

Northwest Region, Area 3

Integrated Roadside Vegetation Management Plan

2022



**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, employee 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.

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 2022 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 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 – Mark Renshaw, Assistant Superintendents – Bob Edwards or Brandon Harding, or the State's Roadside Asset Manager – Ray Willard.

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Northwest Region, Area 3 Map
Figure 1

Northwest Region, Area 3 IVM Work Plan – 2022

This is an outline of the overall approach and geographic distribution of roadside vegetation management requirements throughout the maintenance area in 2022. 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. Safety Rest Area Landscape Maintenance and Drainage and Stormwater Facilities Vegetation Maintenance** are also covered. 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. 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 preserving the safety and operational requirements of the highway. These items are considered top 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 **160 acres** of herbicide treatment will be applied to road shoulders throughout the area.

Locations of Planned Treatments

- All shoulders throughout the area will be treated in the spring
- 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 2 foot band of spray mixture on all shoulders except adjacent to hardware installations where it is set to deliver a 4 foot band. 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 mixture is Blend R6 on the state contract:
 - Roundup Pro Conc. @ 32 oz/acre
 - Lockdown SC @ 10 oz/acre
 - Milestone @ 7 oz/acre
 - Telar @ 1.5 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 **200 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

- Up to **15 acres** will be treated with herbicide as stump treatment in conjunction with cutting and trimming in Zone 2, or for edge control with encroaching blackberry vines
- Approximately **100 acres** trimmed with tractor/truck mounted mowing equipment
- Up to **20 acres** trimmed/pruned using hand tools this included manual brush cutting in some cases.

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.
- We will be continuing to address backlog in Zone 2 in the 2022 season and planning units accordingly.

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 encroaching brush and tree growth and remove undesirable emergent tree species in some locations. Herbicide treatments for this purpose are made late in the growing season whenever possible.
- Herbicide products used for brush control:
 - Vastlan @ 96 oz/acre
 - Syl-tac @ 8 oz/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 may be up to **400** 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. **General Reference points are hidden at this time and not in use.*

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:

Common Name/Botanical Name	Treatment Notes
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, Yellow, 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

Spurge laurel/ <i>Daphne laureola</i>	Target sites mapped and monitored. Historic infestations I-5 median south of Downtown Everett
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.
- Up to **30 acres** will be mechanically cut or pulled by hand

Locations 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

donkmainly target Hawkweeds and Tansy and we will use Capstone and at recommended rates.

- Focus on SR 92 for eradication of Poison Hemlock over the next several years. MP 2.2.38 – MP 7.34.

Treatment Methods

Herbicide products and rates:

Capstone @ 128 oz/acre

Syl-tac @ 16 oz/acre

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**.
- Polygons for Environmental Mitigation Sites that have been turned over to maintenance are currently being developed for reference in HATS, these area become part of area's Zone 3 inventory.
- **415310 Section**
 - I-5 – 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.

- I-5 – MP 175 To MP 190 Whenever there is time, crews will selectively remove Scotch broom and blackberry vines from planted and open grass areas using mechanical cutting and stump treatment.
- **415320 Section**
 - US 2, 522 & SR 203 – Target smaller alders and maples with Vaslan 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.

Drainage and Stormwater Facilities Maintenance – 2A4

Highway drainage features which require vegetation management include ditches and culvert ends. Stormwater facilities maintenance operations that include vegetation management considerations are discussed in this section of the plan. This work is regulated by the agreement WSDOT has established under the statewide National Pollution Discharge Elimination System (NPDES) permit granted to the agency by the USEPA.

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 2022 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

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 Northwest Region Area 3

- Smokey Point NB – I-5, MP 207
- Smokey Point SB – I-5, MP 207
- Silver Lake – SB I-5, MP 188

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:
 - Annual startup and winterization of irrigation.
 - Weekly mowing and routine edging of lawn areas
 - Weed control in lawns and in planting beds around pedestrian areas