

Southwest Region, Area 4 Integrated Roadside Vegetation Management Plan

2022



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

Introduction

The Washington State Department of Transportation (WSDOT) Southwest Region Area 4 manages approximately 460 miles of roadside right-of-way throughout Klickitat and Skamania counties. This right-of-way is part of the state highway system including US97, US197, SR14, SR141, and SR142. SR14 is part of the Lewis and Clark Trail Scenic Byway and west of Goldendale this highway passes through the Columbia River Gorge National Scenic Area. 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 establishing the most naturally self-sustaining roadside vegetation possible. Adjustments are made year to year in each area plan based on monitoring the previous years' accomplishments and results, available budget, and prioritization of other highway maintenance activities.

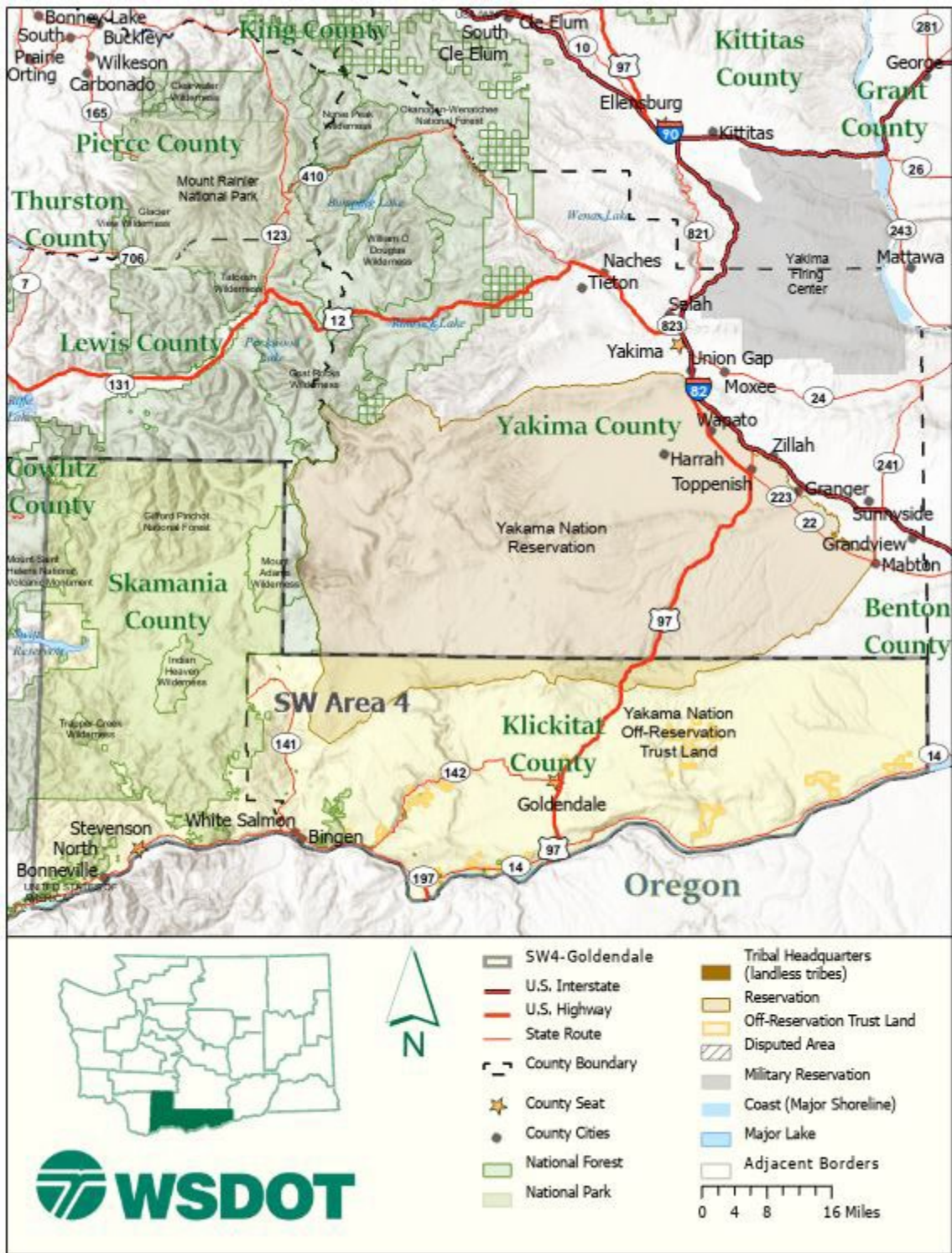
This plan serves as the guidance document for vegetation maintenance in Southwest Region Area 4 for the 2022 growing season. It identifies priority locations and prescribes treatments for accomplishing safety and weed control objectives through a combination of integrated, seasonally timed control measures. 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 4 Superintendent – Bill VanAntwerp, or the State's Roadside Asset Manager – Ray Willard.

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Southwest Region, Area 4 Vicinity Map
Figure 1

Southwest Region, Area 4 IVM Work Plan – 2022

This is an outline the overall approach and geographic distribution of roadside vegetation management requirements throughout the area in 2022. Information is organized in relation to the 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 Weed Control**. Specific locations as noted in this work plan are also mapped in WSDOT's 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 – 3A4

The work of this group of maintenance activities relates to the safety and operational requirements of the highway. These items are considered first priority in terms of the overall roadside maintenance needs. Vegetation management objectives and work activities in this category fall into four groups – **Pavement Edge Maintenance/Zone 1, One Pass Mowing/Zone 2, Tree and Brush Control/Zone 2 and 3, and Hazard Tree Removal/Zone 3**.

Pavement Edge Maintenance/Zone 1

Work Operation: 1615

HATS Form: Pesticide Application

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 vegetation-free gravel shoulder adjacent to the pavement. 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 **180 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**.
- Except as noted, all shoulders in the area will be treated annually
- Locations where no bare ground treatment will be applied include:
 - US97 – MP 27-33 (Tribal lands)
 - Through any incorporated cities
 - Other small towns, shoulders are treated only as needed

Treatment Methods

- Herbicides are applied using a truck mounted power spray system calibrated to deliver either a 4-ft. band of spray mixture on and adjacent to the paved shoulder. The resulting width of treated shoulder may be wider than 4 ft. in areas with steeper shoulder slope.
- All noted locations will be treated in mid to late spring with the following mixture of herbicides and adjuvants:
 - Roundup Pro Conc. @ 32 oz/acre
 - Lockdown SC @ 8 oz/acre
 - Milestone @ 7 oz/acre
 - Telar @ 2 oz/acre
 - In-Place @ 8 oz/acre

Safety Mowing/Zone 2

Work Operation: 1625

HATS Form: Mowing Zone 2

HATS Map Layer: Reference lines – Roadside Features/Mowing Zone 2 Reference

This work includes routine mechanical cutting of all vegetation on the road shoulder in a band width immediately adjacent to pavement. Mowing is necessary in areas where taller growing grasses or other vegetation are present and must be annually or semi-annually cut back for visibility and maintenance of roadside hardware and delineators, to maintenance traffic sight distance at curves and intersections, and for improved visibility of wildlife approaching the highway. Mowing height for these operations is typically 6 to 8 inches above the ground. In many cases this type of mowing is unnecessary if an adequate width of Zone 1 is present.

Total Units of Planned Treatment

- Less than **15 acres** of spot mowing on shoulders is planned.

Locations of Planned Treatments

- This work is necessary at intersections, curves and some driveway approaches throughout the area where vegetation is encroaching on the roadway.
- SR14 west of Bingen
- SR142 up the hill

Treatment Methods

- Borrow radial arm mower for a week or two each year to trim as needed.
- Arm mower will also be used to mow shoulders in areas along SR142 in locations where Zone 1 will be reestablished. These areas will be treated with a follow up of residual herbicides.

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 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. Removal of mature-sized dead, diseased, dying or structurally defective and hazardous trees is also included in this activity group.

Total Units of Planned Treatment

- Approximately **15 acres** will be treated with manual or mechanical trimming throughout the area.
- Up to **30 acres** will be treated with herbicide in the fall

Locations of Planned Treatments

- Periodic trimming and control of tree seedlings is necessary along highways in forested areas throughout the area:
 - SR14 MP 28-65
 - SR141 and SR141 Spur
 - SR142
 - US97 MP 25-33

Treatment Methods

- The goal in controlling unwanted plant growth is to apply regular periodic maintenance activities in order to stay ahead of plant growth impacts on highway safety. Activities include a mixture of spraying, trimming with side arm mounted cutters, and hand tools. Typically, in forested roadside conditions, each location requires some form of trimming or seedling removal on a 3 to 4 year cycle. When herbicide application is used for larger scale trimming operations, applications are made in late summer or early fall to decrease visual impacts. Some incidental herbicide treatments of tree and brush may also be conducted in conjunction with noxious weed control operations throughout the growing season.
- Herbicide prescriptions include:
 - Vastlan @ 64 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 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 **300 mature hazard trees** are typically removed throughout the area each year.

Locations of Planned Treatments

- Priority areas are along US97, SR14, and SR141 where large trees have been killed by fires or effected by disease.

Treatment Methods

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

Noxious Weed Control – 3A2

This group of activities includes control of non-native invasive weed species as defined by state law and individual county designation. This group of activities is second priority vegetation management work after safety related objectives have been addressed. While all Class A, B, and C noxious weed species as listed in RCW 17.10 are considered potential targets for WSDOT noxious weed control, the agency is currently not funded to achieve 100% control of all noxious weeds. Therefore, the top priorities for weed control are focused

on locations and species that are more limited in distribution on the right of way – where there is a chance of successful eradication. To prioritize control of species that are already widespread in the area, WSDOT works with the local county noxious weed boards and coordinators, to annually review and determine which species and locations will be specifically targeted.

To prioritize, plan, and track noxious weed control, WSDOT maps and monitors weed infestations in two categories: **Priority Treatment** and **Planned Treatment 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.

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 4:

<i>Common Name (Botanical Name)</i>	<i>Treatment Notes</i>
Garlic mustard (<i>Alliaria peteolata</i>)	One location in Skamania County on SR14 near Home Valley near but not on right of way – Monitor site

Target Noxious Weed Species on WSDOT Right of Way

<i>Common Name/Botanical Name</i>	<i>Treatment Notes</i>
Annual bugloss (<i>Anchusa arvensis</i>)	One infestation mapped on SR14 at MP 36.11, treat in Spring
Common tansy (<i>Tanacetum vulgare</i>)	Control where visible in conjunction with summer seasonal weed patrols.
Dalmatian toadflax (<i>Linaria dalmatica</i>)	Target sites mapped and treated in the spring and fall
Hairy willow-herb (<i>Epilobium hirsutum</i>)	Only present within Bingen City limits and controlled by city
Himalayan blackberry (<i>Rubus armeniacus</i>)	Present mainly on the west end of the area, control where visible in conjunction with summer seasonal weed patrols. Priority treatment sites will be mapped in areas where pioneer infestations exist.
Hoary cress (<i>Cardaria draba</i>)	Control where visible in conjunction with summer seasonal weed patrols.
Houndstongue (<i>Cynoglossum officinale</i>)	Target sites mapped and treated in the spring and fall (Ask Marty how they kill it)

Japanese knotweed (<i>Polygonum cuspidatum</i>)	Target sites mapped and treated in the late summer/fall and plants are past the peak flowering stage.
Knapweed sp. (<i>Centaurea</i> sp.)	Control where visible in conjunction with summer seasonal weed patrols.
Kochia (<i>Kochia scoparia</i>)	Mainly present on the east end of the section. Control where visible in conjunction with summer seasonal weed patrols.
Loosestrife, purple (<i>Lythrum salicaria</i>)	All known have been controlled, any new occurrences will be controlled and sites mapped for monitoring.
Perennial pepperweed (<i>Lepidium latifolium</i>)	Control where visible in conjunction with summer seasonal weed patrols.
Poison hemlock (<i>Conium maculatum</i>)	Target sites mapped and treated at early flower stage in spring.
Puncturevine (<i>Tribulus terrestris</i>)	Control where visible in conjunction with summer seasonal weed patrols. Mostly east on SR14
Rush skeletonweed (<i>Chondrilla juncea</i>)	Still a designate in Skamania County so any infestations or individual plants found west of Bingen will be treated and mapped for early spring treatment in 2022.
Saltcedar (<i>Tamarix remosissima</i>)	Target sites mapped and treated in the late summer with foliar spray, or cut and stump treat at any time.
Scotch broom (<i>Cytisus scoparius</i>)	Present mainly on the west end of the area, control where visible in conjunction with summer seasonal weed patrols. Priority treatment sites will be mapped in areas where pioneer infestations exist.
Shiny geranium (<i>Geranium lucidum</i>)	Target sites are mapped and visited in spring summer and fall to treat any visible plants
Spurge laurel (<i>Daphne laureola</i>)	Control where visible in conjunction with seasonal weed patrols. Isolated plants or patches are mapped and treated in spring or summer.
Sulfur cinquefoil (<i>Potentilla recta</i>)	Isolated plants or patches are mapped and treated in spring or summer.
Tansy ragwort (<i>Senecio jacobaea</i>)	Mainly present west of Stevenson. 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
Teasel (<i>Dipsacus follonum</i>)	SR14 near Crawfords, SR97 near Goldendale
Thistle, Canada (<i>Cirsium arvense</i>)	Control where visible in conjunction with summer seasonal weed patrols.
Thistle, Scotch (<i>Onopordum acanthium</i>)	Target sites mapped and treated at early flower stage in spring.
Tree of Heaven (<i>Ailanthus altissima</i>)	Control trees under 3' ht. with foliar herbicides in conjunction with season weed control and tree/brush spray operations. Any mature trees will be cut and stump treated.
Wild carrot (<i>Daucus carota</i>)	Control where visible in conjunction with summer seasonal weed patrols.
Yellow starthistle (<i>Centaurea solstitialis</i>)	Present on the east side of the area, control prioritized for any occurring plant west of MP69

Total Units of Planned Treatment

- Approximately **150 acres** will be treated with herbicides.
- Minor amounts of hand pulling will be conducted incidental to other activities.

- No mowing will be used for noxious weed control operations.

Locations of Planned Treatments

- Reference – HATS map layer **Noxious Weed Control General** for species location and distribution.

Treatment Methods and Timing

- In many cases noxious weed control is accomplished with broad-spectrum herbicide treatments carried out when weeds are flowering and most visible in the late spring/early summer. In these cases, incidental treatments may be made targeting encroaching trees and brush, and to nuisance weed species.
- Whenever possible seasonally timed applications are planned and carried out for locations where eradication is possible. In the 2017 season area IVM technicians will create a map of priority infestations where seasonally timed applications will be made for the following species in the following year:

Herbicide Mix 1:

- Milestone @ 5 ozl/acre
- Vastlan @ 64 ozl/acre
- Syl-tac @ 8 oz/acre

Herbicide Mix 2:

- Capstone @ 128 oz/acre
- Syl-tac @ 8 oz/acre

Nuisance Vegetation Control – 3A3

Nuisance vegetation control takes place only in a select set of carefully prioritized locations throughout the state, primarily along wider rights of way and interchanges on limited access highways. 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 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

- No nuisance vegetation control is planned for 2022 in this maintenance area.

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.