

Northwest Region, Area 5 Integrated Roadside Vegetation Management Plan

2024



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

Introduction

The Washington State Department of Transportation's (WSDOT) Northwest Region Area 5 manages vegetation within approximately 220 miles of state highway corridor in King and southwest Snohomish Counties. Crews in this maintenance area contend with some of the highest traffic volumes in the state. Major corridors in the area include portions of Interstates 5, 90 and 405. Other limited access corridors include State Routes 520, and 599/99. Roadsides along secondary highways within incorporated city limits are typically maintained by the cities. A map of all highways in 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 Northwest Region Area 5 for the 2024 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 Northwest Region Area 5 Superintendent – Brian Kendall, Assistant Superintendent – Steve Reichmuth, or the State's Roadside Asset Manager – Ray Willard.

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Northwest Region Area 5 Map

Figure 1

Northwest Region Area 5 IVM Work Plan – 2024

The section outlines the overall approach and geographic distribution of roadside vegetation management requirements throughout the maintenance area in 2024. 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: **Control of Vegetative Obstructions**, **Noxious Weed Control**, **Nuisance Vegetation 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.

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 kept in locked storage facilities with built in containment.

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 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 most locations 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 a total of approximately **300 acres** of herbicide treatment to road shoulders throughout the area in two applications spring and fall

Locations of Planned Treatments

- Planned treatment sites are planned for all shoulders throughout the area as mapped in HATS layer – **Spray Zone 1 Reference**
- Construction projects preclude applications where present throughout the area
- Locations where **bare ground** treatment will be modified or not applied include:
 - Construction zones

- Locations along secondary roads where there neighboring property owners take good of the vegetation and/or have agreed to maintain the roadside
- I-90, MP 16 to 19 – Wellhead protection areas (treated with glyphosate only)
- All rights of way through incorporated cities

Treatment Methods

- Herbicides are applied using a truck mounted power spray system calibrated to deliver a 4-foot band of spray mixture adjacent to the paved shoulder. The resulting width of treated shoulder may be wider than 4 feet in areas with steeper shoulder slope.
- In locations with cable rail – If the rail is less than 8 ft. from the edge of pavement, the bare ground treatment will extend from the pavement edge to the back side of the cable rail. In locations where the rail is greater than 8 ft. from the edge of pavement, treatment will be applied in 4 ft. band directly under the rail.
- In locations with guardrail, treatment band width will be extended to the to the back side of hardware.
- Treatment of all shoulders will be made using herbicide blend R6 in pre-mixed reusable drums:
 - Roundup Pro Concentrate @ 32 oz/acre
 - Lockdown SC @ 8 oz/acre
 - Milestone @ 7 oz/acre
 - Telar @ 2 oz/acre
 - Insist 90 Plus @ 16 oz/acre
 - In-Place @ 16 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.

Total Units of Planned Mowing

- Approximately **200 acres** of Zone 2 safety mowing will be conducted each year throughout the area.

Locations of Planned Mowing

- 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 out to specified widths once per year in late spring/early summer
- Prioritized for annual safety mowing including:
 - SR 202 – Ames Lake Rd, 308th intersection, Mills Farm, NE 55th Spring Glen area, MP 23 Tolt Hill Rd intersection Fish Hatchery Rd both sides
 - SR 203 – SE 3rd. NE 24th, Horse Crossing at first bridge, NE 11th. S end of Tolt River Bridge.
 - I-405/NE 8th interchange for sight distance issues and concerns with transients
 - I-90/Eastgate interchange for sight distance issues and concerns with transients

- I-90/I-5 Interchange quadrants
- I-5 Interchanges for sight distance where needed and visibility of emerging encampments
- I-90 wall 18 and Rainier Ave. quadrants
- I-5 Lakeview
- I-5 Boeing access ramps
- 405/520 Interchange quadrants
- SR99 – Median and interchange quadrants

Treatment Methods

- 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, track mounted brush head, RC mower is also available for special conditions.

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. 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 **50 acres** will be mechanically trimmed throughout the area.
- Approximately **25 acres** will be treated with herbicides.
- Approximately **15 acres** will be trimmed with hand tools

Locations of Planned Treatments

Any locations with butterfly bush and pampas grass will be treated with a combination of mowing and herbicide.

415530

- I-5 – swamp creek site distance issues
- I-5 off ramp to WB SR 104 – Remove vegetation hanging down from wall
- SR104/HWY, 5th Ave – Mow for intersection visibility (west side of 5th only)
- SR104, MP 24.70- 25.10 – Mow along Edmonds Marsh edge
- I-405, 70th and 85th Interchanges – Mow ditch lines of brush, scotch broom, and small trees.
- I-405, 124th Interchange – Mow ditch lines of grass, blackberries and scotch broom, cut blackberries away from guardrail, cut brush and small trees from guardrail NB and SB ramps
- I-405, south bound from 195th ramp – Mow back brush from sidewalk to the metro bus stop including vegetation on sidewalk
- SR522 – WB, just above the wall after the college, to allow access
- SR522 – WB, just after 195th towards 202 off ramp, site distance.
- SR202 – Site distance requirements just north of 124th
- SR202 – Multiple areas where brush/blackberries are encroaching on shoulder

415520

- I-5 – Columbian Way interchange
- I-5 – Corson/Michigan interchange area

- I-5 – 80th/85th interchange area
- I-90 – 72nd and 22nd vicinity
- SR900 – WB
- I-90 – WB Wall 18 just west of Mt Baker Tunnel

415510

- SR 18 – MP20 to MP16.88 to remove encroaching brush and improve sight distance
- I-90 – MP 19 to MP20 remove trees encroaching clear zone
- I-90 – MP31 to MP33 improve sight distance and to help control the spread of Scotch broom east into Area 1
- SR202 – MP22.5 and 24.3 remove encroaching trees, brush and some canopy
- Address seedling trees W-90 Median MP 25.3
- SR202 - MP 12.5 area remove encroaching trees and brush
- I405/SR 520 interchange to remove encroaching trees and blackberries to improve sight distance issues and drainage
- I90/SR 900 interchange to remove encroaching trees and brush to improve sight distance problems

Treatment Methods

- Tractors with side-arm mounted mowing heads, skid-steer with brush head, manlift, hand-held saws, pole saws, and chippers.
- Herbicides will also be used to trim and remove encroaching tree seedlings and brush in the late summer/fall. Products used:
 - Garlon 3A @ 64 oz/acre
 - Milestone @ 7 oz/acre
 - Escort @ 2 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 removed as soon as possible where needed.

Total Units of Planned Treatment

- As many as **300** mature hazard trees may be removed throughout the area each year.

Locations of Planned Treatments

- Crews are continuously looking for trees that exhibit structural defects and could strike the road or neighboring property if they come down. Any hazard trees identified at any time are removed as soon as possible.
- If trees growing outside WSDOT right of way are hazards, crews work with the neighboring property owner to negotiate removal.
- In 2024 WSDOT plans to have Arborist identify potentially hazardous trees in two locations: I-5 NB at Boeing Access to MP 160, and I-90 EB MP 12.1 to 13.0. These evaluations will be conducted immediately before removal is planned.
- The area removed and treated a patch of Tree of Heaven (*Alianthus altissima*). This is a fast-growing species that can rapidly develop into a hazard. Crews will remove mature infestations whenever possible. Herbicide treatment will be used in combination with cutting to eradicate the infestation.

- A series of projects on the section of I-5 on the north end of Seattle will be completed to remove pines with bark beetles damage.
- 509 Meyers Way where trees are overhanging the road
- I-5 Harborview Hill where trees have been damaged by encampments.

Treatment Methods

- WSDOT crews typically fall hazard trees as needed. Occasionally for more challenging work, WSDOT contracts with professional Arborist.
- Material is left to decompose on site where possible

Noxious Weed Control – 3A2

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

To prioritize, plan, and track noxious weed control, WSDOT maps and monitors weed infestations in 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.

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

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 Weeds on WSDOT Right of Way in Northwest Region Area 5:

Species and Locations

- Spanish broom – I-5 MP169.3 also has been seen under the north abutment adjacent to bike path

Total Units of Planned Treatment

- Less than one acre total treatment including all three sites.

Treatment Methods

- Spanish broom – Site has been cut and treated by WSDOT and the County Weed Board. Continue to monitor for seedlings each spring and fall.

Target Noxious Weeds on WSDOT Right of Way in Northwest Region Area 5:

Common Name/Botanical Name	Treatment Notes
Absinth wormwood/ <i>Artemisia absinthium</i>	King County will send notifications if found and any reoccurring infestation sites will be mapped. I-90 east of Issaquah
Bull thistle/ <i>Cirsium vulgare</i>	Control small patches where visible in conjunction with seasonal patrols
Butterfly bush/ <i>Buddleia davidii</i>	Control where visible, priority target sites mapped on I-5 in Tukwilla
Canada thistle/ <i>Cirsium arvense</i>	Control small patches where visible in conjunction with seasonal patrols
Common reed/ <i>Phragmites australis</i>	Target sites mapped and treated in the fall
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. 522 MP 13 to county line, SR 202 MP 14.2, I-90 MP 29
Hawkweed sp./ <i>Hieracium sp.</i>	Control where visible in conjunction with seasonal patrols
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 will be mapped and treated after flower stage in late summer
Kochia	SR 18 and I-90
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 will be mapped and treated at early flower stage in summer. SR 520 MP 8.3 EB
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
Rush skeletonweed/ <i>Chondrilla juncea</i>	Target sites mapped and treated in the spring. I-405 MP 19.8 median, I-90 MP 23.5 median, I-90 MP 14.3 median
Scotch broom/ <i>Cytisus scoparius</i>	Controlled in conjunction with seasonal weed patrols, when present in small, isolated patches, and any visible plants along I-90 east of Issaquah
Sulfur cinquefoil/ <i>Potentilla recta</i>	Target sites will be mapped and treated in the spring. I-90 Mercer Is. West side N. Mercer in median
Viper's bugloss/ <i>Echium vulgare</i>	King County will send notifications if found and any reoccurring infestation sites will be mapped
Wild chervil/ <i>Anthriscus sylvestris</i>	First detection in Area 5 – Target site on SR18 mapped and treated (under contract)

Total Units of Planned Treatment

- Approximately **150 acres** will be treated with a mixture of herbicide treatments and other methods

- Approximately **30 acres** will be mowed or pulled by hand

Locations of Planned Treatments

- Treatment locations are described in the table above

Treatment Methods and Timing

- Treatments are carried out as described in the table above
- Herbicide mixtures used include:

Mix 1

- Opensite @ 3 ozl/acre
- Syltac @ 16 ozl/acre
- In Place @ 1 oz per 4 oz

Mix 2

- Capstone @ 128 ozl/acre
- Syltac @ 16 ozl/acre

In Place @ 1 oz per 4 oz

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Mix 3

- Vastlan @ 128 ozl/acre
- Syltac @ 16 ozl/acre
- In Place @ 1 oz per 4 oz
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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, 1641, 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. Undesirable species are identified and specifically targeted while care is be 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 **30 acres** will be treated with herbicides for nuisance weed control.
- Approximately **100 acres** will be mowed for nuisance

Locations of Planned Treatments

- Reference HATS layer – **Nuisance Vegetation Management.**

Treatment Methods and Timing

- Multi-year IVM treatment plans will be developed for any areas that have been recently restored through construction, encampment cleanup, or tree replacement

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 **50 acres** of formally landscaped roadside in this area.
- An additional **100 acres** of formally landscaped roadside is maintained through agreement with the cities of Seattle and Mercer Island.

Locations of Planned Treatments

- Reference HATS layer – **Landscape Maintenance.**

Treatment Methods and Timing

415510

- 520 landscape areas

415530

- No landscaped areas in this section.

415520

- I-90 – Landscaped right of way outside of limited access control areas in Seattle and on Mercer Island, including landscaping on structures and along bike/pedestrian paths are maintained by agreement with crews from the Cities. WSDOT reimburses City crews from this work. *WB lane polygons need to be adjusted*
- *SR99 portal entrances need to be mapped*
- All other landscape areas along I-5 and I-90 in this section are maintained by WSDOT crews and described on the following tables:

SEATTLE TO MERCER ISLAND	S/F	ACRES
NUISANCE VEGT. JERSER BARRIER 1511	1045440	24
MP 2.0 TO 8.0 Element 3A @ 64oz / acre Opensight @ 2oz / acre Escort xp @ 2oz / acre		
NOXIOUS WEEDS MP 7.89 -7.9 1518	2178	0.05
Element 3A @ 64oz / acre Opensight @ 2oz / acre Escort xp @ 2oz / acre		
MOW 2 TIMES HOMELESS 1512/1612		
4TH TOUCHDOWN	21780	0.5
DEAN STREET DEAD END	238708.8	5.48
DEARBORN LOOP	71438.4	164
RAINIER LOOP	91911.6	2.11
WALL 18	56628	13
SB RAINIER POPULAR ST AREA	50094	1.15
WB & DOC OFFICE	12632.4	0.29
WB & EXPRESS LANES	25700.4	0.59
	0	0
TOTAL /ACRE	568893.6	13.06
MOW ONES/YEA R PREVENT FRE		
72 ST AND 22ND ST 1612	47916	1.1

SEATTLE/MERCER ISLAND		
LANDSCAPE MAINT.PRUNING AS NEEDED 1525		
12TH AVE/SB RAINIER EXIT L/S	54450	125
RAINIER EXIT LEFT SIDE	27878.4	0.64
EB 1-90 & SB Rainier on Ramp	19166.4	0.44
NB RAINIER TO EB LEFT SIDE	29620.8	0.68
NB RAINIER TO EB RIGHT SIDE	48787.2	1.12
EB/MMW RIGHT SIDE	30927.6	0.71
EB/EMW EXIT RIGHT SIDE	21780	0.5
EB/MMW L/S & WB ON RAMP	37026	0.85
EB 77TH EXIT RIGHT SIDE	30927.6	0.71
EB 77TH TO CW EXIT R/S	32670	0.75

EB ICW EXIT TO ICW ON RAMP	24393.6	0.56
EB ICW ON RAMP TO EMWW	108900	2.5
TOTA L/ACRE	466527 .6	10.71
PRUNE AS NEEDED 1525		
WB 1-90 LANSCAPE MAINT		
EMW TO ICW	82764	19
ICW TO MILID	32670	0.75
WB & WMWAY ON RAMP	12196.8	0.28
POPULAR ST AREA	50094	1.15
TOTA L/ACRE	177724.8	4.08
PRUNE AS NEEDED 1525		
EXPRES LANES AT M. ISLAND		2.08
FROM MIL TO EMW	90604.8	2.08
	0	
TOTAL /ACRES	90604.8	4.16
GRANT TOTAL ACRES		18.95

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 2024 include:
 - None required

Treatment Methods and Timing

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