

Northwest Region, Area 4 Integrated Roadside Vegetation Management Plan

2020



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

Introduction

The Washington State Department of Transportation (WSDOT) Northwest Region, Area 4 manages approximately 235 miles of state highway corridor in south King and eastern Pierce Counties. Highways in this area carry some of the highest traffic volumes in the state. Major corridors include portions of Interstates 5 and 405. Other limited access corridors include State Routes 18, 167, 518, and a portion of 509. SR 410 east of Enumclaw is referred to as the Mather Memorial Parkway and has been designated as an All American Road. 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 refining the most efficient maintenance procedures, and establishing the naturally self-sustaining roadside 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 required highway maintenance activities.

This plan serves as the guidance document for vegetation maintenance in Northwest Region Area 4 for the 2020 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.

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 are also tracked geographically through this new system, providing site specific reference of historic actions and results. 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 analyzing cost and results over time.

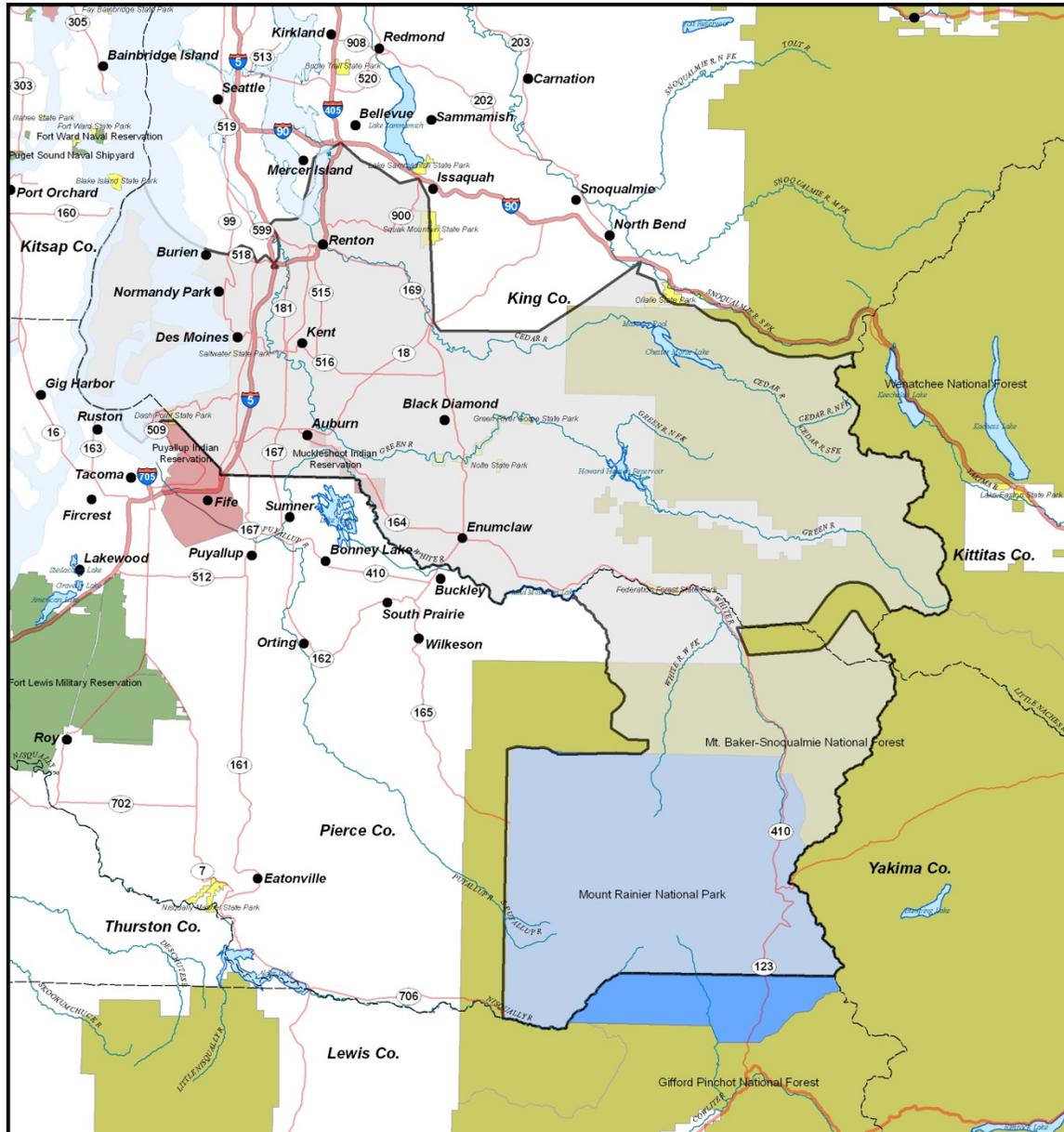
This year's plan also takes into account the fact that virtually all highway maintenance work was put on hold in response to the COVID-19 pandemic from the end of March through the end of May 2020. All 2020 IRVM plans have been adjusted to compensate for the backlog of weed control and shoulder maintenance work resulting from response to this global emergency.

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 4 Superintendent Mike Golden, Assistant Superintendent Gary Durst, or the State's roadside asset manager Ray Willard:

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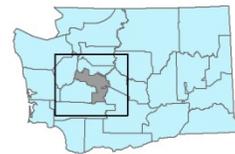


Data Source: State Routes and County Boundaries from WSDOT at scale of 1:500K.



Washington State
Department of Transportation

- Cities
- U.S. Interstate
- U.S. Highway
- State Route
- County Lines
- Major Lake
- Coast
- Major River
- NW area 4 Outline
- National Forest
- National Park
- State Park
- Tribal Reservation
- Military Reservation



March 2009

Northwest Region, Area 4 Map
Figure 1

NW Region, Area 4 IVM Work Plan – 2020

The section outlines the overall approach and geographic distribution of roadside vegetation management requirements throughout the maintenance area in 2020. 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, 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.

Safety First

Safety of our employees, the traveling public, and the environment are WSDOT's highest priorities and key to our success. Pre-Activity Safety Plans (PSAP) are developed for all activities and crews review, discuss and sign these plans at tailgate meetings, prior to each day's work. When applying herbicides, our licensed pesticide 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 environmental 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 any potential environmental and/or human health risks as part of the daily PASP meeting. Technicians 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 condition.

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 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 includes the 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 **250 acres** of bare ground road shoulders are maintained throughout the area.

Locations of Planned Treatments

- Planned treatment sites are mapped in HATS layer – **Zone 1 Treatments**.
- All road shoulders in the area receive annual bare ground treatments in the fall, with the following exceptions:
 - SR 410 MP 47.6 to 69.2 (within National Forest and Park)
 - SR 123 MP 7.6 to 16.3 (with National Park)

Treatment Methods

- Herbicides are applied using a truck mounted power spray system calibrated to deliver a 4-foot band of spray mixture adjacent to the paved shoulder. The resulting width of treated shoulder may be wider than 4 feet in areas with steeper shoulder slope.
- In locations with cable rail – If the rail is less than 8 ft. from the edge of pavement, the bare ground treatment will extend from the pavement edge to the back side of the cable rail. In locations where the rail is greater than 8 ft. from the edge of pavement, treatment will be applied in 4 ft. band directly under the rail.
- All locations will be treated in the September – October timeframe with the following pre-blended mixture of herbicides and adjuvants:
 - Method 240 SL @ 12.7 oz/acre
 - Esplanade @ 5 oz/acre
 - Ranger Pro Concentrate @ 51 oz/acre
 - Escort XP @ 1.5 oz/acre
 - Insist 90 Plus @ 16 oz/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 **250 acres**

Locations of Planned Treatments

- One 6-8 ft. pass on all roads where guardrail is not present.
- Area will be reevaluating mowing needs based on application of a 4 ft. Zone 1

Treatment Methods

- Mowing width varies between 5 and 25 feet as specified on the HATS maps.
- Mowing will be done with multiple types of tractor mounted mowers including a 3-deck, 25 ft. total width mower, side arm mounted flail and rotary mowers, and orchard mowers.
- Mowing widths may be wider if necessary for traffic visibility at intersections and curves.

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 **30 acres** will be mechanically trimmed throughout the area.

- Approximately **20 acres** will be trimmed with hand tools throughout the area.
- Approximately **6 acres** will be treated with herbicides throughout the area.

Locations of Planned Treatments

- SR 516
- SR 509 Limited Access
- SR 900 MP 14-17
- SR 164 MP 4-14

Treatment Methods

- Mowing and side trimming with tractor mounted side arm flail mower
- Some control of seedling trees and encroaching brush in Zone 2 will be treated with herbicides incidental to noxious weed control operations.
- Target seedlings and encroaching in the fall with Krenite @196 oz/acre
- Cut stump treatment

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 mature trees identified as a potential imminent threat will be further evaluated and removed as soon as possible where needed.

Total Units of Planned Treatment

- Approximately **200 trees** in prioritized areas.

Locations of Prioritized Areas

- I-5 SB MP 154/Klickitat Dr. hillside
- I-5 SB by the weigh station stand of dead trees
- SB 167 MP 18, 21-25
- SB 405 MP 2 along the ramp
- SR 410 MP 22-57

Treatment Methods

- Crews are continuously looking for trees that exhibit structural defects and could strike the road or neighboring property if they come down. Any hazard trees identified at any time are removed as soon as possible.
- If trees growing outside WSDOT right of way are hazards, crews work with the neighboring property owner to negotiate removal.
- Cut and drop in place wherever possible
- Stump treat with herbicides to prevent re-growth

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 (red dots), Noxious Weed Control Planned Treatment (orange dots), and Noxious Weed Control General Reference (pink dots)

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 in Northwest Region Area 4 at this time.

Noxious Weed Targets on WSDOT Right of Way in Northwest Region Area 4:

Common Name/Botanical Name	Treatment Notes
Butterfly bush/ <i>Budlia davidii</i>	Target EDRR infestations mapped and treated spring and fall, all other plants controlled incidental to seasonal weed patrols
Common teasel/ <i>Dipsacus fullonum</i>	Target EDRR infestations mapped and treated spring
Dalmatian toadflax/ <i>Linaria dalmatica</i>	Target sites mapped and treated in the spring and fall
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
Knotweed sp./ <i>Polygonum sp.</i>	Target sites mapped and treated after flower stage in late summer
Pampas grass/ <i>Cortaderia selloana</i>	Target EDRR infestations mapped and treated spring and fall, all other plants controlled incidental to seasonal weed patrols
Poison hemlock/ <i>Conium maculatum</i>	Control where visible in conjunction with seasonal patrols, priority target sites are mapped and treated in the spring
Policeman's helmet/ <i>Impatiens glandulifera</i>	All known infestations have been controlled. Target sites have mapped and annually monitored for reoccurring plants.
Purple loosestrife/ <i>Lythrum salicaria</i>	Target sites mapped and treated at early flower stage in summer
Common St. Johnswort/ <i>Hypericum perforatum</i>	Control where visible in conjunction with seasonal patrols
Tansy ragwort/ <i>Senecio jacobaea</i>	Occurs sporadically throughout the area. All visible plants are sprayed in the spring prior

Common Name/Botanical Name	Treatment Notes
	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 EDRR infestations mapped and treated spring
Scotch broom/ <i>Cytisus scoparius</i>	Controlled in conjunction with seasonal weed patrols, when present in small isolated patches, and along SR410 east of Enumclaw
Sulfur cinquefoil/ <i>Potentilla recta</i>	Target EDRR infestations mapped and treated spring
Wild chervil/ <i>Anthriscus sylvestris</i>	Target sites mapped and treated in the spring

Total Units of Planned Treatment

- Approximately **110 acres** will be treated with herbicides.

Locations of Planned Treatments

- Treatment locations are described in the table above

Treatment Methods and Timing

- Treatments are carried out as described in the table above
- Herbicide mixtures used include:

Early Season Targets

- Capstone @ 128 ozl/acre
- Syl Tac @ 8 ozl/acre

Mid-Season Targets

- Capstone @ 128 ozl/acre
- Syl Tac @ 8 ozl/acre

Late Season Targets

- Opensite @ 3 ozl/acre
- Syl Tac @ 8 ozl/acre

Nuisance Vegetation Control – 3A3

Nuisance vegetation control takes place only in a select set of carefully prioritized locations along the wider areas of right of way throughout the state. These locations are delineated on maps in HATS as polygon outlines where right of way is wide enough for Zone 3 to exist. Locations are prioritized to receive treatments where there is heightened local interest in a more controlled visual appearance and highly maintained condition. 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 lowest 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 Zone 3

Work Operations: 1611, 1612, 1641, 1699

HATS Forms: Pesticide Application (for all spray applications), and 3 sub-forms under Nuisance Veg. Control General – Manual/Mechanical, Biological, and Seed/Fertilize/Mulch

HATS Map Layer: Reference polygons – Zone 3 Nuisance Reference

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. Undesirable species are identified and specifically targeted while care is be taken 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 **10 acres** will be treated with herbicides for nuisance weed control.
- Approximately **10 acres** will be mowed for nuisance weed control.

Locations of Planned Treatments

- Areas prioritized for nuisance weed management in Zone 3 will be mapped in the 2020 plan for this area in reference HATS layer – **Nuisance Vegetation Management.**

Treatment Methods and Timing

- Rotational Zone 3 mowing where possible on a 3-5 year schedule
- Spot and broadcast treatment as necessary as a follow up to mowing operations depending on regrowth of undesirable plants.