

Southwest Region, Area 2 Integrated Roadside Vegetation Management Plan

2022



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

Introduction

The Washington State Department of Transportation's (WSDOT) Southwest Region Area 2 manages approximately 245 miles of state highway corridor throughout Lewis County. In addition to the Interstate 5 corridor, the area maintains US 12 up to the south entrance to Mt. Rainier National Park, State Routes (SR) 122, 505, 506, 508, and portions of SR 6 and 7. 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.

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 naturally self-sustaining roadside vegetation. 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.

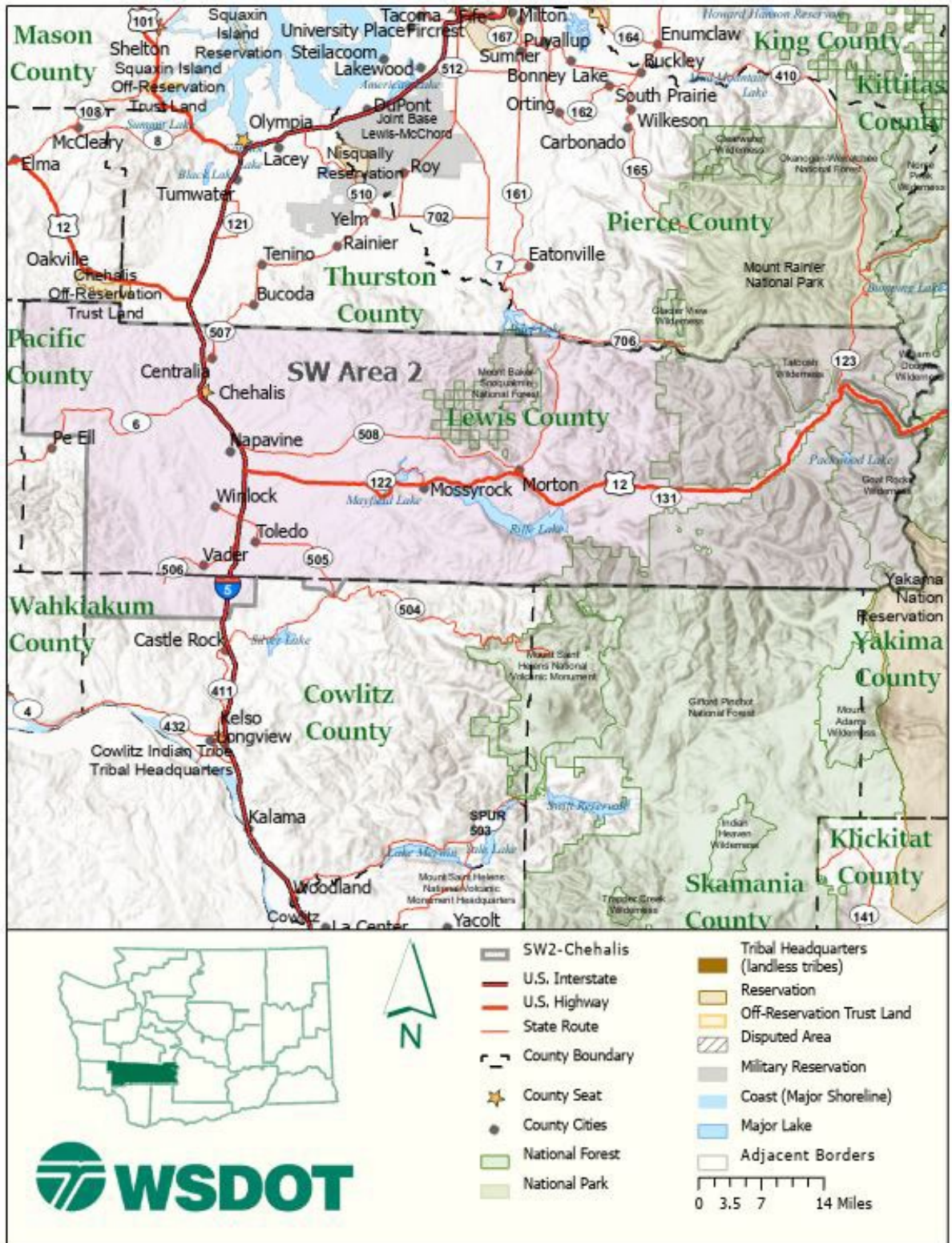
This plan serves as the guidance document for vegetation maintenance in Southwest Region Area 2 for the 2022 growing season. It identifies priority locations and prescribes treatments for accomplishing safety and weed control objectives through a combination of seasonally timed control measures. Each 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 conditions, 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 2 Superintendent – Cliff Nowels, or the State's Roadside Asset Manager – Ray Willard.

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Southwest Region, Area 2 Map

Figure 1

Southwest Region, Area 2 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 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. Safety Rest Area** Landscape Maintenance 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. 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 stored in locked facilities and kept in an organized condition.

Control of Vegetative Obstructions – MAP Activity 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 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 **350 acres** of herbicide treatment to all road shoulders in the area.

Locations of Planned Treatments

- Planned treatment sites are being mapped in HATS layer – **Spray Zone 1 Reference**.
- All gravel shoulders throughout the area will be treated annually with non-selective, soil residual herbicides.
- Applications vary as needed between 4 and 6 ft. bandwidths, as noted on the HATS map. The 6 ft. width will be used make sure we get around hardware for access & to increase visibility where needed.
- Road shoulders within Gifford Pinchot National Forest on SR12 will be treated with a mixture of products approved by USFS.
- I-5 Median, MP 61.27-71 will be treated full width

- Cracks in the paved median of I-5 MP 52.6-61.27 NB&SB & MP 73-85.5 NB&SB will be treated with glyphosate only after other shoulder spraying is complete.

Treatment Methods

- For typical applications, spray equipment will be calibrated to deliver a consistent rate per acre of liquid spray mix in either 4 or 6 ft. bands of spray on a flat surface. The resulting width of treated shoulder may be wider than 4 or 6 ft. depending on the steepness of the shoulder slope.
- Products will be purchased and applied in custom blended 15 gallon returnable, reusable drums. Area 2 is partnering with Area 1 and applying the same blend and sharing the leftovers. Area 2 will be making Zone 1 applications in the spring and Area 1 in the fall.
- Most locations will be treated in mid to late spring with Blend #11 off the state pesticide contract, which includes the following herbicides:
 - Rodeo @ 51 oz/acre
 - Esplanade @ 7 oz/acre
 - Milestone @ 7 oz/acre
 - Telar @ 2 oz/acre
- SR12 MP 135.2-138.6 (GPNF)
 - Roundup Pro Concentrate @ 48 ozl/acre
 - Polaris @ 14 ozl/acre
 - In Place @ 8 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 **400 acres** will be mowed along the pavement edge throughout the area

Locations of Planned Treatments

- As the area re-establishes bare-ground shoulder treatments throughout the area, the need for shoulder mowing will be evaluated and scaled back wherever possible.
- Where needed, shoulders area-wide will be mowed one pass. Except as noted:
 - SR507 NO zone 2 mowing needed
 - SR506 MP 1-11.53 NO zone 2 mowing needed

Treatment Methods

- Mowing along I-5 and parts of SR12 will be accomplished with a two deck, 16 ft. total width mower. However, typical mowing width is 8 to 16 ft. or as narrow as appropriate in areas with established stands of low growing grasses.
- Mowing along secondary two lane routes will be accomplished with a single deck, drop down side mounted mower, or an arm mounted mower. Typical mowing width is 4 to 6 ft. but may be widened out in some areas for added traffic visibility.

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 trees encroaching on traffic operations and visibility. Also included is work in Zone 2 and 3 when controlling emergent undesirable tree species to prevent them from growing into hazard trees.

Total Units of Planned Treatment

- Approximately **200 acres** will be controlled throughout the area, with mechanical means
- Approximately **100 acres** will be controlled with selective herbicide applications
- Approximately 20 acres will be trimmed with hand tools.

Locations of Planned Treatments

- SR6 MP 43-45 brushing trees in last 2 weeks in May
- SR506 MP 7-8 cut and stump treat volunteer maple and alders that are close to the road
- Overhanging and encroaching branches will be mechanically trimmed when time allows.
- Cut emerging seedling trees and brush from slopes with mechanical arm mower throughout the year when time allows.

Treatment Methods

- A tractor with and arm mounted trimming head will be used to accomplish the majority of this work from the road shoulder with selective trimming/hedging of side branches and some mowing of unwanted vegetation to the ground.
- In some cases a lift with hand tools will be used to remove overhanging branches.
- For emergent traffic visibility problems resulting from spring growth, hand held string trimmers and cutting tools may be used to address select locations. In these locations, once vegetation has been cut, the mowed areas will be followed up with glyphosate products to eliminate grow back.
- Whenever possible cut stump surfaces on unwanted vegetation will be treated with herbicide either immediately following cutting or as a foliar application when grow back occurs later in the season, or the following year.
- Late season chemical controls will be applied as time and weather permit.

Herbicides used:

Alder and Blackberry:

- Krenite S @ 356 oz./acre

Other brush and small conifers:

- Garlon 3A @ 128 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 mature trees identified as a potential imminent threat will be further evaluated and removed as soon as possible where needed. Blow down from “non-disaster” events must also be removed from the road.

Total Units of Planned Treatment

- Approximately **500 mature hazard trees**, possibly more, are removed throughout the area each year.

Locations of Planned Treatments

- The entire area will be evaluated and prioritized for hazard tree removal annually.

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 potential hazard trees identified will be further evaluated and removed as soon as possible if necessary.
- If trees growing outside WSDOT right of way are hazards, crews work with the neighboring property owner to negotiate removal.
- Whenever possible removal debris will be left to decompose on site.
- Large woody debris may be stored at pit sites for later use in restoration projects.

Noxious Weed Control – 3A2

This group of activities includes control of non-native invasive weed species as defined by state law and individual county designation. This group of activities is second priority vegetation management work after safety related objectives have been addressed. While all Class A, B, and C noxious weed species as listed in RCW 17.10 are considered potential targets for WSDOT noxious weed control, the agency is currently not funded to achieve 100% control of all noxious weeds. Therefore, the top priorities for weed control are focused on locations and species that are more limited in distribution on the right of way – where there is a chance of successful eradication. To prioritize control of species that are already widespread in the area, WSDOT works with the local county noxious weed boards and coordinators, to annually review and determine which species and locations will be specifically targeted.

To prioritize, plan, and track noxious weed control, WSDOT maps and monitors weed infestations in three categories: **Priority**, **Planned Treatment**, and **General Reference**. **Priority** locations are where Class A noxious weed species exist on the right of way, and complete eradication is required by state law. **Planned Treatment** sites are locations where there are new, and/or limited distribution infestations of Class B and C noxious weed exist, and eradication is possible. **General Reference** sites are recorded for reference only to document the presence of noxious weed species which are more commonly occurring in the local area.

Noxious Weed Control

Work Operations: 1616, 1618, 1641, 1699

HATS Forms: Pesticide Application (for spray applications,) and three sub-forms under Noxious Weed Control General– Manual/Mechanical, Seed/Fertilize/Mulch, and Biological HATS Map Layer: Reference Points – Roadside Features/Noxious Weed Control Priority, Noxious Weed Control Planned Treatment, and Noxious Weed Control General Reference

Operations are prescribed throughout the season to prevent the spread of any legally designated noxious weed species, and to reduce or eliminate populations wherever possible. Integrated treatment plans combine field monitoring and an integral mixture of seasonally timed control methods with proven effectiveness on designated species. Successful plans are consistently implemented over a series of years and annually adjusted as necessary based on field observations. Care must be taken in all cases to avoid damage to surrounding desirable/native vegetation.

Priority Class A Noxious Weed on WSDOT Right of Way in Southwest Region Area 2:

Species and Locations

- No Class A species are known to existing in SW Area 2 at this time.

Locations of Planned Treatments

- If infestations are discovered, they will be recorded as features in HATS layer – **Noxious Weed Control Priority** for species location and distribution.

Target Species on WSDOT Right of Way in Southwest Region Area 2

Common Name/Botanical Name	Treatment Notes
Shiny geranium/ <i>Geranium shinetarium</i>	Target sites mapped and treated in the spring and fall, and incidental to seasonal weed patrols

Knotweed sp./ <i>Polygonum sp.</i>	Target sites mapped and treated after flower stage in late summer
Ragwort tansy/ <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
Knapweed sp./ <i>centauria sp.</i>	Control where visible in conjunction with summer seasonal patrols
Scotch broom/ <i>Cytisus scoparius</i>	Control required east of Packwood on US12 where all visible plants are treated annually with herbicide in the early summer. Cowlitz County. All other areas, controlled only in small isolated patches or incidental to seasonal weed patrols.
Dalmation toadflax/ <i>Linaria dalmatica</i>	Target sites mapped and treated in early spring, sites are monitored and retreated in the fall if there is any grow back.
Rush skeletonweed/ <i>Chondrilla juncea</i>	Target sites mapped and treated in early spring, additional treatments are made to any remaining plants visible when summer season weed patrols are conducted.
Hawkweed sp./ <i>Hieracium sp.</i>	Control where visible in conjunction with seasonal patrols
Common fennel/ <i>Foeniculum vulgare</i>	Target sites mapped and treated in early spring
Poison hemlock/ <i>Conium maculatum</i>	Target sites mapped and treated in early spring
Butterfly bush/ <i>Buddleia davidii</i>	Control where visible in conjunction with seasonal patrols

Planned Treatments

- Approximately **75 acres** of herbicide application will be applied throughout the area to control noxious weeds.
- Approximately **15 acres** will be controlled by mowing or hand removal.
- Planned treatment areas and species as described in the table above are identified in collaboration with the Lewis County Noxious Weed Board and mapped in the HATS map layer – **Noxious Weed Control General**.
- Area IVM technicians will verify and edit weed location and planned treatment data in HATS as treatments are carried out through the season.

Treatment Methods and Timing

- As described in the table above.
- Herbicide mixes used for summer weed patrol treatments:
 - Capstone @ 128 ozl/acre
 - SylTac @ 8 ozl/acre
- Herbicide mixes used in early spring for treating identified priority locations and species described above:
 - Perspective @ 2.5 ozd/acre
 - SylTac @ 8 ozl/acre
- Herbicide mixes used in late summer/fall for treating identified priority locations and species described above:
 - Capstone @ 128 ozl/acre
 - SylTac @ 8 ozl/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, 1641, 1699

HATS 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. Undesirable species are identified and specifically targeted while care is 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 **25 acres** will be treated with herbicides for nuisance vegetation control.
- Approximately **40 acres** will be mowed to control nuisance vegetation.

Locations of Planned Treatments

- Managed areas will be mapped during the 2022 season in the HATS layer – **Nuisance Vegetation Management**.
- Locations of Zone 3 mowing in 2022 include:
 - I 5 MP 52, 57, 60, 63, 68, 71, 72, 76, All interchanges
 - Strips of mowing from 66.1 to 66.3 66.5 to 66.6 54 to 54.7
- Mowing patterns will be directed at target vegetation and avoid areas with solid grass stands and/or native shrubs.

Treatment Methods and Timing

- All managed areas will be spot sprayed to control regrowth of all undesirable vegetation with the following herbicides:
 - Capstone @ 128 ozl/acre
 - Syltac @ 8 ozl/acre

Safety Rest Area Site Maintenance – 7B1

Landscape maintenance work at safety rest areas throughout the state includes all vegetation management activities that take place in relation to the design and layout of individual rest areas. For these highly developed landscape assets, the goal is to maintain healthy, attractive plantings throughout the site as well as along the rest area frontage along the highway. Planted vegetation is intended to be preserved and enhanced over time, through pruning, hedging, trimming, with irrigation and periodic fertilization used where necessary.

Safety Rest Area Site Maintenance

Work Operations:

HATS Forms:

HATS Map Layer: Reference polygons – SRA Landscape Reference

Rest area landscape maintenance operations are carried out by the Rest Area Attendants in many cases, with the local area maintenance crews or regional specialty crews helping out when needed for irrigation and specialized weed control operations.

Locations of Planned Treatments

- Rest area facilities maintained by SW Region Area 2 include:
 - Toutle River SRA – I-5 SB, MP
 - Toutle River SRA – I-5 NB, MP
 - Bevin Lake – SR12, MP

Total Units of Planned Treatment

- High maintenance landscape – **1 acre**
- Low maintenance landscape – **2 acres**

Treatment Methods and Timing

- Routine pickup of vegetative debris as needed
- Annual start up and winterization of irrigation system
- Routine lawn mowing throughout the growing season
- Weed control operations

Stormwater Facilities Maintenance – 2A4

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.

NPDES Maintenance

Work Operations: 1368, 1399

HATS Forms: Pesticide Application (for all spray applications)

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

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 features includes a manual which details the requirements in relation to control of vegetation and sediment buildup over time. Any vegetation control work required within designed treatment features is charged to the stormwater program.

Locations of Planned Treatments

- All stormwater management facilities with biofiltration components are mapped within the Stormwater Features Layer in HATS.
- Vegetation management activities in stormwater management features are specified in the Owner's Manual for each constructed feature.
- 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.