

Southwest Region, Area 1 Integrated Roadside Vegetation Management Plan

2022



**Washington State
Department of Transportation**
Maintenance Operation Divisions

Introduction

The Washington State Department of Transportation's (WSDOT) Southwest Region Area 1 manages vegetation within 287 miles of state highway corridor in Clark and Cowlitz Counties. In addition to the Interstate 5 corridor between Castle Rock and the Oregon border and all of Interstate 205, the area maintains State Route (SR) 14 through the Columbia Gorge out to just past the Skamania County line, SR 4 in Cowlitz County, and all of State Routes 411, 432, 433, 500, 501, 502, 503, and 504 (Mt. St. Helens Highway). A map of the area is shown 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.

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 1 for the 2022 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 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 Southwest Region Area 1 Superintendent – Brad Clark, or the State's Roadside Asset Manager – Ray Willard.

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Southwest Region, Area 1 Map
Figure 1

Southwest Region, Area 1 IVM Work Plan – 2022

This is an outline of the overall planned approach and geographic distribution of roadside vegetation management requirements throughout the maintenance area in 2022. 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: **Vegetative Obstruction Control, Noxious Weed Control, Nuisance Weed Control, and Landscape Maintenance**. 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.

Vegetative Obstruction Control – 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 stormwater drainage, and/or provide added visibility of wildlife approaching the highway.

Total Units of Planned Treatment

- Apply approximately **240 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 receive an annual application of herbicide in the fall
- Locations where no bare ground treatment will be applied include:
 - Locations along secondary roads where there neighboring property owners have agreed to maintain the roadside
 - Within the city limits of Camas
 - SR504 in USFS (talking to Gifford Pinchot about Zone 1 treatment)
 - Some media filter drains along the edges are installed directly adjacent to pavement and should be avoided (visible in HATS stormwater layer)
- In several locations throughout the area where vegetation has established in pavement cracks and barrier joints, glyphosate and imazapyr will be applied annually in the spring

Treatment Methods

- Herbicides are applied using a truck mounted power spray system calibrated to deliver a 4 and 6 foot band of spray mixture on a flat surface. Depending on positioning of the spray boom to edge of pavement, the resulting width of bare

- ground shoulder varies from 3 feet to wider than 6 feet in areas with steeper shoulder slope and cable rail installations
- In locations with cable rail or guard rail – Bare ground will extend from pavement edge to back side of rail
 - Locations with vegetation growing in cracks and joints will be spot-sprayed in May/June with:
 - Ranger Pro @ 64 ozl/acre
 - Syl-tac @ 16 ozl/acre
 - All locations receiving bare ground applications will be treated in early fall with the following pre-blended products in 15 gallon reusable containers:
 - Roundup Pro Concentrate @ 32 ozl/acre
 - Esplanade 200SC @ 5 ozl/acre
 - Lockdown SC @ 8 ozl/acre
 - Escort XP @ 1.5 oz/acre
 - Syl-tac @ 16 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 **300 acres** of shoulders will be mowed annually throughout the area.

Locations of Planned Treatments

- Planned Zone 2 mowing locations are mapped in HATS reference layer - **Mowing Zone 2 Reference**
- All roadsides with vegetation along the edge of pavement will be mowed once per year in late spring/early summer

Treatment Methods

- Mechanical mowing with side mounted flail mower
- 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.
- Desirable, low-growing shrubs or ground covers where present will not be mowed.

Tree and Brush Control/Zone 2 and 3

Work Operations: 1622, 1625, 1626

HATS Forms: Pesticide Application (for all 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 **100 acres** will be mechanically mowed or trimmed throughout the area.
- Approximately **50 acres** will be treated with herbicides throughout the area.

Locations of Planned Treatments

- SR-14 arm mowing MP 22 to MP 24
- SR-14 canopy mowing MP 25 to MP 26
- SR-432 Quadrants at 3rd avenue, brushing to prevent illegal camping.
- SR-432 MP 2.7 trim cottonwoods
- SR-4 MP 50 to 55 behind guardrail with arm mower
- SR-4 MP 50 to 55 Tree trim from ground or man lift as necessary
- SR-503 MP 14-20.5 Remove overhanging and encroaching branches
- SR-503 MP 25-31 Remove overhanging and encroaching branches
- SR-503 MP 33-47 Remove overhanging and encroaching branches
- SR-504 MP 0 to 51 Arm mowing behind guardrail and cut and treat saplings throughout SR
- SR-504 MP 1.6 to 2.7 cut and treat scotch broom
- SR-504 MP 5 cut and treat fir trees on bank west bound
- SR-504 MP 6 Stockpile site trim limbs at fence
- SR-504 MP 8 to 8.5 West bound trees at Silver Lake cut and treat stumps
- SR-504 MP 9.7 Trim limbs on Spruce
- SR-504 MP 11.1 to 12.4 Brown Brush Monitor both east and west for scotch broom
- SR-504 MP 13 to 15 Brown Bush Monitor for scotch broom
- SR-504 MP 18 to 19 trim trees with man lift
- SR-504 MP 21 area trim trees from man lift and ground
- SR-411 MP 2 to 4 trim trees where necessary
- SR-411 MP 4.3 to 3.9 South Bound black berries taking over fence
- SR-411 MP 2 to 13.4 cut and treat saplings as needed
- SR-411 MP 8.1 to 9.3 limb trees for sight distance where necessary
- SR-411 MP 9.6 to 9.8 trim trees from man lift and ground
- SR-411 MP 10.1 to 10.5 trim trees from man lift and ground
- SR-411 MP 11.3 to 12.2 Brown Brush Monitor scotch broom
- I-5 MP 14 to 52 North and South Brown Brush Monitor quadrants as needed or requested by Weed Boards to control saplings and noxious weeds if necessary.
- I-5 MP 46.1 to 44.7 median trim trees as necessary
- I-5 South bound, MP. 36 limbs blocking sight distance
- I-5 exit 48 north bound right side trees cut and treated
- I-5 exit 40 on ramp south bound left side trees trimmed
- I-5 MP 43.7 to 44.9 North bound right side trim trees
- I-5 exit 49 to 48 South bound right side trim trees for sight distance
- I-5 MP 32.9 to 32.3 Kalama River road area trim trees
- I-5 MP 17 North bound on ramp tree trimming
- I-5 MP 30.8 exit 30 south bound left side tree trimming

Treatment Methods

- Mechanical trimming with radial head on a mowing arm
- Man lift and hand saws
- Mechanical mowing with combined herbicide treatment of cut surface (Brown Brush Monitor)

- Some cutting with hand tools and hand pulling

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 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 **400 mature hazard trees** are removed from area roadsides each year.

Locations of Planned Treatments

- As needed throughout the area
- Any areas proposed for logging next to the highway will be coordinated to avoid creating a fringe of hazard trees.

Treatment Methods

- 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.
- Removal will be done by WSDOT crews in most cases. Stump treatment with Garlon 3A or 4 at time of cutting.
- For difficult removals we will utilize the State Parks arborist crew.
- Where cottonwood stands are removed, areas will be managed from that point on for a species shift from Cottonwood to coniferous forest.

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 – 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.

Priority Class A Noxious Weed on WSDOT Right of Way in SW Region Area 1:

| Common Name/Botanical Name | Treatment Notes |
|---|---|
| Garlic mustard/ <i>Alliaria petiolata</i> | Hand pull or dig anytime, wherever plants are found |
| Giant hogweed/ <i>Heracleum mantegazzianum</i> | Treat in spring prior to flowering |
| Milk thistle/ <i>Silybum marianum</i> | Treat in late winter, early spring when plants are in rosette stage |
| Slenderflower thistle/ <i>Carduus tenuiflorus</i> | Treat in late winter, early spring when plants are in rosette stage |

Class B and C weed species mapped for Planned Treatments on WSDOT right of way in Southwest Region Area 1:

| Common Name/Botanical Name | Treatment Notes |
|--|---|
| Absinthe wormwood/ <i>Artemisia absinthium</i> | Target sites mapped and treated when? |
| Bull thistle/ <i>Cirsium vulgare</i> | Control small patches where visible in conjunction with seasonal patrols |
| Butterfly bush/ <i>Buddleja davidii</i> | Control where visible |
| Canada thistle/ <i>Cirsium arvense</i> | Key target sites are mapped for treatment in late spring. Control small patches and individual plant where visible in conjunction with seasonal patrols |
| Common reed/ <i>Phragmites australis</i> | Target sites mapped and treated in the fall |
| Common tansy/ <i>Tanacetum vulgare</i> | Control where visible in conjunction with seasonal patrols |
| Dalmatian toadflax/ <i>Linaria dalmatica</i> | Target sites mapped and treated in the spring and fall |
| European Hawkweed/ <i>Hieracium sabaudum</i> | Target sites mapped and treated in the late summer |
| Gorse/ <i>Ulex</i> sp. | Target sites mapped and treated in the late summer |
| Hawkweed sp./ <i>Hieracium</i> sp. | Control where visible in conjunction with seasonal patrols |
| Knapweed sp./ <i>Centaurea</i> sp. | Control where visible in conjunction with seasonal patrols, priority target sites are mapped and treated in the spring |
| Knotweed sp./ <i>Polygonum</i> sp. | 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 are mapped and treated prior to full flower stage in summer |
| Rush skeletonweed/ <i>Chondrilla juncea</i> | Target sites mapped and treated in the spring, any remaining visible flowering plants will be treated in conjunction with summer seasonal weed patrols. |
| Scotch broom/ <i>Cytisus scoparius</i> | Control required for highways in Cowlitz County, and treated wherever visible on secondary roads in the area. Along I-5 control efforts are focused on isolated patches and identified Zone 3 restoration areas. |
| Shiny geranium/ <i>Geranium lucidum</i> | Worst infestation sites will be mapped, otherwise control where visible and per County Weed Board notifications |
| 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 |
| Tree of Heaven/ <i>Ailanthus altissima</i> | All visible seedlings treated wherever visible in conjunction with season weed patrols, mature plants controlled by cutting and stump treatment with herbicide. Higher priority is being placed on this species due to the threat of spotted lantern fly. |
| Wild chervil/ <i>Anthriscus sylvestris</i> | Target sites are mapped and treated in early spring |
| Wild carrot/ <i>Daucus carota</i> | Required control in Cowlitz Co. |
| Yellow flag iris/ <i>Iris pseudacrus</i> | Target sites mapped and treated in the spring prior to flower and late summer after flower. |

Total Units of Planned Treatment

- Approximately **200 acres** will be treated with herbicides for control of noxious weeds
- Approximately **30 acres** will be mowed or hand pulled

Locations and Timing of Planned Treatments

- Over the course of the 2022 season the area will be working with the County Weed Boards to prioritize and map seasonally planned treatment sites.
- The following list of known infestations was developed during the 2018 growing season:

Early Season Targets

- I-5 MP .4 - .5 poison hemlock
- I-5 MP 1 NB & median spotted knapweed
- I-5 MP 1.2 NB meadow knapweed
- I-5 MP 2.2 SB Canada thistle
- I-5 MP 2.8 SB Canada thistle
- I-5 MP 3.1 NB shiny geranium
- I-5 MP 3.1 SB Canada thistle
- I-5 MP 3.1 SB poison hemlock
- I-5 MP 3.2 NB poison hemlock
- I-5 MP 3.7 SB poison hemlock
- I-5 MP 3.9 SB Canada thistle
- I-5 MP 4 SB poison hemlock

- I-5 MP 5.1 both sides Canada thistle
- I-5 MP 6.1 SB poison hemlock
- I-5 MP 6.7 SB Canada thistle
- I-5 MP 6.8 SB meadow knapweed
- I-5 MP 6.8 NB poison hemlock
- I-5 MP 6.9 SB Canada thistle
- I-5 MP 7 NB poison hemlock
- I-5 MP 7.1 SB bull thistle
- I-5 MP 8 SB meadow knapweed
- I-5 MP 8.2 Canada thistle
- I-5 MP 8.7 NB Canada thistle
- I-5 MP 9.4 NB Canada thistle
- I-5 MP 10.1 median & north side Canada thistle
- I-5 MP 11.5 SB meadow knapweed
- I-5 MP 12.3 SB shiny geranium
- I-5 MP 12.5 SB meadow knapweed
- I-5 MP 12.8 SB Canada thistle
- I-5 MP 13 slender flower thistle median
- I-5 MP 13 SB shiny geranium
- I-5 MP 14.1 median Canada thistle
- I-5 MP 15.9 NB Poison Hemlock
- I-5 MP 16 median Slender Flower Thistle
- I-5 MP 18.2 median & south Slender Flower Thistle
- I-5 MP 19.7 median Slender Flower Thistle
- I-5 MP 21 west side Poison hemlock
- I-5 MP 22 east side and median Poison hemlock
- I-5 MP 22.6 east side and median poison hemlock
- I-5 MP 23-24 median rush skeletonweed (early spring to late summer)
- I-5 MP 23.4 east side Poison hemlock
- I-5 MP 23.8 east side Poison hemlock
- I-5 MP 24.2 east side Poison hemlock
- I-5 MP 24.4 west side Poison hemlock between road and rail
- I-5 MP 24.6 west side Poison hemlock btw road /rail
- I-5 MP 24.8-24.5 center poison hemlock
- I-5 MP 25.1 center poison hemlock
- I-5 MP 25.0 west side Poison hemlock
- I-5 MP 25-26 east side rush skeletonweed
- I-5 MP 27-28 median rush skeletonweed
- I-5 MP 28.4 west side wooded property north of Todd Rd Poison hemlock (can be seen from DuPont Dr.)
- I-5 MP 31.1 median Canada thistle (spot spray early fall with glyphosate)
- I-5 MP 31.9 median Common tansy
- I-5 MP 35.1 center – common tansy
- I-5 MP 35.7 center Poison Hemlock
- I-5 MP 36.5 SR432 exit, west side Poison hemlock
- I-5 MP 37.9-38.1 poison hemlock
- I-5 MP 39.1-39.4 east side Poison hemlock
- I-5 MP 39 on-ramp west side Canada thistle
- I-5 Exit 39 east side of ramp Canada thistle
- I-5 MP 41 east side of on-ramp Canada thistle
- I-5 Sparks on-ramp east side Canada thistle
- I-5 MP 46-46.3 east side Canada thistle
- I-5 MP 48-48.2 east side Canada thistle
- I-5 MP 49.9 east side Canada thistle

- I-5 MP 50-51 median rush skeletonweed
- I-5 MP 51.8 (bridge) poison hemlock
- I-5 MP 54 east side Canada thistle
- I-5 MP 54.3 west side Canada thistle
- I-205 MP 3.1 median poison hemlock
- I-205 MP 3.6 NB & SB Canada thistle
- I-205 MP 3.7 median poison hemlock
- I-205 MP 4.1 median poison hemlock
- I-205 MP NB 5.9 – 5.6 Canada thistle
- I-205 MP 6 median poison hemlock
- I-205 MP 6.5 median poison hemlock
- I-205 MP 6.5 SB shiny geranium
- I-205 MP 9.9 NB meadow knapweed
- I-205 MP 31 SB meadow knapweed
- I-205 MP 31 SB poison hemlock
- I-205 MP 31.7 NB & SB poison hemlock
- I-205 MP 31.8 median meadow knapweed
- I-205 MP 32 SB Canada thistle
- I-205 MP 36 SB poison hemlock
- I-205 MP 36.9 poison hemlock
- SR 14 MP .3 WB Canada thistle
- SR 14 MP .7 WB poison hemlock
- SR 14 MP 3.2 Canada thistle
- SR 14 MP 3.6 WB shiny geranium
- SR 14 MP 3.7 WB poison hemlock
- SR 14 MP 11.2 WB shiny geranium
- SR 14 MP 11.7 WB shiny geranium
- SR 14 MP 11.8 south side shiny geranium
- SR-14 MP 19.5 – MP 22 shiny geranium
- SR-14 MP 23.2 bull thistle, Canadian thistle
- SR-14 MP 25 diffuse knapweed
- SR-14 MP 25 – mp28 scotch broom
- SR-14 MP 28 tree of heaven
- SR-14 MP 8 – MP 21 tansy, teasel, poison hemlock
- SR-14 MP 19-28 boom spray thistle, knapweed, shiny geranium, blackberry
- SR 500 MP 1.8 WB Canada thistle
- SR 500 MP 2.6 EB meadow knapweed
- SR 500 MP 4.9 EB meadow knapweed
- SR 500 MP 9.2 NB shiny geranium
- SR 500 MP 14.8 EB shiny geranium
- SR 501 MP 7.9 SB poison hemlock
- SR 501 MP 10.2 shiny geranium
- SR 501 MP 10.4 poison hemlock
- SR 501 MP 11.1 NB poison hemlock
- SR 501 MP 11.4 poison hemlock
- SR 503 MP 2 SB meadow knapweed
- SR 503 MP 3.5 meadow knapweed
- SR 503 MP 4.5 railroad to salmon creek meadow knapweed
- SR 503 MP 5.1 NB poison hemlock
- SR 503 MP 7.2 SB poison hemlock
- SR 503 MP 7.4 Canada thistle
- SR 503 MP 8.5 - 8.7 both sides meadow knapweed
- SR 503 MP 9.1 NB Canada thistle
- SR 503 MP 9.5 NB meadow knapweed

- SR 503 MP 10.2 SB tansy ragwort
- SR 503 MP 10.4 NB bull thistle
- SR 503 MP 10.6 NB Canada thistle
- SR 503 MP 13.1 NB shiny geranium
- SR 503 MP 16.3 NB bull thistle
- SR 503 MP 19.1 NB Canada thistle
- SR 503 MP 20.2 Canada thistle
- SR 503 MP 26.4 SB Canada thistle

Mid-Season Targets

- I-5 MP 2.4 NB spotted knapweed
- I-5 MP 2.8 SB spotted knapweed
- I-5 MP 2.8 SB Japanese knotweed
- I-5 MP 3.8 SB tansy ragwort
- I-5 MP 7.2 SB tansy ragwort
- I-5 MP 11.1 median tansy ragwort
- I-5 MP 20.1-20.5 west side Spotted knapweed
- I-5 MP 21.4-21.6 west side Spotted knapweed
- I-5 MP 21.5-21 east side Spotted knapweed
- I-5 MP 22.1 west Dalmatian toadflax
- I-5 MP 22.3. center knapweed
- I-5 MP 23 west side Dalmatian toadflax
- I-5 MP 22.8 west side Spotted knapweed
- I-5 MP 23.3-23.7 west side Dalmatian toadflax
- I-5 MP 23.5-22 east side spotted knapweed
- I-5 MP 24.2 east side Spotted knapweed
- I-5 MP 24.5-25.8 east side spotted knapweed
- I-5 MP 24-26 median Dalmatian toadflax
- I-5 MP 25.6 west knapweed and Dalmatian toadflax
- I-5 MP 26.8-26.4 center knapweed
- I-5 MP 28.5-27.7 west side knapweed
- I-5 MP 30.3 west side knapweed
- I-5 MP 30.9-30.4 center knapweed
- I-5 MP 32.2 center knapweed
- I-5 MP 33.8-33.6 west side knapweed
- I-5 MP 33.9 west side Dalmatian toadflax/ spotted knapweed
- I-5 MP 34.2 west side Dalmatian toadflax
- I-5 MP 25- 31.6 east side knapweed
- I-5 MP 25- 36.2 west side spotted knapweed
- I-5 Exit 27 off ramp knapweed both sides of road
- I-5 MP 31.5 east side Tansy ragwort (early target if rosettes are spotted)
- I-5 MP 33.6-33.7 Dalmatian toadflax
- I-5 MP 33.8 Dalmatian toadflax
- I-5 MP 34.0 west side Dalmatian toadflax
- I-5 MP 34.4-34.9 east side knapweed
- I-5 MP 38.8 west side spotted knapweed
- I-5 MP 36.0 center Knapweed
- I-5 MP 34.6-34.5 west side Knapweed
- I-205 MP 9.8 SB tansy ragwort
- I-205 MP 10.1 NB tansy ragwort
- SR 503 MP 7.6 NB meadow knapweed
- SR 503 MP 7.9 SB tansy ragwort
- SR 503 MP 11.2 both sides meadow knapweed
- SR 503 MP 11.8-12.1 NB meadow knapweed

- SR 503 MP 12.4 SB meadow knapweed
- SR 503 MP 13.1 SB meadow knapweed
- SR 503 MP 12.7-13.5 both sides meadow knapweed
- SR 503 MP 13.8-14 NB meadow knapweed
- SR 503 MP 14.3 SB meadow knapweed
- SR 503 MP 14.3 NB Japanese knotweed
- SR 503 MP 15.4-15.8 SB meadow knapweed
- SR 503 MP 16.2 NB meadow knapweed
- SR 503 MP 19.2 SB meadow knapweed
- SR 503 MP 23 SB meadow knapweed
- SR 503 MP 23.2 NB meadow knapweed
- SR 503 MP 24.5 NB meadow knapweed
- SR 503 MP 26.3 SB meadow knapweed
- SR504 south side 4.3-7 meadow knapweed(spotty infestations)
- SR504 south side 4.6 Tansy
- SR504 south side 8.2 – 9.0 Yellow flag iris
- SR504 south side 27.5- 50 spotted knapweed(spotty infestations)
- SR504 south side 41-46 mouse-ear hawkweed (spotty infestations) treat before flowers open
- SR504 north side 7.2 tansy ragwort
- SR504 north side 6.8 tansy ragwort
- SR504 north side 6.7 meadow knapweed
- SR504 north side 6.1 Yellow Flag Iris
- SR504 north side 5.9-2.0 meadow knapweed
- SR-14 MP 8-21 butterfly bush

Late Season Targets

- I-5 MP 3.6 NB Japanese knotweed
- I-5 MP 17.9 median Tansy Ragwort
- I-5 MP 21.1 median butterfly bush
- I-5 MP 22.5 median butterfly bush
- I-5 MP 29.8 Butterfly bush
- I-5 MP 43 east side butterfly bush
- Spirit highway off-ramp east side Knotweed
- I-5 MP 52 at exit ramp on east side Knotweed
- I-5 MP 37.9 east side butterfly bush
- I-5 MP 29.9-28.9 butterfly bush
- I-5 MP 25.4 center butterfly bush
- SR 500 MP .6 WB Japanese knotweed
- SR 500 MP .8 EB tansy ragwort
- SR 500 MP 10.6 WB Japanese knotweed
- SR 500 MP 13.2 SB tansy ragwort
- SR 503 MP 2.4 SB Japanese knotweed
- SR504 south side 4.5 Japanese knotweed
- SR504 north side 10.3 Japanese Knotweed
- SR 14 MP 2.4 WB common tansy
- SR-14 MP 8-21 blackberry
- SR-14 MP 23.2 bull thistle, Canadian thistle
- SR-14 MP 9 giant knotweed
- SR-14 MP 13-17 Japanese knotweed
- SR-14 MP 19-28 SR-14 mp19-28 boom spray thistle, knapweed, shiny geranium, blackberry
- SR-500 MP 6-20 spot spray Japanese knotweed, tansy, Canadian thistle, bull thistle, butterfly bush.

Treatment Methods and Timing

- Wild Chervil and Wild carrot both need to find effective control products, will work to coordinate with weed boards and conduct comparative tests in 2022.
- Herbicide treatments for broad-spectrum control will use Opensite, Vastlan, or Capstone at recommended label rates.

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, 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. Care must be taken in all cases to avoid damage to surrounding desirable/native vegetation. In some cases, soil enhancements may be used as well as seeding or planting of beneficial competition species. Successful plans are consistently implemented over a series of years and annually adjusted as necessary based on field observations.

Total Units of Planned Treatment

- Approximately **25 acres** will be mowed for nuisance weed control.
- Approximately **25 acres** will be treated with herbicides

Locations of Planned Treatments

- Interchanges first, starting with more urban areas prone encampment or recently planted areas
- Polygons are currently being mapped to identify areas where project related plantings have been installed, these are prioritized for Zone 3 weed control
- Some nuisance vegetation may be removed in Zone 3 along fence lines when time allows in response to complaints and safety concerns

Treatment Methods and Timing

- Full median mowing for nuisance vegetation followed by a broadcast herbicide treatment. The goal is to return this area back to native grasses and eradicate the weeds.

Landscape Maintenance – 3A5

Landscape maintenance work includes all vegetation management activities that take place on roadsides within areas designated as formal urban planting, where the intention is to enhance the appearance of freeways through urban centers. For these highly developed roadsides 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 fertilization where necessary.

Landscape

Work Operations: 1513, 1516, 1518, 1525, 1541, 1552, 1561, 1599

HATS Forms: Pesticide Application (for all spray applications), and six sub-forms under Landscape – Weed Control/Manual, Weed Control/Mechanical, Pruning/Hedging/Edging, Seed/Mulch/Plant/Fertilize, Mowing Lawn, Irrigation System Operations & Maintenance, and Other Maintenance as Approved by Superintendent

Landscape maintenance operations are only conducted in a limited number of locations as described below and mapped in HATS. Maintenance activities in each identified location are planned based on a multi-year treatment strategy. Treatment decision are based on monitoring and the proven most effective combination of maintenance actions, to keep plantings (and lawns if present) looking healthy and trimmed throughout the year.

Total Units of Planned Treatment

- There are approximately **88 acres** of formally landscaped roadside.

Locations of Planned Treatments

- Reference HATS layer – Landscape Maintenance.
- Locations of designate formal landscape include:
 - I-5 MP 0-3.1
 - I-5 MP 5.4 99th street interchange
 - I-5 MP 7.2-7.62 134 street interchange & 139th street interchange
 - I-5 MP 21.09 Woodland interchange
 - I-205 MP 28.37 Mill Plain interchange
 - SR-14 MP 0-1.08
 - SR-14 MP 14.73-15.03
 - SR-500 MP 1.12 St Johns interchange
 - SR-500 MP 3.14 Andreson interchange
 - SR-500 MP 3.92 Thurston interchange
 - SR-500 MP 5.42 Gher Rd. interchange
 - SR-500 MP 7-10B
 - SR-14 Pedestrian Land Bridge is **maintained by City of Vancouver**

Treatment Methods and Timing

- Prune and weed control as needed, and mow lawns weekly during the growing season.
- Irrigation has been turned off or abandoned throughout the I-5 corridor except for the Welcome to Washington sign
- Welcome to Washington planting is coordinated with volunteer groups for installation

Drainage and Stormwater Facilities Maintenance – 2A

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 (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 1

- Gee Creek Safety Rest Areas northbound and southbound on I-5 at MP11 and 13
- 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 1 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