

Northwest Region, Area 3

Integrated Roadside Vegetation Management Plan

2018



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

Introduction

The Washington State Department of Transportation's (WSDOT) Northwest Region Area 3 manages vegetation within approximately 221 miles of state highway corridor primarily in Snohomish and Northeast King County. The area maintains the Interstate 5 corridor through most of Snohomish County, the State Route (SR) 2 corridor up to Stevens Pass, the SR 9 corridor between the King County line and Arlington, SR 203, 522, and a number of smaller collector/distributor routes in and around the Everett area. A map of the entire 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 works within budget and 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 Northwest Region Area 3 for the 2018 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 2018 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 other vegetation management activities. Wherever appropriate the agency is looking for opportunities to plan and cooperate with others in managing the roadside. Please direct any questions, comments or suggestions to the Northwest Region Area 3 Superintendent – Ron Morton, Assistant Superintendent – John Tellesbo, or the State's Roadside Asset Manager – Ray Willard.

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Northwest Region, Area 3 IVM Work Plan – 2018

The section outlines the overall approach and geographic distribution of roadside vegetation management requirements throughout the maintenance area in 2018. Information is organized in relation to three groups 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 Vegetation 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 – 3A4

The work of this group of maintenance activities relates to preserving 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, 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: Spray Zone 1

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

This work involves the annual application of herbicides to road shoulders where necessary throughout the area. 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 stormwater drainage, and/or provide added visibility of wildlife approaching the highway.

Total Units of Planned Treatment

- Approximately **56 acres** of herbicide treatment will be applied to road shoulders throughout the area.

Locations of Planned Treatments

- For the 2018 season treatments will be applied only to the base of guardrail and cable rail throughout the area. This is being done as a temporary cost savings measure.
- Planned treatment locations are mapped in HATS layer – **Spray Zone 1**

Reference

Treatment Methods

- Herbicides are applied using a truck mounted power spray system set up to deliver a 4-foot band of spray mixture adjacent to the paved shoulder under hardware installations. Application widths will extend from the pavement edge to the back side of the hardware. The resulting width of treated shoulder may be wider in areas with steeper shoulder slope.
- Herbicide mixtures:
 - Option 1 (Pre-blended drums, Blend #6):**
 - Method 240SL @ 7 ozl/acre
 - Rodeo @ 53 ozl/ acre
 - Escort XP @ 4 ozl/acre
 - Option 2:**
 - Milestone @ 7 ozl/acre
 - Ranger Pro @ 53 oz / acre
 - Crosshair @ 4 ozl/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 Mowing

- Approximately **175 acres** of Zone 2 safety mowing will be conducted throughout the area.

Locations of Planned Mowing

- Planned Zone 2 mowing locations are mapped in HATS.
- All shoulders with vegetative growth are mowed as needed. Some locations only require mowing less than once a year, other locations with fast growing vegetation require mowing twice per year.

Treatment Methods

- Shoulder mowing operations are conducted with truck or tractor mounted flail or rotary cutting heads.
- Width of mowing varies between 5 and 20 feet as specified on HATS maps.
- Mowing operations are typically carried out in late spring, early summer, following Zone 1 herbicide applications and seed set on grass species.

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 tree 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.

Total Units of Planned Treatment

- Approximately **44 acres** sprayed throughout the area for control of seeding trees and selective brush trimming in Zone 2
- Approximately **50 acres** trimmed with tractor/truck mounted mowing equipment
- Approximately **35 acres** trimmed/pruned using hand tools

Locations of Planned Treatments

- As time allows throughout the year, annual mechanical trimming and selective removal operations are conducted throughout the area as needed to maintain safe traffic operations.
- Planned focus for trimming and removal operations for 2018 include:
 - I-5, SR 2, 204, 531, 529 – Early fall treat blackberry & small alders in Zone 2 with Krenite or Element 3A at recommended rates.
 - SR 9, 92, 96, 99, 524, 527 – Treat small alders in Zone 2 with Krenite or Element 3A at recommended rates, early Fall.

- SR 2, 9, 92, 96, 99, 524, 526 & 527 – Treat small alders in Zone 2 with Krenite or Element 3A at recommended rates, early Fall.
- SR 531, 528, 529, 204– Treat small alders in Zone 2 with Krenite or Element 3A at recommended rates, early Fall.

Treatment Methods

- Side trimming with truck or tractor mounted cutting arms are used to periodically hedge back side growth in some areas, and to selectively cut off emerging undesirable tree species.
- Hand held cutting tools are used for more selective pruning and removal of vegetative growth and overhanging branches where appropriate.
- Herbicides are used to trim back growth and remove undesirable emergent tree species in some locations. Herbicide treatments for this purpose are made late in the growing season whenever possible. Herbicides mixtures used include:
 - Krenite S @ 256 ozl/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 and removed as soon as possible where needed.

Total Units of Planned Treatment

- There are typically up to **100** mature hazard trees removed throughout the area each year.

Locations of Planned Treatments

- Crews are continuously looking for any trees that exhibit structural defects and could strike the road or neighboring property if they come down.
- If trees growing outside WSDOT right of way are hazards, crews work with the neighboring property owner to negotiate removal.

Treatment Methods

- WSDOT crews typically fall hazard trees as needed. In more challenging cases the Washington State Parks arborist crew is utilized.
- Wherever possible trees are dropped in place and left to decompose naturally.

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 prescribed 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.

No Class A noxious weed species are known to exist on WSDOT right of way in Northwest Region Area 3.

Designated Target Class B and C Species Known to Exist on WSDOT Right of Way in Northwest Region Area 3:

<i>Common Name/Botanical Name</i>	<i>Treatment Notes</i>
Bull thistle/ <i>Cirsium vulgare</i>	Control small patches where visible in conjunction with seasonal patrols
Common fennel/ <i>Foeniculum vulgare</i>	Target sites mapped and treated in the spring
Common hawkweed/ <i>Hieracium lachenalli</i>	Control where visible in conjunction with seasonal patrols
Common reed/ <i>Phragmites australis</i>	Planned treatment sites mapped in HATS and treatments are planned by WDFW crews and WSDOT crews in the spring and summer
Common teasel/ <i>Dipsacus fullonum</i>	Control where visible in conjunction with seasonal patrols
Canada thistle/ <i>Cirsium arvense</i>	Control small patches where visible in conjunction with seasonal patrols
Dalmatian toadflax / <i>Linaria dalmatica</i>	Target sites mapped and treated in the spring and fall
Hawkweed sp./ <i>Heiracium</i>	European, Tall, and Orange planned treatment sites mapped in HATS and treated in spring and summer.
Houndstongue/ <i>Cynoglossum officinale</i>	Target sites mapped and treated at early flower stage in spring
Knapweed sp./ <i>Centaurea sp.</i>	Control where visible in conjunction with seasonal patrols, 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
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
Sulfur cinquefoil/ <i>Potentilla recta</i>	Target sites mapped and treated at early flower stage in summer
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
Scotch broom/ <i>Cytisus scoparius</i>	Only controlled as a noxious weed west of MP 40 on SR 2
Yellow flag iris/ <i>Iris pseudacorus</i>	Target sites mapped and treated in the summer with aquatic herbicides
Wild chervil/ <i>Anthriscus sylvestris</i>	Target sites mapped and treated in the spring

Total Units of Planned Treatment

- Approximately **250 acres** will be treated with a mixture of herbicide treatments and other methods described below.
- Less than **50 acres** will be mechanically cut or pulled by hand

Locations, Treatment Methods, and Timing of Planned Treatments

- Crews from each section shed manage the noxious weed control within their sections as described below.
- **415310 Section**
 - I-5 – Target all visible noxious weeds by spot spraying using a portable tank from MP 183 to MP 207 starting in early May if weather allows. We will mainly target and we will use Capstone at a rate that is recommended on label. Tansy Ragwort on I-5 MP 185-187 Median, Chervil on I-5 MP 199-207 right shoulders and median, Poison Hemlock on I-5 MP 186-200 right shoulders and median.
 - In June, July and August target mainly Hawkweeds with the use of Milestone VM at a rate that is recommended on label. For Knotweed we will use Habitat at recommended rate on label.
 - Spurge laurel on I-5, MP 190.5-191.5 in median and right shoulders
 - SR 531 – Control noxious weed that may appear through the growing season.
 - SR 529 – Control Phragmites with herbicide applications will be applied by WDFW & WSDOT if time and resources allow. We will be focusing on SR 529 for eradication of Poison Hemlock over the next few years. MP 4.35 – MP 6.19.
- **415320 Section**
 - US 2, SR 203,522 – Target noxious weeds by spot spraying, using a portable tank from MP 5 to MP 56 starting in early May thru August if weather permits. We will mainly target, Dalmatian toadflax, Tansy Ragwort, Hawkweeds, Knapweeds. We will use Capstone at recommended rates and Knotweed
 - SR 522 MP 15.2 – Knotweed
 - SR 203 MP 17 – Knotweed
 - US 2 MP 26.5 – Knotweed
 - US 2 44 to 45 – Dalmatian toadflax We will be focusing on eradication at this location over the next few years.
 - US 2 MP 49.5 – Orange hawkweed
- **415340 Section**
 - SR 2, 9, 92, 96, 99, 524, 525, 526 and 527 - Target noxious weeds by spot spraying using a portable tank starting in early May if weather allows, we will use Capstone at recommended rates. In June, July and August we will

- mainly target Hawkweeds and Tansy and we will use Capstone and at recommended rates.
- o Focus on SR 92 for eradication of Poison Hemlock over the next several years. MP 2.2.38 – MP 7.34.

Nuisance Vegetation Control – 3A3

Nuisance vegetation control takes place only in a select set of carefully prioritized locations throughout the area. These locations are delineated on maps in HATS as polygon outlines in Zone 3. Locations are prioritized to take place where there is heightened local interest in the visual appearance and condition of the roadside vegetation. Typical locations include: wider areas along limited access freeways in urban and suburban areas, freeway interchanges for local urban centers, environmentally sensitive areas, and areas where neighbors are willing to partner with WSDOT on management efforts. Because nuisance weed control activities are not related to safety or legal requirements, and are primarily undertaken to improve the visual appearance of the roadside, they are considered the last priority vegetation management needs.

For all areas designated to receive Nuisance Vegetation Control, multi-year treatment plans have been developed. The actions contained in these plans will be executed and tracked in relation to specific Zone 3 polygons for **Nuisance Vegetation Control Zone 3**, referenced on HATS maps and described below.

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 **5 acres** will be treated with herbicides for nuisance weed control.
- Approximately **35 acres** will be mowed as part of nuisance weed control efforts.

Locations, Treatment Methods, and Timing

- Information outlined below is mapped in HATS layer – **Roadside Features/Nuisance Vegetation Control Zone 3**.
- **415310 Section**
 - o I-5 –From MP 198.5 to MP 207.7, within the Tulalip reservation, nuisance mowing will be reimbursed by the tribe. On I-5 from Union Slough to the Snohomish River Bridge south bound, the right-of-way will be mowed to the ditch at the right-of-way line. On I-5 both northbound and southbound will be mowed to the right of way line every five years or later as needed from M.P 199.0 – 207.7. Remove under brush and limb trees to prevent illegal trespass encampments in zones 2 and 3 throughout the I-5 corridor as necessary.

- SR 529 M.P. 5.61 – 5.79 remove under brush and limb trees to prevent illegal trespass encampments in zones 2 and 3.
- **415320 Section**
 - US 2, 522,& SR 203 – Target smaller alders and maples with Krenite or Element 3A in the fall if time and resources allow and only as necessary.
- **415340 Section**
 - SR 2, 525 and 526 –Remove under brush and limb trees to prevent illegal trespass encampments in zones 2 and 3 as necessary.
 - SR 525 M.P. 2.50 and SR 526 M.P. 3.50 (L) remove under brush and limb trees to prevent illegal trespass encampments in zone 3.