
Senecio jacobaea



Noxious Weed Identification

Designated for control in Olympic Region area 3:
(Jefferson and Clallam County)

Wild chervil/
Anthriscus sylvestris



Yellow Hawkweed/
Hieracium caespitosum



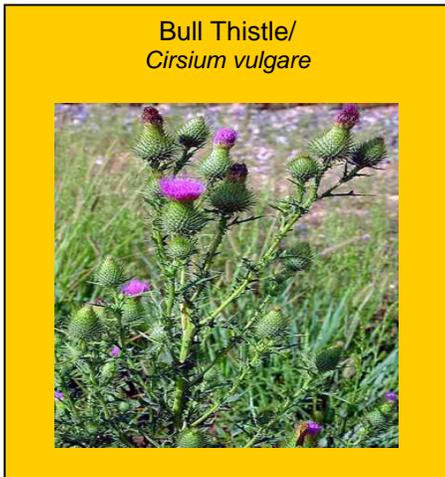
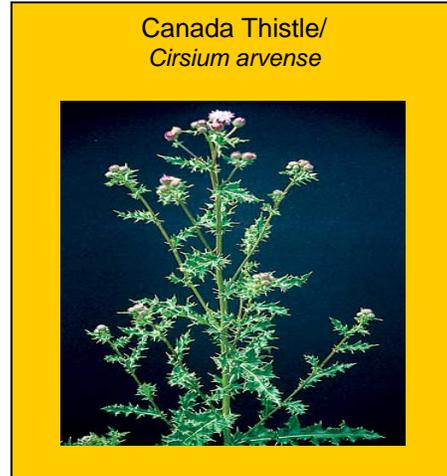
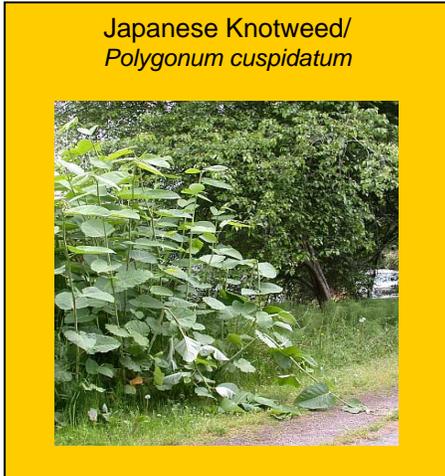
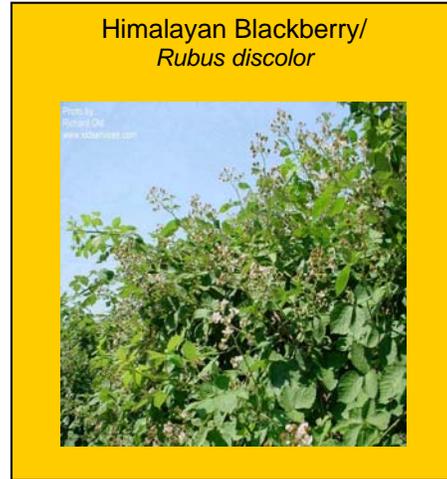
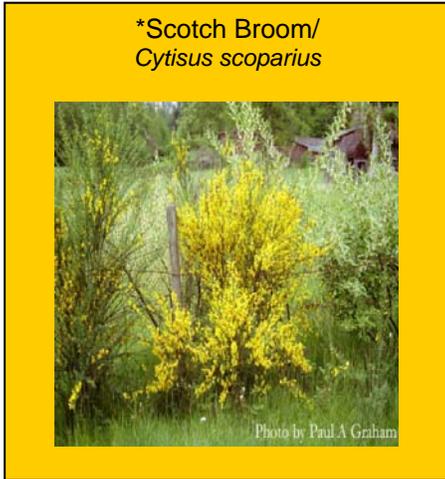
Scotch broom/
Cytisus scoparius



Knotweed sp./
Polygonum sp.



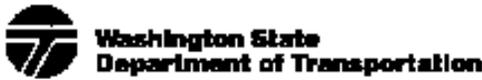
Nuisance weeds in OL area 3:
(Jefferson and Clallam County)



*Control within 50 feet of gravel and pits

Nuisance weeds in OL area 3:
(Jefferson and Clallam County)





Integrated Vegetation Management Record

Org. Code	County	Date 6/13/2007		Vegetation Management Zone(s) <input type="checkbox"/> Zone 1 <input type="checkbox"/> Zone 2 <input type="checkbox"/> Zone 3																																														
Area SR _____ MP _____ to MP _____		Location _____																																																
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	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	_____ _____ _____ _____ _____ _____		

Entity	Mailing Address	Contact Person	Title	Phone	E-Mail
City of Forks	500 East Division St. Forks, WA 98331	David Zellar	Public Works Director	(360)374-5412 Ext. 242	info@forkswashington.org
City of Port Angeles	321 East 5th St. Port Angeles, WA 98362	Graig Fulton	Public Works Director	(360) 417-4800	publicworks@cityofpa.us
City of Sequim	615 N. 5th Ave. Sequim, WA 98382	Paul Haines	Public Works Director	(360) 683-4908 Ext. 434	phaines@sequimwa.gov
City of Port Townsend	250 Madison St. Suite 2R Sequim, WA 98368	Kenneth Clow	Public Works Director	(360) 379-5090	kclow@cityofpt.us
Makah Indians	P.O. Box 115 Neay Bay, WA 98357		Makah Tribal Council	(360) 645-2201	makah@centurytel.net
Quinault Indians	807 - 5th Ave. Taholah, Wa 98587	Teddie Wallace	Depart. Of Planning	(360) 276-8215	twallace@quinault.org
Olympic National Park	600 East Park Ave. Port Angeles, WA 98362			(360) 565-3130	
Olympic National Forest	353 South Shore Rd. Quinault, WA 98575		Pacific Ranger District	(360) 288-2525	
Clallam County	223 E. 4th, Suite 15 Port Angeles, WA 98362			(360) 417-2442 Fax (360)417-2414	
Jefferson County	201 W Patison Port Hadlock, WA 98339	Eve Dixon	Noxious Weed Coordinator	(360) 379-5610	edixon@co.jefferson.wa.us