

Southwest Region, Area 3

Integrated Roadside Vegetation Management Plan

2024



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

Introduction

The Washington State Department of Transportation's (WSDOT) Southwest Region Area 3 manages vegetation within approximately 215 miles of state highway corridor, primarily in Pacific and Wahkiakum Counties. Highways in the area are mostly rural and forested, with a number of small towns and associated semi-urban classification. All highways in the area are high in scenic quality, and tourism is a major component of the local economy. 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.

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 Southwest Region Area 3 for the 2024 growing season. It identifies priority locations and prescribes treatments for accomplishing safety and weed control objectives through 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 agency's Highway Activity Tracking System (HATS). Accomplishments and results are also tracked geographically through this 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 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 Southwest Region Area 3 Superintendent – Clark Sexton, or the State's Roadside Asset Manager – Ray Willard.

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SW Region, Area 3 Map
Figure 1

Southwest Region, Area 3 IVM Work Plan – 2024

This is an outline of the overall planned approach and geographic distribution of roadside vegetation management requirements throughout the maintenance area in 2024. 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 Vegetation Control**. A section on **Safety Rest Area** landscape maintenance is also included. 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 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**, **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: Pesticide Application

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

This work includes the application of non-selective 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 storm water drainage, and/or provide added visibility of wildlife approaching the highway.

Total Units of Planned Treatment

- Apply approximately **250 acres** of herbicide treatment to road shoulders throughout the area.

Locations of Planned Treatments

- Planned treatment sites are mapped in HATS layer – **Spray Zone 1 Reference**
- All gravel shoulders throughout the area will be treated with a band of non-selective herbicides as described below.
- Wider treatment as needed for gore points and pull outs
- Pit sites are treated annually in conjunction with pavement edge treatment
- Locations where no bare ground treatment will be applied include:
 - SR105 MP18-19 Shoalwater Tribe
 - Several small neighbor-maintained areas are left untreated although property owners do not have an agreement to maintain the right of way

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.
- Treatment band width will be supplemented to the back side of hardware when present.
- The two sections in the area will be employing comparative treatment strategies as explained below:

- All noted locations except as noted below will be treated in mid to late spring with the following mixture of herbicides and adjuvants:
Blend R8 with Esplanade added at 5 oz/acre over top of blend:
 - Roundup Pro Conc. @ 51 oz/acre
 - Milestone @ 7 oz/acre
 - Telar @ 2 oz/acre
 - Esplanade @ 5 oz/acre
 - Insist 90 @ 16 oz/acre
- Due to sensitive environmental conditions SR409 and SR103 will be treated in early spring and early summer, with the following mixture of herbicides and adjuvants:
 - Ranger Pro Conc. @ 48 ozl/acre
 - Syl-Tac @ 10 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 Treatment

- Approximately **450 acres** of safety mowing will be conducted throughout the area.

Locations of Planned Treatments

- All shoulders without guardrail present will typically be mowed once per year as needed prior to Zone 1 herbicide treatment and mowed one additional time per year in early summer where needed.
- Wetter locations such as SR105 require mowing twice per year on occasion

Treatment Methods

445310

- One pass mowing with double deck tractor-mounted flail mower, only using one deck in narrow locations

445320

- One pass mowing with single deck tractor-mounted flail mower.

Tree and Brush Control/Zone 2 and 3

Work Operations: 1622, 1625, 1626

HATS Forms: Pesticide Application for spray applications, and three sub-forms under Tree/Brush Control –Trimming Mechanical, Trimming Manual, and Mowing

HATS Map Layer: None

This includes work in Zone 2 such as periodic trimming or removal of brush and tree limbs impacting traffic operations and visibility. Also included is work in Zone 3 when specifically targeting emergent undesirable tree species to prevent them from growing into potential hazard trees within striking distance of the road. Removal of mature-sized dead, diseased, dying or structurally defective trees is also included in this activity group.

Total Units of Planned Treatment

- Approximately **250 acres** will be treated with tractor mounted mowing equipment throughout the area.

- Less than **10 acres** will be trimmed with hand tools throughout the area, where selective trimming is needed around signs and hardware installations
- Approximately **20 acres** will be treated with herbicides throughout the area

Locations of Planned Treatments

- Trimming/mowing behind guardrail as needed
- Side trimming encroaching branches and brush throughout the area as needed.
- Priority areas for treatment this year include:
 - SR105, MP 18.3-18.6 both directions – Use herbicide and mechanical tools for removal of cattails from ditch lines by agreement with Shoalwater Tribe.

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 where appropriate, including areas where high lift equipment is required to access overhanging branches.
- Herbicides are used to trim back growth and remove undesirable seedling tree species in some locations. Herbicide treatments for this purpose are made late in the growing season whenever possible. Herbicides mixtures used include:

Seedling Conifer and Deciduous:

- Garlon 3A @ 48 ozl/acre (using up remaining product) then Vastlan @ 48 oz/acre
- Syltac @ 8 ozl/acre

Shoalwater Tribe Ditch Lines:

- Polaris @ 48 ozl/acre
- Syltac @ 8 ozl/acre

Hazard Tree Removal/Zone 3

Work Operation: 1628

HATS Forms: Hazard Tree Removal (three sub-forms) – 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 exhibiting structural or health defects and identified as a potential imminent threat, are removed as soon as possible.

Total Units of Planned Treatment

- Up to **250** mature hazard trees are removed throughout the area each year.

Locations of Planned Treatments

- 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.

Treatment Methods

- WSDOT crews typically fall hazard trees as needed
- Hand cutting with chainsaws, and high lift equipment as needed
- Leave material to decompose on site where possible

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 two categories: **Priority and Planned Treatment**. **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 **Priority** Class A weed species are known to exist on WSDOT right of way in SW Region Area 3.

Class B and C weed species mapped for **Planned Treatments** on WSDOT right of way in Southwest Region Area 3:

Common Name/Botanical Name	Treatment Notes
Gorse/ <i>Ulex europaeus</i>	Long Beach area SR 103 where present on neighboring properties, controlling annually as needed on the right of way.
Knotweed sp./ <i>Polygonum sp.</i>	Control is focused on new infestations where they occur.
Orange hawkweed/ <i>Hieracium aurantiacum</i>	SR 4 MP 2-4, SR 401 treatment sites mapped
Ragwort tansy/ <i>Senecio jacobaea</i>	Occurs sporadically throughout the area. All visible plants are sprayed prior to bud/seed set, any remaining plants visible in flower are hand pulled with seed heads removed, bagged, and disposed of.

Poison hemlock/ <i>Conium maculatum</i>	Has existed on SR 4 in past between 19 extending to 52
Purple Loosestrife/Lythrum salicaria	SR401 MP 1.5-2, SR4 vicinity of Deep River
Scotch broom/ <i>Cytisus scoparius</i>	Controlled with annual spray where visible throughout the area. Annual mowing when present in Zone 2. Planned treatment sites mapped in HATS where isolated, established infestations exist in Zone 3.
Shiny geranium/ <i>Geranium lucidum</i>	Mapped in Cowlitz SR4 MP 50-55
Common teasel/ <i>Dipsacus fullonum</i>	Beginning to occur in more locations, will work with weed boards on control strategy
Wild chervil/ <i>Anthriscus sylvestris</i>	Target sites mapped and treated in the early spring. SR 6 just west of Pe Ell (neighbor)
Yellow archangel/ <i>Lamium galeobdolon</i>	105 MP 0.6

Total Units of Planned Treatment

- Approximately **50 acres** will be treated with herbicides.
- Less than **5 acres** will be controlled by hand pulling

Locations of Planned Treatments

- SR103 MP 14-18 Gorse
- US101 MP 1-9 Scotch broom, 21-29 Tansy
- SR4 MP 3-13 Tansy & Scotch broom, 14-17 Scotch broom, 30-32 Scotch broom, and 48-50 Tansy & Scotch broom.
- SR 401 Scotch broom throughout the entire route
- SR6 MP 27-28 Wild Chervil
- US 101 MP 46.9 Knotweed
- SR 105 MP 16-17.5 Scotch broom

Treatment Methods and Timing

Most weeds treated as early as possible in the spring with:

- Vastlan @ 48 oz/acre
- If available add Milestone @ 7 oz/acre
- Insist 90 @ 8 oz/acre

Knotweed and Yellow flag iris treated in the late summer after bloom with:

- Polaris @ 48 oz/acre
- Round up Pro Concentrate @ 48 oz/acre
- Syl-Tac @ 8 oz/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 Zone 3 exists. 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 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 Zone 3

Work Operations: 1611, 1612, 1699

HATS Forms: Pesticide Application (for all spray applications), Manual/Mechanical, Biological, and Seed/Fertilize/Mulch

HATS Map Layer: Reference polygons – Roadside Features/ 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. 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

- There is no nuisance weed control planned for Southwest Region Area 3 in 2024.
- Environmental Mitigation Sites

Drainage System and NPDES Maintenance

Work Operations: 1331, 1368, 1399

HATS Forms: Pesticide Application (for all spray applications), other forms are in Stormwater Feature Layer

HATS Map Layer: All feature types listed under Stormwater Features Layer

Periodic removal of vegetative growth is necessary in ditches and around culvert ends to allow access for routine inspection and repair. There are several vegetation management activities necessary to maintain function and operation of certain constructed stormwater management facilities such as vegetated filter strips and swales along the edge of pavement and throughout the roadside, and stormwater retention/detention ponds in the more urbanized areas. Each of these design features should include a manual which details the requirements in relation to control of vegetation and sediment buildup over time.

Locations of Planned Treatments

- All stormwater management facilities are mapped within the Stormwater Features Layer in HATS.
- All culverts are mapped in HATS, vegetation around culvert ends is maintained to be low growing and free of trees and brush.
- Vegetation management activities in stormwater management features are specified in the Highway Runoff Manual, Chapter 5, and Owner's Manual for each constructed feature (if it exists). If no Owner's Manual questions should be directed to Region Hydraulics and Landscape Architecture.
- Required work in stormwater features within the area for 2024 include:
 - None required

Treatment Methods and Timing

- Weed control within stormwater management features is carried out in concert with other weed control activities throughout the area, as described in the plan section Noxious Weed Control – 3A2 above.
- Removal of trees and brush in ditches and around culvert ends may be conducted in conjunction with other chemical and mechanical tree and brush control operations.

Safety Rest Operations – 7B1

All safety rest areas have planted areas and vegetation maintenance requirements throughout the facility. These are some of WSDOT's most heavily accessed facilities and often one of the first impressions of Washington State for the visiting public. The goal in maintenance of rest area landscape plantings is to present a well-kept appearance and plantings are intended to be maintained in a set condition throughout the year. For landscape treatments in these facilities 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 including irrigation and fertilization where necessary.

Safety Rest Area Landscape Maintenance

Work Operations: 1711, 1752, 1789, 1799

HATS Forms: Pesticide Application (for all spray applications)

HATS Map Layers: Formal Landscape and Natural Landscape polygons (coming soon to HATS)

Rest area landscape maintenance operations may be conducted by rest area attendants and/or maintenance area IVM specialists. Planting areas at all rest area sites are mapped as two sets of reference polygons in HATS showing areas with formal landscape plantings and those with naturalized plantings. Treatment plans are based on monitoring and evaluation of previous years' actions and results. Annually adaptive plans are based on the proven most effective combination of maintenance actions to keep plantings (and lawns if present) looking healthy and trimmed throughout the year.

Locations of Safety Rest Areas in Southwest Region Area 3

- Dismal Nitch Safety Rest Area on SR 401 MP 1
- Polygons have been created for outlines on high and low maintained landscape areas throughout each site. These polygons will be incorporated with HATS in the future.

Treatment Methods and Timing

- Vegetation management activities within Safety Rest Areas is conducted by the Area 3 crew with some assistance from the rest area attendants.
- Routine landscape related work requirements include:
 - Weekly mowing and routine edging of lawn areas in spring and early summer, lawns go dormant during summer months
 - Weed control in lawns and in planting beds around pedestrian areas as needed