

# Olympic Region Integrated Roadside Vegetation Management Plan



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

## ***Introduction***

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The Washington State Department of Transportation's (WSDOT) Olympic Region consist of four Maintenance Areas (Area 1-Tacoma, Area 2-Port Orchard, Area 3-Port Angeles and Area 4-Aberdeen) who collectively manage 1082 miles of freeway and highway corridor in Pierce, Thurston, Kitsap, Jefferson, Clallam, Mason and Grays Harbor Counties. In addition to maintaining the Interstate 5 corridor between King and Lewis Counties, State Route (SR) 16 between Tacoma and Bremerton and US 101 around the Olympic Peninsula the region maintains all or part of SR 3, 5, 7, 8, 12, 19, 20, 99, 102, 104, 105, 106, 107, 108, 109, 110, 112, 113, 115, 116, 117, 119, 121, 160, 161, 162, 163 and 165. A map of the area is included as **Figure 1** on the following page.

The primary roadside vegetation management objectives are in relation to traffic safety and preservation of the highway infrastructure. Additionally, as a landowner WSDOT is required to control all listed noxious weeds that occur on the right-of-way by state law (RCW 17.10 and 15.15.010). It is important that WSDOT not only meet the legal requirements for weed control, but also consider the needs and concerns of adjacent landowners in this region.

In order to best manage roadsides with these priority objectives in mind, WSDOT practices an annually cycling process called Integrated Vegetation Management (IVM). Plans like this are maintained and updated annually for all regions of the state with an overall goal of establishing the most naturally self-sustaining roadsides vegetation possible. Adjustments are made year to year in each area plan based on monitoring the previous years' accomplishments and results, available budget, and prioritization of other highway maintenance activities.

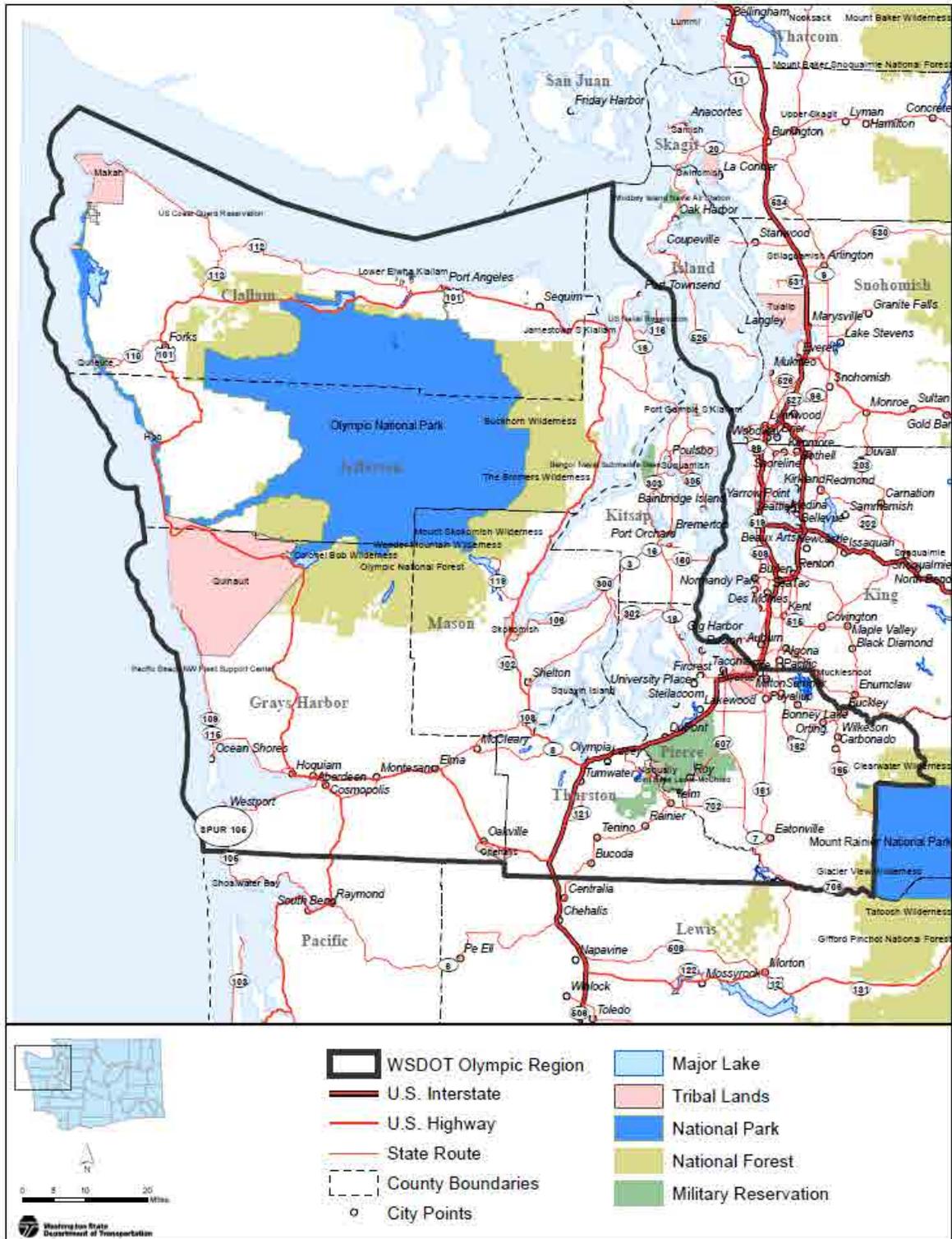
This plan serves as the guidance document for vegetation maintenance in the Olympic Region for the 2019 growing season. It identifies priority locations and prescribes treatments for accomplishing safety and weed control objectives through the use of a combination of seasonally-timed control measures. Each year's actions are designed as part of a coordinated multi-year strategy to minimize roadside maintenance requirements wherever possible. This plan also accounts for specific locations where maintenance tactics are adjusted due to environmental issues, neighboring properties, local partnerships, or restoration work done through WSDOT design and construction.

As of the 2019 season, the information contained in this plan document can be geographically referenced by crews in the field using iPads and the Highway Activity Tracking System (HATS). Accomplishments and results will also be tracked geographically through this new system. This development in WSDOT maintenance management will greatly improve the agency's success in properly executing planned actions, monitoring and documenting results of treatments, and in measuring cost and results over time.

WSDOT welcomes input from local public and private entities on its weed control and vegetation management activities. Wherever appropriate the agency is looking for opportunities to plan, cooperate, and partner with others in managing the roadside. Please direct any questions, comments or suggestions to the Olympic Region Maintenance Manager Tom Lenberg or the State's Roadside Asset Manager – Ray Willard.

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**Olympic Region Map**  
Figure 1

The section outlines the overall approach and geographic distribution of roadside vegetation management requirements throughout the maintenance area in 2019. Information is organized in relation to four groups of activities defined in the WSDOT Maintenance Accountability Program (MAP) for the performance of roadside vegetation maintenance activities: **Control of Vegetative Obstructions, Noxious Weed Control, Nuisance Weed Control, and Landscape Maintenance**. Specific locations as noted in this work plan are also mapped in the Highway Activity Tracking System (HATS) for reference by maintenance in the field.

### **Safety**

Safety of our employees, the traveling public, and the environment are WSDOT's highest priorities and key to our success. Our licensed applicators read the entire label before using products and use the products strictly in accordance with label precautionary statements and directions. WSDOT has implemented additional agency specific restrictions on some products, to minimize any risk to aquatic or terrestrial ecosystems. Applicators wear protective equipment applicable to the products being used and discuss product exposure procedures at a daily Pre Activity Safety Plan meeting. They inspect their calibrated equipment daily to ensure it is in proper working order. Herbicides are kept in locked storage facilities which are always kept in an organized and presentable condition. In addition to their morning safety meeting, the applicators hold brief tailgate meeting at the job site prior to work to address current and unforeseen circumstances.

### **Control of Vegetative Obstructions – 3A4**

The work of this group of maintenance activities relates to the safety and operational requirements of the highway. These items are considered first priority in terms of the overall roadside maintenance needs. Vegetation management objectives and measured work activities in this category fall into four groups – **Pavement Edge Maintenance/Zone 1, Safety Mowing/Zone 2, Tree and Brush Control/Zone 2 and 3, and Hazard Tree Removal/Zone 3**.

#### **Pavement Edge Maintenance/Zone 1**

**Work Operation: 1615**

**HATS Form: Spray Zone 1**

**HATS Map Layer: Reference lines – Roadside Features/Spray Zone 1 Reference**

This work includes the application of herbicides to road shoulders where necessary throughout the region. The objective of these applications in designated locations is preserving of a band of gravel shoulder adjacent to the pavement that is free of vegetation. This treatment is necessary in the mapped locations described below to provide visibility and maintainability of roadside hardware and guideposts, allow room for vehicles to safely pull off on shoulders, facilitate storm water drainage, and/or provide added visibility of wildlife approaching the highway.

#### **Total Units of Planned Treatment**

- Approximately **970 acres** of herbicide treatment will be applied to road shoulders throughout the region.

#### **Locations of Planned Treatments**

- Planned treatment sites are mapped in HATS layer – **Spray Zone 1 Reference**.
- Most gravel shoulders throughout the region will receive an annual application of herbicides in the spring. Additional treatments will be applied as needed to pavement and barrier locations where vegetation is growing in the cracks and joints.
- Locations where no bare ground treatments will be applied include:
  - Along secondary routes where neighboring property owners have agreed to maintain the roadside vegetation.
  - Inside City Limits except limited access areas

- Specific locations for each area are listed in **Appendices 1 – 4**.
- In locations where there are specific concerns about herbicides and surrounding water bodies, only aquatically labeled herbicides are used. Locations are listed for each area in **Appendices 1-4**.

Treatment Methods

- Applications are made annually in mid-Spring.
- Herbicides are applied using a truck mounted power spray system calibrated to deliver varying width bands of spray mixture on and adjacent to the paved shoulder. The resulting width of treated shoulder may be wider than 3 to 5 ft. in areas with steeper shoulder slopes.
- Application widths will be approximately 5 ft. in locations with guard or cable rail, extending to back edge of the rail.
- Application widths are set to 3 ft. and extend out to guideposts in locations without guardrail or cable rail present.
- Wider applications are also planned in select areas due to control vegetation obstructions from spring grass growth particularly in locations where mowing is difficult.
- At gore points with ramps applications will extend to 6 ft. across the gore.
- Herbicide formulations vary area by area and formulations are rotated in each area to help prevent developing herbicide resistant weed species.
- Herbicide formations planned for use by each maintenance area in 2019 are as follows:

	<b>Non Sensitive Areas</b>	<b>Sensitive Areas</b>
<b>Area 1</b>	Method240@12.5oz/acre Sulfomet@3oz/acre Rodeo@51oz/acre Escort@1.5oz/acre	Polaris@16oz/acre AquaNeat@64oz/acre Agri-Dex@16oz/acre
<b>Area 2</b>	Opensight@3oz/acre RangerPro@64oz/acre R-11@32oz/acre	Polaris@16oz/acre AquaNeat@64oz/acre Agri-Dex@16oz/acre
<b>Area 3</b>	RangerPro@64oz/acre Escort@3oz/acre Method@12oz/acre Esplanade@5oz/acre Agri-Dex@16oz/acre No Foam@.5oz/acre	Polaris@16oz/acre AquaNeat@64oz/acre Agri-Dex@16oz/acre No-Foam@.5oz/acre
<b>Area 4</b>	AquaNeat@64oz/acre Telar XP@2oz/acre Insist90@16oz/acre	AquaNeat@64oz/acre Aquatic surfactant@16oz/acre

**Safety Mowing/Zone 2**

**Work Operation: 1625**

**HATS Form: Mowing Zone 2**

**HATS Map Layer: Reference lines – Roadside Features/Mowing Zone 2 Reference**

This work includes routine mechanical cutting of all vegetation on the road shoulder in a band width immediately adjacent to pavement. Mowing is necessary in areas where taller growing grasses or other vegetation are present and must be annually or semi-annually cut back for visibility and maintenance of roadside hardware and delineators, to maintenance traffic sight distance at curves and intersections, and for improved visibility of wildlife approaching the highway. Mowing height for these operations is typically 6 to 8 inches above the ground.

Total Units of Planned Treatment

- Approximately **1500 acres** of shoulders will be mowed annually throughout the region.

- If there is adequate Zone 1 width and/or low growing grass established up to the pavement edge, the roadside will not be mowed.

#### Locations of Planned Treatments

- Planned routine mowing locations are mapped in HATS layer – **Mowing Zone 2 Reference**

#### Treatment Methods

- Width of safety mowing varies depending on the needs of each corridor and operations are planned to achieve desired widths. Locations with special considerations for safety mowing are listed for each maintenance area in **Appendices 1 – 4**.
- Mowing will be done with multiple types of tractor mounted mower attachments including: 3-deck; 25 ft. total width mower, side arm rotary and flail mowers, and orchard mowers.
- When needed, safety mowing operations may be combined with mechanical trimming for tree and brush control, utilizing an additional tractor with a boom mounted mowing attachment.
- Desirable, low-growing shrubs or ground covers where present will not be mowed.

### **Tree and Brush Control/Zone 2 and 3**

**Work Operations: 1622, 1625, 1626**

**HATS Forms: Tree/Brush Control – Spray, Trimming Mechanical, Trimming Manual, and Mowing**

**HATS Map Layer: None**

This includes safety and traffic operations related work in Zone 2, such as periodic side-trimming or removal of brush and trees or branches encroaching on or overhanging traffic operations, and impacting sign visibility. Also included is work in Zone 2 and 3 when selectively controlling emergent early succession tree species – to prevent them from growing into mature hazard trees within striking distance of the road. Removal of mature-sized dead, diseased, dying or structurally defective and hazardous trees is also included in this activity group.

#### Total Units of Planned Treatment

- Approximately **670 acres** will be mechanically trimmed
- Approximately **25 acres** will be trimmed with hand tools.
- Approximately **220 acres** will be controlled with herbicides

#### Locations of Planned Treatments

- A targeted list of treatment sites can be found in **Appendices 1 – 4**.

#### Treatment Methods

- Mechanical trimming will be accomplished using a combination of tractor-mounted side arm mounted mowing heads, skid steer mower, excavators with brush heads, Truckcat mowers, Brown Brush Monitor, man-lift w/ hand held saws, pole saws, and chippers.
- It is common practice to treat occasional undesirable seedling trees and small patches of encroaching brush in conjunction with herbicides, in conjunction with seasonal noxious weed patrols throughout the spring and summer.
- Planned herbicide treatments for larger scale tree and brush control operations will be carried out in the early fall to avoid negative visual impacts and spaying blackberries in fruit.
- Herbicide formulations used to treat seedlings trees and encroaching brush:

<b>Area 1</b>	Garlon3A@96oz/acre or Garlon4@96oz/acre Metcel VMF@2oz/Per Acre Spreader90@48oz/acre EDT Concentrate 128
<b>Area 2</b>	Capstone@128oz/acre Garlon4( applied as stump treatment) EDT Concentrate 128
<b>Area 3</b>	Element 3A@ Garlon3A@64oz/Per Acre Element3A@128oz/acre in mower wet head application
<b>Area 4</b>	Element3A@32oz/acre Milestone@4.5-6oz/acre Metcel@1oz/acre Insist90@16oz/acre

### **Hazard Tree Removal/Zone 3**

**Work Operation: 1628**

**HATS Forms: Hazard Tree Removal – Individual Tree Removal, Stand Removal, and Cleanup Fallen Trees**

**HATS Map Layer: None**

Trees within and adjacent to the right of way are routinely monitored by maintenance staff for potential risk to the highway and/or neighboring structures. Individual and stands of trees identified, as a potential imminent threat will be evaluated using best arboricultural judgment and removed as soon as possible where needed.

#### Total Units of Planned Treatment

- As many as **850** mature hazard trees are removed throughout the region each year.

#### Locations of Planned Treatments

- As needed throughout the region.
- Locations to be determined by area management.
- Fringe strips of trees, left after adjacent property owners log timber, will be reviewed and removed if deemed hazardous.

#### Treatment Methods

- Qualified tree fallers within WSDOT will orchestrate removal utilizing power saws, high lifts, chippers and excavators.
- WA State Parks arborist crews
- Utility crews where utilities are present
- If trees growing outside WSDOT right of way are hazards, crews work with the neighboring property owner to negotiate removal.
- Where applicable, stumps will be treated with herbicides at time of cutting.
- Fallen trees and debris left to decompose on site whenever possible.
- No replanting will be conducted in conjunction with tree removals.

### **Noxious Weed Control – 3A2**

This group of activities includes control of non-native invasive weed species as defined by state law and individual county designation. This group of activities is second priority vegetation management work after safety related objectives have been addressed. While all Class A, B, and C noxious weed species as listed in RCW 17.10 are considered potential targets for WSDOT noxious weed control, the agency is currently not funded to achieve 100% control of all noxious weeds. Therefore, the top priorities for weed control are focused on locations and species that are more limited in distribution on the right of way – where there is a chance of successful eradication. To prioritize control of species that are already widespread in the area, WSDOT works with the local county noxious weed boards and coordinators, to annually review and determine which species and locations will be specifically targeted.

To prioritize, plan, and track noxious weed control, WSDOT maps and monitors weed infestations in three categories: **Priority**, **Planned Treatment**, and **General Reference**. **Priority** locations are where Class A noxious weed species exist on the right of way, and complete eradication is required by state law. **Planned Treatment** sites are locations where there are new, and/or limited distribution infestations of Class B and C noxious weed exist, and eradication is possible. **General Reference** sites are recorded for reference only to document the presence of noxious weed species which are more commonly occurring in the local area.

**Noxious Weed Control**

**Work Operations: 1616, 1618, 1641, 1699**

**HATS Forms: Pesticide Application (for spray applications,) and three sub-forms under Noxious Weed Control General– Manual/Mechanical, Seed/Fertilize/Mulch, and Biological**

**HATS Map Layer: Reference Points – Roadside Features/Noxious Weed Control Priority, Noxious Weed Control Planned Treatment, and Noxious Weed Control General Reference**

Operations are planned throughout the season to prevent the spread of any legally designated noxious weed species, and to reduce or eliminate populations wherever possible. Integrated treatment plans combine field monitoring and an integral mixture of seasonally timed control methods with proven effectiveness on designated species. Successful plans are consistently implemented over a series of years and annually adjusted as necessary based on field observations. Care must be taken in all cases to avoid damage to surrounding desirable/native vegetation.

**Total Units of Planned Treatment**

- Approximately **600 acres** will be spot treated with selective herbicides
- Up to **110 acres** will be cut mechanically or pulled by hand throughout the region.

**Locations and Timing of Planned Treatments**

- Over the course of the 2019-2020 season, areas will be working with the County Weed Boards to prioritize and map seasonally planned treatment sites.
- Locations will be mapped in HATS layer – **Noxious Weed Control General**
- “Features Map” as early detection Orange or Red Dots for Priority Control.
- Region IVM technicians will verify and edit weed location data in HATS as treatments are carried out through the season.
- Timing of treatments for area noxious weeds targets are listed under Treatment Notes on the Area Target Species Tables in **Appendices 1-4**.
- At times crews will treat off highways for Real Estate Services

**Treatment Methods and Timing**

- Treatment strategies and seasonal timing for target species are described under **Treatment Notes** on the Area Target Species Tables in **Appendices 1-4**.
- Herbicide formulations used for selective control of noxious weeds:

	<b><i>Primary Treatment Formulations</i></b>	<b><i>Secondary Treatment Formulations</i></b>
<b>Area 1</b>	Garlon4 Ultra @96oz/acre MetcelVMF @2oz/acre Spreader90 @33oz/acre Blazon-Blue @ 66oz/acre	
<b>Area 2</b>	Garlon4 Ultra @96oz/acre MetcelVMF @2oz/acre Spreader90 @33oz/acre	

	Blazon-Blue@ 66oz/acre	
<b>Area 3</b>	Element3A@32oz/acre Milestone@4.56oz/acre Metcel@1oz/acre Insist90@16oz/acre	
<b>Area 4</b>	Element3A@32oz/acre Milestone@4.56oz/acre Metcel@1oz/acre Insist90@16oz/acre	

### **Nuisance Vegetation Control – 3A3**

Nuisance vegetation control includes control/management of weed species that are recommended but not mandated by state and/or county law. These maintenance activities also may address vegetation growth that presents a publically perceived negative visual impact. Because nuisance weed control activities are not legally mandated and the do not pose a safety risk, they are considered the last priority vegetation management needs. Maintenance funding currently only allows for control of nuisance weed species in designated higher profile areas such as urban freeway corridors and at interchanges or when they are growing alongside designated noxious weed species and control is incidental.

#### **Nuisance Vegetation Control**

**Work Operations: 1611, 1612, 1699**

**HATS Polygon Feature-based Forms: Herbicide Application, Manual/Mechanical, Biological, and Seed/Fertilize/Mulch**

**HATS Map Layer: Feature polygons – Roadside Features/Nuisance Vegetation Control Zone 3**

Maintenance activities in each identified location are planned and tracked as multi-year treatment strategies utilizing monitoring and the most effective combination of control methods – with a goal of establishing desirable vegetation that requires only minimal maintenance. Care must be taken in all cases to avoid damage to surrounding desirable/native vegetation. In some cases, soil enhancements may be used as well as seeding or planting of beneficial competition species. Successful plans are consistently implemented over a series of years and annually adjusted as necessary based on field observations.

#### **Total Units of Planned Treatment**

- Approximately **200 acres** will be treated with herbicides for nuisance weed control as part of IVM treatments in prioritized Zone 3 areas.
- Approximately **200 acres** will be mowed for nuisance vegetation control in 2019.

#### **Locations of Planned Treatments**

- Reference HATS layer – **Roadside Features/Nuisance Vegetation Control Zone 3**.
- Priority treatment locations are also listed for each maintenance area in **Appendices 1-4**.

#### **Treatment Methods and Timing**

- Multi-year IVM treatment plans for each planned location are described for the individual maintenance areas in **Appendices 1-4**. Attribute notes are also being attached to the Zone 3 polygons on HATS maps.
- Treatment strategies typically include the initial use of selective or wholesale mowing, and cutting and/or hand pulling to clear larger target species where present. In succeeding years regrowth of unwanted species is selectively treated with herbicide broadcast spraying, spot spraying, and hand pulling.

## Landscape Maintenance – 3A5

Landscape maintenance work includes all vegetation management activities that take place on roadsides within areas designated as formal urban planting areas where the intention is to enhance the appearance of freeways through urban centers. For these roadsides the goal is to maintain healthy plantings in all three zones and to control all weeds. Planted vegetation is intended to be preserved and enhanced over time through pruning, hedging, trimming, and fertilization where necessary.

### Landscape

**Work Operations: 1516, 1518, 1525, 1541, 1552, 1561, 1599**

**HATS Polygon Feature-based Form: Roadside Features/Landscape Maintenance**

**HATS Map Layer: Feature polygons – Roadside Features/Landscape Maintenance**

Landscape maintenance operations are only conducted in a limited number of locations as described below and mapped in HATS. Maintenance activities in each identified location are planned based on a multi-year treatment strategy. Treatment decisions are based on monitoring and the proven most effective combination of maintenance actions, to keep plantings (and lawns if present) looking healthy and trimmed throughout the year.

#### Total Units of Planned Treatment

- There are approximately **35 acres** of formally landscaped roadside in Tacoma and Olympia.

#### Locations of Planned Treatments

- Reference HATS layer – **Roadside Features/Landscape Maintenance.**

#### Treatment Methods and Timing

- Mechanical and power tools in spring and summer months. Department of Correction crews used when available to help with cutting.
- Herbicide treatments for Landscape areas include:

<b>Ground Cover Beds</b>	<b>Edge Trimming</b>
Late Winter Broadcast Treatment: Casoron@150lb/acre SurflanAS@T&Ooz/acre Ranger Pro@6 oz/acre	Glyphosate@?

## Stormwater Facilities Maintenance

Vegetation maintenance in stormwater management facilities is planned and measured separate from the other roadside activities described in this plan. Vegetation control actions in these facilities are defined in the “Owner’s Manual” for each feature. Because these facilities are regulated by permit and require ongoing maintenance in order to function properly, necessary vegetation management actions in these facilities are prioritized separately from other roadside vegetation management needs.

As in all vegetation management activities, long-term vegetation maintenance requirements can be minimized by applying a multi-year IVM strategy to establish desirable vegetation and minimize the emergence and growth of unwanted species.

### NPDES Maintenance

**Work Operations: 1344, 1363, 1364, 1365, 1368, 1399**

**HATS Feature-based Forms: Stormwater Features List**

**HATS Map Layers: Stormwater Features**

Before crews warrant the need to remove or treat vegetation from a Stormwater Facility several factors need to be considered. Crews shall review sections 3.9 and 3.9.1 of the Olympic Region Area 1 IVM Plan, section 5.5 of the Highway runoff manual, and review sections 1 through 4 of the Roadside Policy Manual an onsite visit with Region and/or HQ

environmental office to determine what is the “Best Maintenance Practice” to a site specific plan or Owner’s Manual.

- Locations of IVM needs in Stormwater facilities will be tracked through Highway Activities Tracking System. (HAT)
- All herbicide applications will tracked in the Pesticide Tracking Database
- Work will be determined by Typical and Non Typical Maintenance and the operation of the facility
- Facility restoration of sites over \$25,000
  - Three locations to for 2017 that will contain extensive tree and brush removal.
  - SR 101 Black Lake Blvd, SR 161 and SR 16 All work coordinated with HQ and Region Environmental Office

***Appendix 1 – Area 1 – Thurston and Pierce Counties***

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**Zone 1 – Bareground**

Locations where only aquatically labeled herbicides will be applied:

- US101 MP 362-365 (City of Olympia Wellhead Protection Area)
- SR510 MP 6-8.65 (City of Olympia Wellhead Protection Area)
- I-5 MP 109-114 (Rolled shoulder pavement)
- Locations where neighbors have signed a “No Spray Agreement”

**Safety Mowing – Zone 2**

Locations with increased mowing widths:

- I-5 MP 85.5 to MP 93 both directions will be mowed in late march because of ESA considerations. Prior to mowing that section will be conducted with spot treatment for nuisance weeds. The area will be mowed beyond 1 pass where the application was made.
- I-5 MP 116 to 139.50 Safety Mowing as needed to King County Line.
- SR 7 Both directions MP 47.5 to MP 52 for site distance.
- SR 706 MP 0.10-13.4 mow wider than one pass for high animal kill corridor.
- Bike Trail MP 107 to MP 109 mowed twice a year.
- Other areas may be mowed at the direction of area management

**Tree and Brush Control Zones 2 and 3**

Locations of planned treatments

- All Guardrails in the Area that have overgrowth of vegetation
- SR 121 MP 0-5 canopy
- SR 161 MP 0-13 Cut tree branches winter operations, sight distance mowing
- SR 162 MP 0-20 Cut tree branches for winter operations, Brush cutting for sight distance
- SR 706 MP 10 to 13.65 Trees of concern, trimming/pruning for winter operations
- SR 165 MP 11-20 Cut branches winter operations, sight distance signs, mowing
- SR 167 MP .56 to .76 Remove Limbs-On Tribal Land

**Noxious Weed Control**

Target species present on state roadsides in Thurston and West Pierce County:

<i>Common Name/Botanical Name</i>	<i>Treatment Notes</i>
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Gorse/ <i>Ulex europaeus</i>	Control has been executed on all known infestations and sites are being monitored.
Purple loosestrife/ <i>Lythrum salicaria</i>	Control has been executed on all known plants and sites are being monitored.
Hawkweed sp./ <i>Hieracium sp.</i>	Hot spots have been mapped in HATS and sites are treated annually in early summer.
Knotweed sp./ <i>Polygonum sp.</i>	Target infestations have been mapped in HATS and sites are treated annually after most plants have flowered.
Ragwort tansy/ <i>Senecio jacobaea</i>	Heavily infested locations have been identified for early season treatment, then in early summer when plants are in flower crews conduct hand-pulling and seed disposal.
Rush skeletonweed/ <i>Chondrilla juncea</i>	EDRR locations have been mapped in HATS and sites are treated annually in early spring. All visible plants are then treated when flowering throughout the summer.
Toadflax Dalmatian/ <i>Linarea dalmatica</i>	EDRR locations have been mapped in HATS and sites are treated annually in late summer.
Hemlock, poison/ <i>Conium maculatum</i>	EDRR locations have been mapped in HATS and sites are treated annually in early spring. All visible plants are then treated when flowering throughout the summer.
Knapweed sp./ <i>Centaurea sp.</i>	EDRR locations have been mapped in HATS and sites are treated annually in early spring. All visible plants are then treated when flowering throughout the summer.
Butterfly bush/ <i>Buddleia davidii</i>	EDRR locations have been mapped in HATS and sites are treated annually in late summer.

### **Nuisance Vegetation Control**

Focus areas and planned treatments for Nuisance Vegetation Control in Zone 3:

- I-5 and 72<sup>nd</sup> MP 129 Annual Mowing (Near Bates. Except for stormwater ponds)
- I-5 and 56<sup>th</sup> MP Annual Mowing
- I-5 and 38<sup>th</sup> MP 131 Annual Mowing (Except for stormwater ponds)
- SR 101 and Mud Bay (Well Head Protection)
- I-5 by Scatter Creek Spray for Scotch Broom
- Spot treat for re-growth of previously controlled scotch broom and blackberry on I-5 Exit 118 SB quadrants
- Other areas may applied at the direction of area management

### **Landscape**

Locations of designated formal landscape areas and treatment notes:

- I-5 MP104.73 – 104.83 IVY BED
- I-5 MP105.04 – 105.2 SHRUB BED
- I-5 MP105.24 – 105.5 SHRUB AND IVY BEDS includes the capitol interchanges
- I-5 MP105.55 – 105.92 IVY BED
- I-5 MP106.04 – 106.58 IVY BED
- I-5 MP106.58 – 106.6 COTONEASTER AND IVY yearly light pruning with heavy pruning every 7 to 10 years as needed
- I-5 MP106.6 – 106.66 IVY BED
- I-5 MP106.66 – 107.58 SHRUB BED

- I-5 MP107.64 – 107.91 ELEVATED SHRUB BED does not receive a Casoron application
- I-5 MP107.91 – 108.51 IVY AND SHRUB BEDS including the Sleater Kinney interchange
- I-5 MP108.51 – 108.93 SHRUB BED identified as a shiny geranium sight. Also has a 6 to 6 foot grass fringe on the mainline side
- I-5 MP108.93 – 109.28 SHRUB BEDS including the 109 interchange
- I-5 MP111.39 – 112.04 SHRUB BEDS with grass fringe including the 111 interchange
- I-705 area in and around downtown Tacoma and areas designated as formal landscaped areas.
- I-5 MP108.94 – 109.12 WAX MYRTLE moderate pruning every 2 years. Nuisance and noxious control as needed
- I-5 MP112.15 – 111.84 SHRUB BEDS with grass fringe mainline side includes the 111 interchange
- I-5 MP109.24 – 108.9 SHRUB BEDS including 109 interchange
- I-5 MP108.9 – 108.46 SHRUB BEDS identified as a shiny geranium class a noxious weed area
- I-5 MP108.46 – 108.16 IVY BED with grass fringe mainline side includes Sleater Kinney interchange
- I-5 MP109.28 to the interchange at 111 mowed back to the native tree line.
- I-5 MP102.6 SHRUB BED. Trosper off ramp right side up to the stop light.
- I-5 MP102.6 – 102.7 IVY BED Gore to Gore at Trosper and interior of ramps.
- I-5 MP102.89 – 103.43 SHRUB BED.
- I-5 MP103.53 – 103.65 SHRUB BED Deschutes off ramp both sides
- I-5 MP103.98 – 104.31 IVY BED. 101 off ramp both sides
- I-5 MP104.38 – 104.5 SHRUB BEDS Includes 101 on ramp and Deschutes on ramp both sides
- I-5 MP108.16 – 106.87 SHRUB BEDS includes Pacific Ave. interchanges
- I-5 MP106.69 – 106.51 COTONEASTER WITH IVY yearly light pruning. Heavy pruning every 7 to 10 years as needed
- I-5 MP106.51 – 105.91 IVY BED
- I-5 MP105.81 – 105.39 IVY BEDS with elevated ivy including the capitol interchanges trim elevated ivy every 2 to 5 years as needed
- I-5 MP105.26 – 105.02 SHRUB BEDS Henderson on ramp both sides. Did not receive a Casoron application in 2014
- I-5 MP105.02- 104.59 IVY BED
- I-5 MP104.46 – 104.27 IVY AND SHRUB BEDS includes the hwy. 101 interchange. North side of 101
- I-5 MP104.27 – 103.03 IVY AND ELEVATED IVY trim elevated ivy every 2 to 5 years as needed. Includes second Ave. interchange and south side of HWY 101
- I-5 MP102.94 – 102.79 IVY AND SHRUB BEDS includes new planting at Trosper and Trosper interchange
- SR 101 MP365.22 – 365.65 SHRUB BEDS this is both directions at black lake interchange.
- Other areas may be applied at the direction of area management

## **Appendix 2 – Area 2 – Kitsap, Mason, and Southeast Jefferson County**

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### **Zone 1 – Bareground**

Locations where no herbicide will be applied:

- US101 MP335 (Skokomish Tribe)
- Locations where neighbors have signed a “No Spray Agreement”.

Locations where treatment will be applied using aquatic herbicides:

- SR305 MP 0-6.8 (Bainbridge Island)
- SR302 MP 15.8-15 (Purdy Spit)
- SR166 MP 0-2.16 (Port Orchard Waterfront)
- SR106 MP 1.6-20 (Hood Canal)

### **Safety Mowing – Zone 2**

Locations with increased mowing widths:

- Intersections with sight distance problems are given special attention and mowed to adequate widths throughout the area.

### **Tree and Brush Control Zones 2 and 3**

Mow median areas for selective woody species

- US 101 for sight distance
- SR 3 for sight distance
- SR 16 for sight distance

### **Hazard Tree Removal/Zone 3**

Locations of Planned Treatments

- Trees within and adjacent to the right of way are routinely monitored by maintenance staff for potential risk to the highway and/or neighboring structures. Individual and stands of mature trees identified as a potential imminent threat will be further evaluated and removed as soon as possible where needed. These activities also include cleanup of wind-blown limbs and debris if not part of a declared disaster.

### **Noxious Weed Control**

Target species present on state roadsides in Kitsap, Mason, and Southeast Jefferson County:

<b><i>Common Name/Botanical Name</i></b>	<b><i>Treatment Notes</i></b>
Bull thistle/ <i>Cirsium vulgare</i>	Control small patches where visible in conjunction with seasonal patrols

Butterfly bush/ <i>Buddleia davidii</i>	Control where visible, priority target sites mapped for early detection sites and treatment at flower stage.
Canada thistle/ <i>Cirsium arvense</i>	Control small patches and individual plants where visible in conjunction with seasonal patrols
Common mullein/ <i>Verbascum thapsus</i>	Control where visible in conjunction with seasonal patrols
Hawkweed sp./ <i>Hieracium sp.</i>	Control where visible in conjunction with seasonal patrols
Knapweed sp./ <i>Centaurea sp.</i>	Control where visible in conjunction with seasonal patrols throughout the area, priority target sites are mapped and treated in the spring
Knotweed sp./ <i>Polygonum sp.</i>	Target sites mapped and treated after flower stage in late summer
Orange Hawkweed/ <i>Hieracium a.</i>	Target sites mapped and treated at early flower stage in summer
Poison hemlock/ <i>Conium maculatum</i>	Control where visible in conjunction with seasonal patrols, priority target sites are mapped and treated in the spring
Purple loosestrife/ <i>Lythrum salicaria</i>	Target sites mapped and treated at early flower stage in summer
Scotch broom/ <i>Cytisus scoparius</i>	Controlled only when present in small isolated patches, in conjunction with seasonal weed patrols.
Sulfur cinquefoil/ <i>Potentilla recta</i>	Target sites mapped and treated in the spring
Tansy ragwort/ <i>Senecio jacobaea</i>	Occurs sporadically throughout the area. All visible plants are sprayed in the spring prior to bud/seed set, any remaining plants visible in flower are hand pulled with seed heads removed, bagged, and disposed of
Wild chervil/ <i>Anthriscus sylvestris</i>	Target sites mapped and treated in early spring
Yellow flag iris/ <i>Iris pseudacorus</i>	Target sites mapped and treated in summer

Additional planned treatment notes:

**Westside/Shelton**

- SR 101 MP 362 to 294 Plan to treat noxious weeds as needed.
- SR 101 and SR 106 Skokomish Indian Reservation we will continue to work with the Department of Natural Resources to address noxious weeds and will monitor for reappearance of knotweed and treat as needed.
- SR 101 MP 335.7 Planned follow up treatment to inject giant hogweed patch for eradication.
- SR 003 MP 1-25 Plan to treat for noxious weeds and follow up treatment of tansy ragwort.
- SR 106 MP 2-20 Plan to treat for noxious weeds as needed.

**Eastside/Port Orchard**

- SR 305 MP 0.27 to 6.8 Plan to treat noxious weeds including poison hemlock and tansy ragwort Bainbridge Island.
- SR 003 SB MP 37.8 Plan a follow up treatment of knotweed patches.
- SR 302 MP 15 Plan to treat knotweed patch for eradication.
- SR 016 MP 27.8 to 28.1 Plan a follow-up treatment of knotweed regrowth in the median.
- SR 016 MP 28.5 WB Plan a follow up treatment of knotweed on right shoulder.
- SR 300 MP 2.3 to 3.0 Plan to treat knotweed along shoulder between roadway and Hood Canal.
- SR 003 MP 35 to 36.5 Plan a follow up treatment to knapweed on right shoulder.
- SR 003 MP 53.38 Plan a follow up treatment of knapweed patch.

### **Nuisance Vegetation Control**

Focus areas for Nuisance Vegetation Control in Zone 3:

- SR16 – Wollochet Interchange
- SR3 – City of Bremerton partnership areas
- US101 – Steamboat, Wallace Kneeland, Matlock Interchanges
- US101 – MP 350 - SR3/US101 Interchange and areas to the south maintained in partnership

## **Appendix 3 – Area 3 – Clallam and Jefferson (all but southeast) Counties**

### **Zone 1 - Bareground**

Locations where only aquatically labeled products will be applied:

- The entire length of SR 112 will be treated in May-June timeframe

### **Safety Mowing – Zone 2**

Locations with increased mowing widths:

- Intersections with site distance problems are given special attention and mowed to adequate widths throughout the area.

### **Tree and Brush Control Zones 2 and 3**

Locations of planned treatments:

- SR19 has some canopy trimming along with site distances.
- SR20 has some canopy trimming along with site distances.
- SR112 has some canopy trimming along with site distances.
- SR116 has some canopy trimming along with site distances
- US101 for sight distance on inside corners and around intersections

### **Hazard Tree Removal/Zone 3**

Locations of planned treatments:

- SR19, 3 to 5 trees.
- SR20, 10 to 20 trees.
- SR112, 5 to 10 trees
- US101, 15 to 25 trees.

### **Noxious Weed Control**

Class A noxious weed infestations on state roadsides in Clallam and Jefferson Counties:

<b><i>Common Name/Botanical Name</i></b>	<b><i>Treatment Notes</i></b>
Giant hogweed/ <i>Heracleum mantegazzianum</i>	Known to occur in one location, which has been controlled and is still being monitored for any regrowth.

Target noxious weed species present on state roadsides in Clallam and Jefferson Counties:

<b><i>Common Name/Botanical Name</i></b>	<b><i>Treatment Notes</i></b>
Butterfly bush/ <i>Buddleia davidii</i>	Target sites mapped and treated mid to late summer
Common reed/ <i>Phragmites australis</i>	Target sites mapped and treated in early summer
Common teasel/ <i>Dipsacus fullonum</i>	Control where visible in conjunction with seasonal patrols
Canada thistle/ <i>Cirsium arvense</i>	Control small patches and individual plants where visible in conjunction with seasonal patrols
Dalmation toadflax/ <i>Linaria dalmatica</i>	Target sites mapped and treated in the spring and fall
European hawkweed/ <i>Hieracium sabaudum</i>	Target sites mapped and treated in the late summer.
Herb Robert/ <i>Geranium robertianum</i>	Control where visible in conjunction with seasonal patrols throughout the area, priority target sites are mapped and treated in the early spring
Hoary alyssum/ <i>Berteroa incana</i>	Target sites mapped and treated in spring

Knapweed sp./ <i>Centaurea sp.</i>	Control small patches and individual plants where visible in conjunction with seasonal patrols
Orange hawkweed/ <i>Hieracium aurantiacum</i>	Target sites mapped and treated at early flower stage in summer
Perennial peavine/ <i>Lathyrus latifolius</i>	Avoid mowing, control is being conducted through volunteer weed control on US101 between Lakes Quinalt and Crescent.
Poison hemlock/ <i>Conium maculatum</i>	Control where visible in conjunction with seasonal patrols throughout the area, priority target sites are mapped and treated in the early spring
Purple loosestrife/ <i>Lythrum salicaria</i>	Target sites mapped and treated at early flower stage in summer
Reed canary grass/ <i>Phalaris arundinacea</i>	Control is being conducted through volunteer weed control on US101 between Lakes Quinalt and Crescent. Always decontaminate mowers after mowing this plant to prevent seed spread.
Scotch broom/ <i>Cytisus scoparius</i>	Control in Clallam Co. pit sites, controlled in conjunction with seasonal weed patrols, when present in small isolated patches, SR104/US101 interchange and portions of the Sequim bypassed are being managed as Nuisance Vegetation Control.
Sulfur cinquefoil/ <i>Potentilla recta</i>	Target sites mapped and treated in spring
Tansy ragwort/ <i>Senecio jacobaea</i>	Occurs sporadically throughout the area. All visible plants are sprayed in the spring prior to bud/seed set, any remaining plants visible in flower are hand pulled with seed heads removed, bagged, and disposed of
Wild chervil/ <i>Anthriscus sylvestris</i>	Target sites mapped and treated in early spring
Hawkweed sp./ <i>Hieracium sp.</i>	Control where visible in conjunction with seasonal patrols

### **Nuisance Vegetation Control**

Focus areas for Nuisance Vegetation Control in Zone 3:

- US 101 through the Sequim Bypass
- US 101 / SR 104 interchange
- Clean the area west of the Hood Canal Bridge MP 13.9 as a Gateway to the area. This will include the removal of garbage, small trees (about 35-40 under 6”), mowing and herbicide spraying of nuisance & noxious vegetation on approximately 1 acre in an effort to encourage desirable vegetation and grasses. The blackberries and emerging trees will be treated again in late spring to early summer and again late summer to early fall.

## **Appendix 4 – Area 4 – Gray Harbor County**

### **Zone 1-Bareground**

Locations where no herbicides will be applied to shoulders:

- Hoquiam Watershed US 101 / MP 94.4 - 100.32 (guardrails will be treated with aquatics)
- Select areas within the Olympic National Forest on US 101 between MP 118 - 130.8

Locations where treatment will be applied using aquatic herbicides:

- US 101 crossing Quinault tribal lands
- SR 109 crossing Quinault tribal lands

Intersections where a wider bare gravel area will be established for improved sight distance:

- US 12 - Dunlap (24.50), Elma Gate West (30.14), Shelton (32.01)
- Elma Gate East (34.53), Merry (35.79), Blockhouse (36.35)
- Elma Gate East (37.44), Forstrom (40.68), Roseburg SW (42.89), Hilt (43.2), Denmark (43.49)
- US 101 - Lund (74.01), Artic (74.8 / 75)
- SR 107 - Lempie (1.79), Blue Slough (2.96), Melbourne (5.3 / 5.78), Minkler (6.76)
- SR 108 - Eich (9.25), Hurley Waldrip (9.7)

### **Safety Mowing – Zone 2**

Locations with increased mowing widths:

- 2 pass (10' wide) mowing - Olympic National Forest US 101 / MP 118-130.8
- 2 pass (10' wide) mowing - SR 109 MP 16.16-20.79 4<sup>th</sup> of July Festival
- 2 pass mowing SR 109 MP 16 to 40 brush and tree control
- City of Hoquiam mows US 101 / MP 94.4 - 100.32
- 2 pass (10' wide) mowing US 012 MP 45-46.4
- 2 pass mowing SR 8 MP 4 to MP area was in a construction project last two years.
- 2 pass mowing for brush and tree control US 101 MP 68 to 80.6
- All interchanges and intersections will be mowed for sight distance as required
- Second mowing pass will be made behind all hardware as required

### **Tree and Brush Control Zones 2 and 3**

Locations of Planned Treatments

- SR 8 Median MP 9-12
- SR 109 MP 32.2-40.5

### **Hazard Tree Removal/Zone 3**

Locations of Planned Treatments

- Through an agreement with the Forest Service, the forested area bordering the highway between US 101 MP 123.54 - 125.54 and 129 - 130.77 is cruised every year for hazard trees. Mutually identified hazard trees are removed.

### **Noxious Weed Control**

Target noxious weed species present on state roadsides in Grays Harbor County:

<b><i>Common Name/Botanical Name</i></b>	<b><i>Treatment Notes</i></b>
Butterfly bush/ <i>Buddleja davidii</i>	Some sites are mapped and treated in spring prior to bloom
Gorse/ <i>Ulex europaeus</i>	Target sites mapped and treated in spring prior to bloom
Herb Robert/ <i>Geranium robertianum</i>	Target sites mapped and treated in spring prior to bloom
Hawkweed species/ <i>Hieracium sp.</i>	Control where visible in conjunction with seasonal patrols

Himalayan knotweed/ <i>Polygonum polystachyum</i>	Target sites have been mapped and controlled in previous seasons. Monitor for any regrowth for five years.
Japanese knotweed/ <i>Polygonum cuspidatum</i>	Target sites mapped, and treated in late summer/fall
Knapweed sp./ <i>Centaurea sp.</i>	Target sites mapped Control where visible in conjunction with summer seasonal patrols
Orange hawkweed/ <i>Hieracium aurantiacum</i>	Target sites mapped and treated in early spring, additional treatments conducted if necessary in conjunction with seasonal patrols
Poison hemlock/ <i>Conium aculatum</i>	Target sites mapped and treated in spring prior to bolt
Purple loosestrife/ <i>Lythrum salicaria</i>	Target sites mapped and treated at early flower stage in summer
Ragwort tansy/ <i>Senecio jacobaea</i>	Occurs sporadically throughout the area. All visible plants are sprayed in the spring prior to bud/seed set, any remaining plants visible in flower are hand pulled with seed heads removed, bagged, and disposed of
Rush skeletonweed/ <i>Chondrilla juncea</i>	Target sites mapped and treated in spring prior to bolt
Shiny geranium/ <i>Geranium lucidum</i>	Target sites mapped and treated several times throughout the growing season as needed
Teasel/ <i>Dipsacus fullonum</i>	Target pioneer infestations are mapped and treated in spring
Wild chervil/ <i>Anthriscus sylvestris</i>	Target sites mapped and treated in early spring
Yellow flag iris/ <i>Iris pseudacorus</i>	Target sites have been mapped and controlled in previous seasons. Monitor for regrowth.

Additional treatment notes:

- Tansy Ragwort - SR 8 & US 12 in Thurston County
- Gorse - SR 109 MP 24.5
- Spotted Knapweed - SR 101 MP 114.1-114.2
- Spotted Knapweed - SR 105 MP 45.90
- Yellow Hawkweed - SR 109 MP 12-12.2
- Mouse ear Hawkweed - SR 109 MP 29.8 - 30.1
- Yellow Flag Iris - US 12 MP 20.35
- Skelton Weed - US 12 MP 42.6- 42.9
- Knotweed - various locations

**Nuisance Vegetation Control**

Focus areas for Nuisance Vegetation Control in Zone 3:

- US 12 Devonshire Interchange
- US 12/SR 8 Interchange
- Select locations along US 12/SR 8 corridor