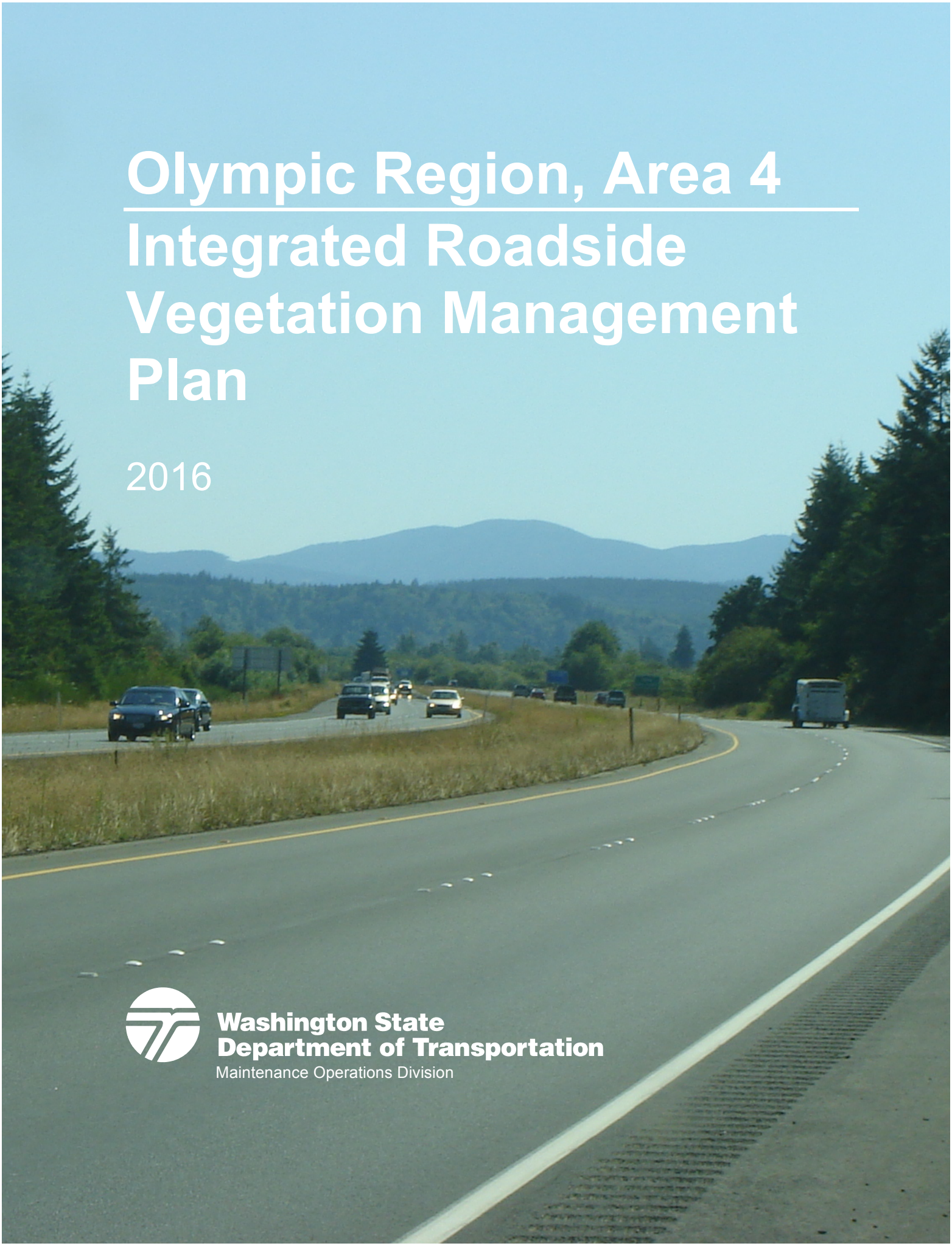
Olympic Region, Area 4
Integrated Roadside Vegetation Management Plan

2016



Washington State Department of Transportation
Maintenance Operations Division

Introduction

The Washington State Department of Transportation's (WSDOT) Olympic Region Area 4 manages vegetation within approximately 250 miles of state highway corridor in Grays Harbor, southwest Jefferson, and western portions of Mason and Thurston Counties. The major corridor in the area is State Route 8/US 12, which is the major connection between the south Puget Sound basin and the Washington Coast. Other corridors include 85 miles of US 101, State Routes 12, 105, 107, 108, 109, and 115. 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 area.

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 areas 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 Olympic Region Area 4 for the 2016 growing season. It provides detailed treatment prescriptions 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.

Beginning with the 2016 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 through this new system. This development in WSDOT maintenance management will greatly improve the agency's success in properly executing 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 Area 4 Superintendent – Ted Twigg, or the State's Roadside Asset Manager – Ray Willard.

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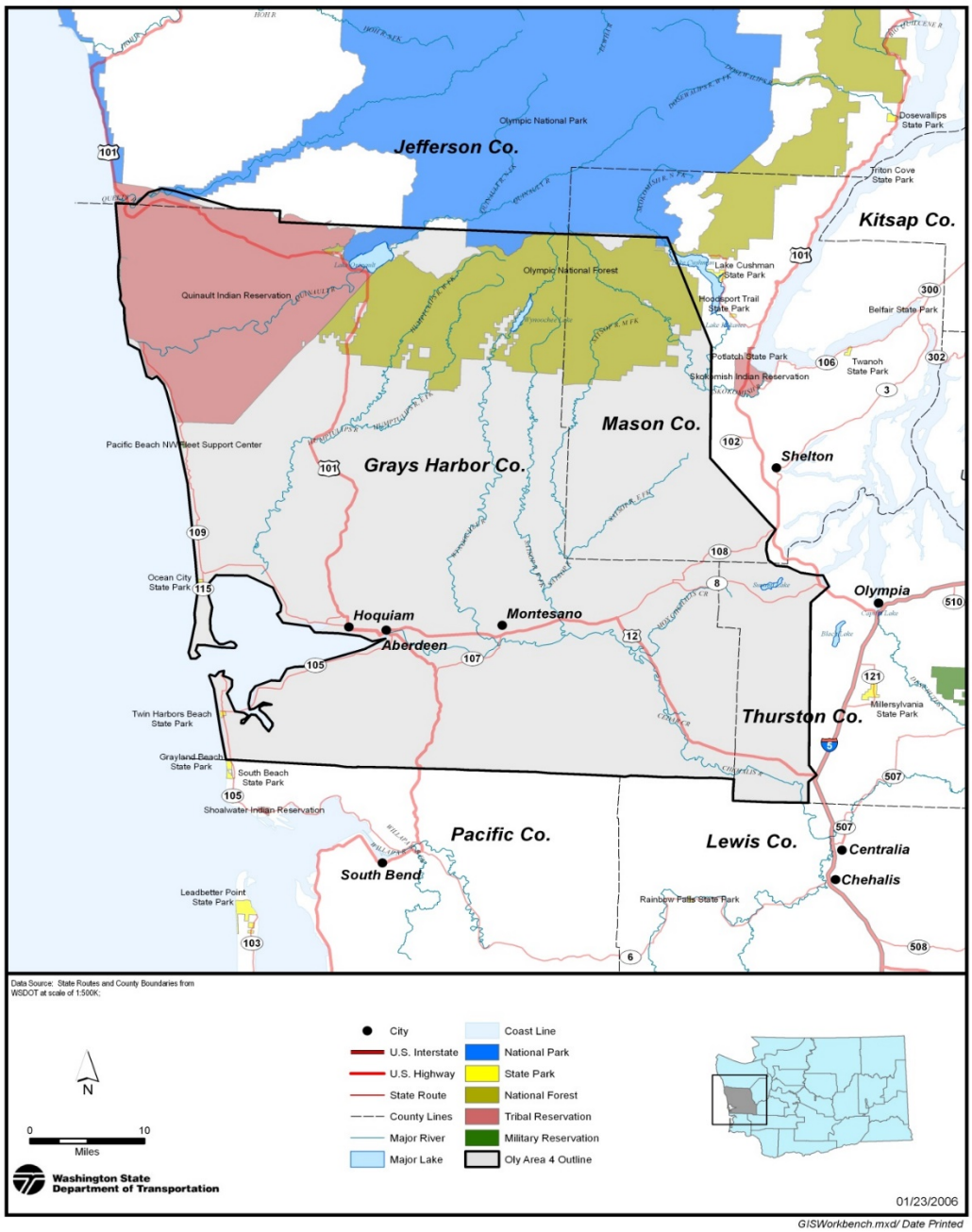

Olympic Region, Area 4 Map
Figure 1

This is an outline of the overall approach and geographic distribution of roadside vegetation management requirements throughout the maintenance area in 2016. Information is organized in relation to three 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**, and **Nuisance Weed Control**. 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.

Control of Vegetative Obstructions – MAP Activity 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 work activities in this category fall into four groups – **Pavement Edge Maintenance/Zone 1**, **One Pass 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: Zone 1 Spray

This work includes the application of herbicides to road shoulders in a select set of corridors and locations throughout the area. The objective of these applications in the designated locations is maintenance of a 2-foot-wide gravel shoulder that is free of vegetation. This treatment is necessary in the locations described below to provide visibility and maintainability of roadside hardware and guideposts, room for vehicles to pull off on shoulders, storm water drainage, and/or added visibility of wildlife approaching the highway.

Total Units of Planned Treatment

- Apply approximately **116 acres** of herbicide treatment to road shoulders throughout the area.

Locations of Planned Treatments

- Planned treatment sites are mapped in HATS layer – **Zone 1 Spray Reference**.
- All established gravel shoulders throughout the area will be treated annually with herbicides, except in the locations listed below.
- Locations where grasses are established to the edge of pavement and no residual herbicide treatments will be applied:
  - Hoquiam Watershed US 101 / MP 94.4 - 100.32
  - Select areas within the Olympic National Forest on US 101 between MP 118 - 130.8
  - Private property no spray agreements - All routes
  - Inside City Limits except limited access areas
  - Areas where natural surface water bodies are within 15 ft. of the roadway pavement
- Locations where aquatically approved mixture of herbicides will be used to treat all shoulder include:
  - US 101 crossing Quinalt tribel lands
- Steel plow is run periodically on all routes, in areas without guardrail to remove minor amounts of shoulder buildup.
- At intersections with local roads throughout the area, a wider bare gravel area will be established for improved sight distance and traffic safety. Areas where additional bare ground treatment will be applied include:
  - 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)

Treatment Methods

- All noted locations will be treated in mid to late spring with the following mixture of herbicides and adjuvants in ounces per acre:

  Elma Section
  - 48 oz. Roundup Pro
  - 4 oz. EsplAnade
  - 4 oz. Milestone
  - 16 oz. Insist 90

  Aberdeen Section
  - 48 oz. AquaNeat
  - 3 oz. Opensight
  - 4 oz. Frequency
  - 16 oz. Insist 90

  Aquatic Sensitve Areas
  - 48 oz. Aqua Neat
  - 16 oz. Insist 90

One Pass Mowing/Zone 2
Work Operation: 1625
HATS Form: Zone 2 One Pass Mowing

This work includes routine mechanical cutting of vegetation on the road shoulder immediately adjacent to pavement. Mowing is necessary in areas with 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.

Total Units of Planned Treatment

- Approximately **250 acres**

Locations of Planned Treatments

- Most routes throughout the area - This is dependent on summer growth
- 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 for Fire Over the Water Festival
- City of Hoquiam mows US 101 / MP 94.4 - 100.32

Treatment Methods

- Side flail mower & sidearm rotary mower
- Hand held gas powered weed trimmers used as needed for spot treatment where sight distance is impacted.

Tree and Brush Control/Zone 2 and 3
Work Operations: 1622, 1625, 1626
HATS Forms: 3 sub-forms under Tree/Brush Control – Spray, Trimming Mechanical, and Trimming Manual

This includes work in Zone 2 such as periodic trimming or removal of brush and trees encroaching on traffic operations and visibility. Also included is work in Zone 2 and 3 when controlling emergent undesirable tree species to prevent them from growing into hazard trees.

Total Units of Planned Treatment

- An average of **60 acres** per year are trimmed and/or controlled with mechanical and herbicide treatments.

Locations of Planned Treatment

- SR 8 Median MP 9.7 - 12
- SR 109 MP 32.2 - 40.5
- SR 105 MP 28.5 - 30.0 (willows)

Treatment Methods

- Trim with side arm mower, mow with Brown Brush Monitor in areas with heavy seedling growth, stump treatments, hand work and bare ground herbicide applications

Hazard Tree Removal/Zone 3

Work Operation: 1628

HATS Forms: 2 sub-forms under Hazard Tree Removal – Individual Tree Removal and Stand Removal

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

- Between 100 and 200 hazard trees are removed throughout the area in a typical year.

Locations of Planned Treatments

- Annual evaluation and removal of identified hazard trees is a year-round practice throughout the area.
- Through an agreement with the Forest Service, the forested area bordering the highway between MP 123.54 - 125.54 and 129 - 130.77 is cruised every year for hazard trees. Mutually identified hazard trees are removed.

Treatment Methods

- Chain saw
- Trees will be dropped and left in place whenever possible

Noxious Weed Control – MAP Activity 3A2

This group of activities is focused on control of weed species that are legally designated by state and county regulations for required control by all property owners. Work under this group is considered second priority after safety related objectives have been addressed. In some counties noxious weed laws may be enforced with fines and/or control work by the counties and billing of property owners if adequate control is not accomplished. WSDOT communicates annually and throughout the season with each County Noxious Weed Board to identify and prioritize infestations and planned control efforts on state highways.

In most cases the primary goal in noxious weed control is to prevent seed production and to reduce population levels where possible. The majority of IVM treatments are carried out as needed throughout the growing season on all highways in the area to accomplish this using a combination of manual, mechanical, herbicide, and/or biological agents. In addition, WSDOT and the County Noxious Weed Boards have identified a set of highest priority infestations where complete eradication and/or prevention of spread into uninfested regions are the goals.

General Noxious Weed Control

Work Operations: 1616, 1618, 16

HATS Forms: 4 sub-forms under Noxious Weed Control/General – Noxious Weed Control/Spray, Noxious Weed Control/Mechanical, Noxious Weed Control/Manual, and Noxious Weed Control/Biological

These operations are timed and carried out throughout the season to prevent the spread of legally designated noxious weed species, and to reduce or eliminate populations wherever possible. Integrate treatment plans combine field monitoring and a mixture of seasonally timed treatment 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.

Designated Species Known to Exist on WSDOT Right of Way

Common Name/Botanical Name
Shiny geranium/Geranium lucidum
Ragwort tansy/Senecio jacobaea
Knapweed sp./Centaurea sp.
Purple loosestrife/Lythrum salicaria
Wild chervil/Anthriscus sylvestris
Orange hawkweed/Hieracium aurantiacum
Gorse/Ulex europaeus
Japanese knotweed/Polyginum cuspidatum
Himalayan knotweed/Polyginum polystachyum
Hawkweed species
Yellow flag iris

Total Units of Planned Treatment

- Approximately **150 acres** will be treated with herbicides and/or hand pulled.

Locations of Priority Treatments

- Treatments will be made in the late-spring/early-summer timeframe prior to seed production wherever possible.
- Technichians will develop location maps for future reference of priority treatments in early spring and late summer during the 2017 growing season.
- Priority treatment sites for the 2016 season include:
    - 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

Treatment Methods and Timing

- A broad spectrum mixture of herbicides will be utilized in the late-spring/early-summer treatment window:
    - Element 3A @ 32 oz./acre
    - Milestone @ 4.5 to 6 oz./acre
    - Metcel @ 1 oz./acre
    - Insist 90 @ 16 oz./acre
- Hand pulling will be utilized for some species control where necessary
- Location points will be recorded in HATS for a series of seasonally timed applications during the 2017 growing season. Typical species to be mapped for priority seasonally timed applications include:

  Early Season Targets
    - Knapweeds, Tansy ragwort, Gorse

  Late Season Targets
    - Knotweed, Butterfly bush, Himalayan blackberry

Priority Noxious Weed Control

Work Operations: 1616, 1618, 1641

HATS Forms: 4 sub-forms under Noxious Weed Control/Priority – Noxious Weed Control/Spray, Noxious Weed Control/Mechanical, Noxious Weed Control/Manual, and Noxious Weed Control/Cultural

These operations are directed at locations where Class A noxious weed species are present on the right of way and state law requires complete eradication. Site specific integrated treatment plans are developed for each identified location/species. Ongoing operations will combine field monitoring and a mixture of seasonally timed treatment methods over a series years. Sites must also be monitored for 3 to 5 years after control to check for grow back.

Species and Locations

- No Class A noxious weed species are known to exist on state right of way in Olympic Region Area 4.

Nuisance Vegetation Control – MAP Activity 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

Work Operations: 1611, 1612, 1699

HATS Forms: 5 sub-forms under Nuisance Vegetation – Nuisance Vegetation Control/Spray, Nuisance Vegetation Control/Mechanical, Nuisance Vegetation Control/Manual, Nuisance Vegetation Control/Biological, and Nuisance Vegetation Control/Cultural

Nuisance vegetation control operations are only conducted in a limited number of locations as described below and areas mapped in HATS as polygons. Maintenance activities in each identified location are planned based on a multi-year treatment strategy utilizing monitoring and the most effective combination of control methods with a goal of establishing desirable vegetation requiring 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 **25 acres** of nuisance weed control will be conducted with a combination of spraying and mowing in designated priority locations

Locations of Priority Treatments

- US 12 Devonshire Interchange
- US 12/SR 8 Interchange

Treatment Methods and Timing

- Mow scotch broom and blackberries with Brown Brush Monitor on a two to three year cycle depending on rate of regrowth. Once infestations have been minimized areas will be spot treated as needed annually to prevent weed seed production.

- Steep areas will be mowed with arm mounted mowing heads and/or hand tools If not stump treated, regrowth will be treated with foliar herbicides in the fall or in the following spring.