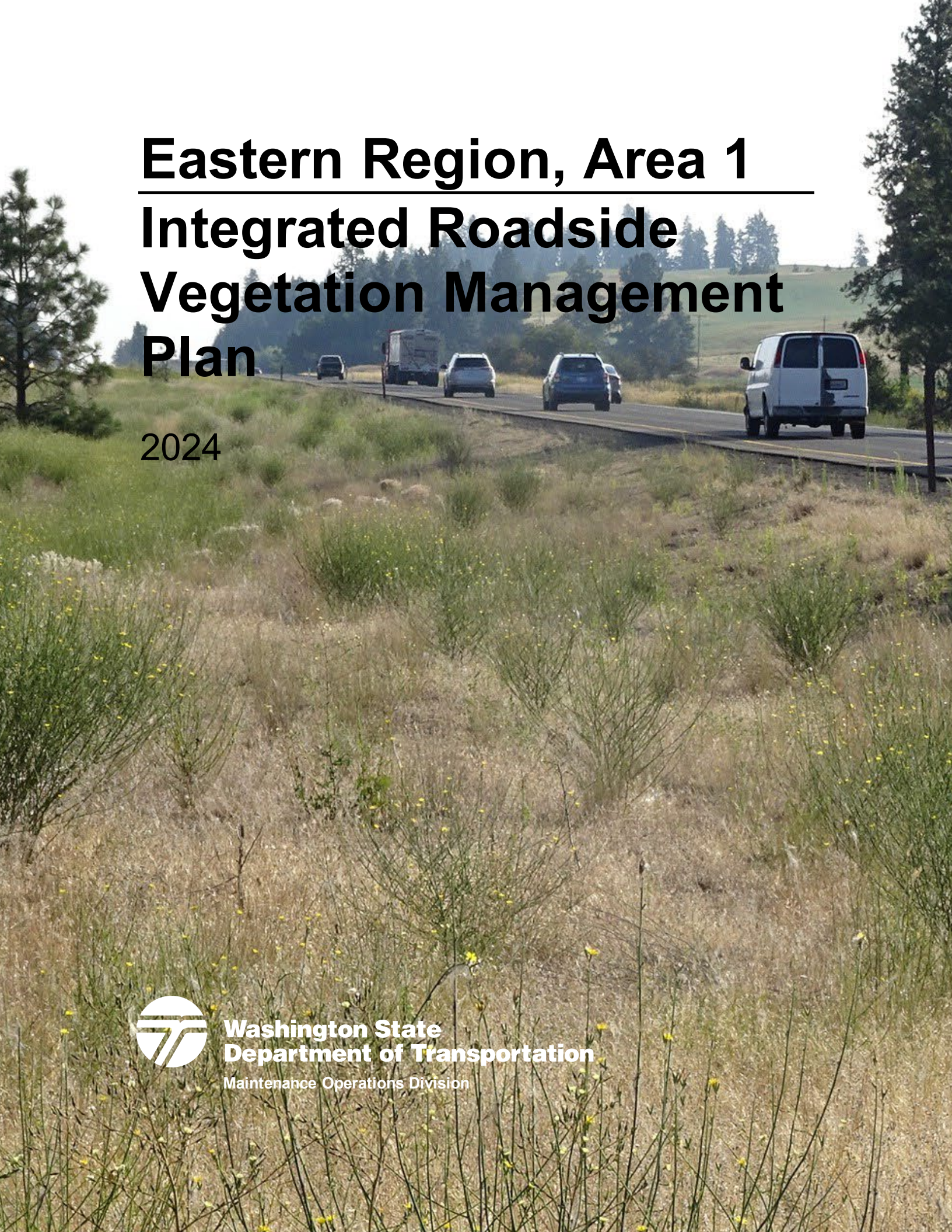
Eastern Region, Area 1

Integrated Roadside Vegetation Management Plan

2024



Washington State Department of Transportation

Maintenance Operations Division

Introduction

The Washington State Department of Transportation's (WSDOT) Eastern Region Area 1 manages vegetation within approximately 740 miles of roadside right-of-way throughout Spokane, Pend Oreille and Stevens counties. Highways managed by the area include I-90, US-2, US-395, US-195, SR-20, SR-290 as well as a number of other minor state routes. A map of the area is shown on the following page.

The primary roadside vegetation management objectives are in relation to traffic safety, employee safety, and preservation of the highway infrastructure. Additionally, as a landowner WSDOT is required to control all listed noxious weeds that occur on the right-of-way by state law (RCW 17.10 and 15.15.010). It is important that WSDOT not only meet the legal requirements for weed control, but also consider the needs and concerns of adjacent landowners in the 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 the 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 required highway maintenance activities.

This plan serves as the guidance document for vegetation maintenance in Eastern Region Area 1 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 vegetation management activities. Wherever appropriate, the agency is looking for opportunities to plan, cooperate, and partner with others in managing the roadside. Please direct any questions, comments or suggestions to the Eastern Region Area 1 Superintendent – Jacob Lehman, or the State's Roadside Asset Manager – Ray Willard.

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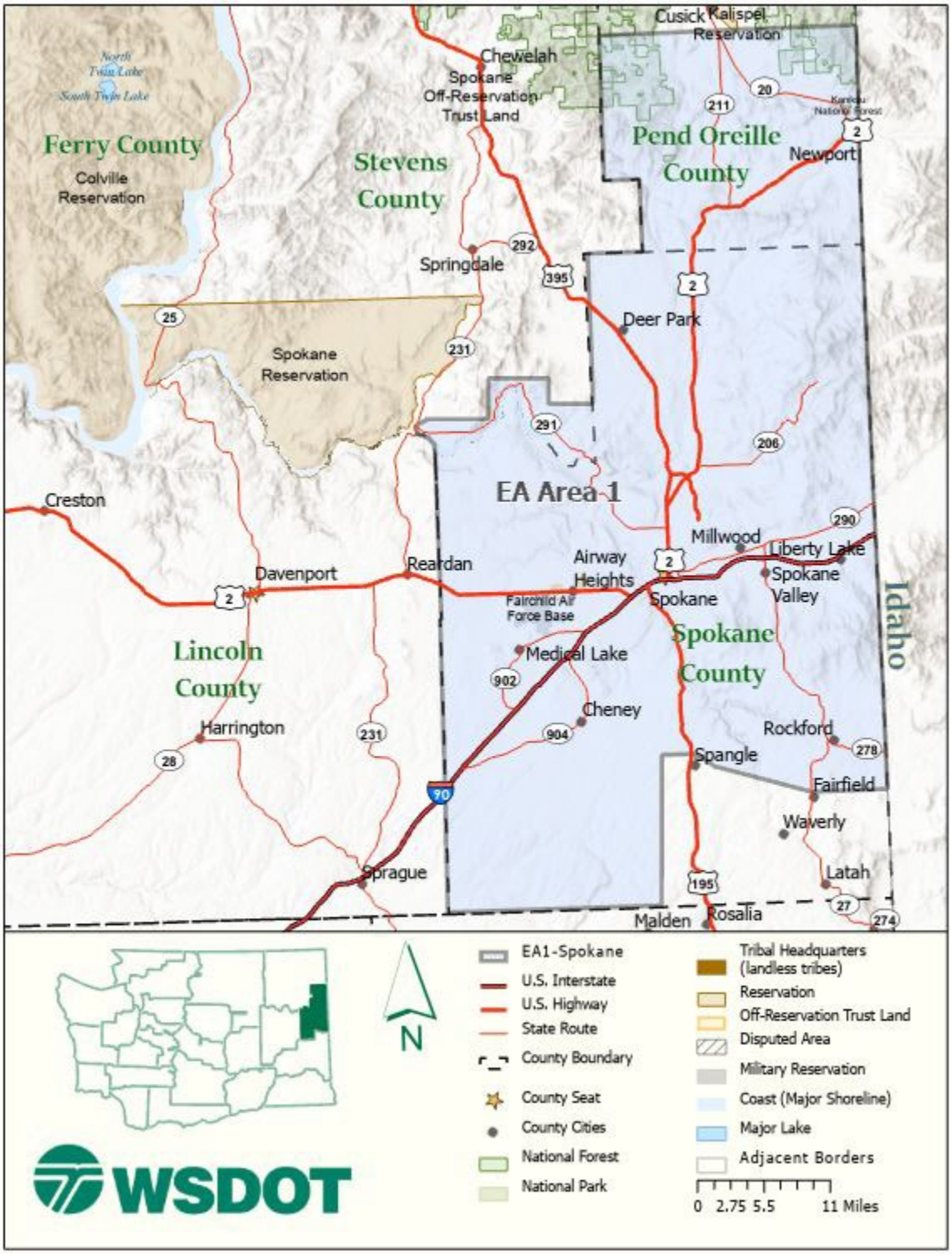

Eastern Region, Area 1 Vicinity Map
Figure 1

This is an outline of the overall approach and geographic distribution of roadside vegetation management requirements and planned actions 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 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.

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 routinely inspect and calibrate equipment to ensure it is in proper working order. Herbicides are kept well organized in locked storage facilities.

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, Zone 1

HATS Map Layer: Reference lines – Roadside Features/Spray Zone 1 Reference

This work involves the annual application of herbicides to road shoulders where necessary throughout the area. The objective of these applications in designated locations is preserving of a band of 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

- Approximately **440 acres** will treated annually throughout the year
- Apply approximately **175 acres** of pre-emergent herbicide treatment in the fall to road shoulders throughout the area this year.
- Apply approximately **265 acres** of pre-emergent herbicide treatment in the spring prior to treatment in spring.

Locations of Planned Treatments

- Planned treatment sites are mapped in HATS layer – **Spray Zone 1 Reference**.
- All gravel shoulders in the area will be treated annually with herbicides to maintain a vegetation-free condition. Treatments are divided in two sections

to make facilitate accomplishment of the total workload. Wetter areas to the north and east will be treated in the fall, all other areas in the spring.
- Where cable rail is placed, bare ground will extend from the pavement to under the hardware.
- SR290 and SR27 within city limits of Spokane Valley will be maintained vegetation-free for an eight-foot band.
- Medians on SR195, US2 north SR195 in the Thorpe vicinity (J-turn lanes) maintained across the entire median width.
- Locations where no bare ground treatment will be applied include:
    - SR206 beyond MP15 at the top of the road near the ski area
- Other areas may be widened out as needed as described above and on HATS maps such as gore points and major intersections on secondary routes and rail crossings.

Treatment Methods

- Herbicides are applied using a truck mounted power spray system calibrated to deliver a 4-ft. and 6-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.
- I-90 will be treated with 6 ft. wide band.
- All locations will be treated in using:
    - Roundup-Pro Concentrate @ 32 oz/acre
    - Flumigard SC @ 8 oz/acre
    - Milestone @ 7 oz/acre
    - Telar XP @ 2 oz/acre
    - In-Place @ 8 oz/acre
- Product will be ordered in pre-blended kegs if available.

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 and/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 **15 acres**
- In most locations throughout the area, mowing is not necessary due to the maintenance of a 2 to 4 ft. vegetation-free gravel shoulder (Zone 1)

Locations of Planned Treatments

- SR206 MP 8 – 15

Treatment Methods

- Six-foot-wide rotary or sickle style mower for long stretches
- Hand held gas powered weed trimmers used as needed for spot treatment where sight distance is impacted.

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 pruning of brush and trees or tree branches encroaching on or overhanging traffic operations, and impacting sign visibility. Also included is work in Zone 2 and 3 when selectively controlling emergent early succession tree species – to prevent them from growing into mature hazard trees within striking distance of the road.

Total Units of Planned Treatment

- Up to **10 acres** will be controlled by mechanical or manual cutting
- As much as **10 acres** will be controlled with herbicide

Locations of Planned Treatments

- As needed throughout the area
- Children of the Sun Trail and Fish Lake Trails need annual attention to keep brush and weeds from encroaching, City may help with this in some cases
- SR 291

Treatment Methods

- Brush hog/chain saws/hand held tools/Element 3A herbicide applied to cut stumps.
- Tree and Bush control with herbicide treatment is accomplished selectively when doing Noxious Weed Control
- Herbicide for fall treatment on deciduous seedlings:
    - Opensite @ 3.3 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

- As many as **100 mature hazard trees** are removed from the area each year.
- Any trees will be continually monitored in the area and any identified as a threat to the road or neighboring property will be removed as soon as possible.

Locations of Planned Treatments

- Crews are continuously looking for any trees that exhibit structural defects and could strike the road or neighboring property if they come down.
- Pine trees in the areas are being affected by insect and environmental conditions and a growing need to be removed year
- If trees growing outside WSDOT right of way are hazards, crews work with the neighboring property owner to negotiate removal.
- Forested corridors in the area that require constant attention include:
    - SR 291 (may be recorded as Tree and Brush control)

Treatment Methods

- WSDOT crews typically fall hazard trees as needed. In more challenging cases the Washington State Parks or other professional arborist crew is utilized.
- Wherever possible trees are dropped in place and left to decompose naturally whenever 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, 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.

There are currently no known occurrences of Class A species on WSDOT right of way in this area.

Target Noxious Weeds on WSDOT Right of Way in Eastern Region Area 1

Common Name (Botanical Name)	***Treatment Notes***
Bugloss sp. *(Anchusa sp.)*	Main infestations are on the NSC US2 SR395 are mapped in HATS and treated at least once per year at flowering stage
Baby's breath *(Gypsophila paniculata)*	Control small patches where visible in conjunction with seasonal patrols
Blueweed (Echium vulgare)	Northern portion of the section, sites will be mapped
Canada thistle *(Cirsium arvense)*	Control small patches where visible in conjunction with seasonal patrols, some sites on I-90 and SR904 are mapped in HATS and treated when plants are approaching bud stage in the early summer.
Dalmatian toadflax *(Linaria dalmatica)*	Bio controls are working well on this species in the area

Common Name (Botanical Name)	***Treatment Notes***
Hawkweed sp. *(Hieracium sp.)*	Isolated patches in Pend Oreille County being controlled by weed board
Hoary allysum *(Berteroa incana)*	*Check with weed boards on strategy for this one…*
Hoary cress *(Cardaria draba)*	Isolated patches on SR195 and SR904 are mapped in HATS and treated in spring
Kochia *(Kochia scoparia)*	Isolated patches on I-90, NSC, SR395, SR290 are mapped in HATS and controlled later in the summer
Knapweed sp. *(Centaurea sp.)*	Control where visible in conjunction with seasonal patrols
Knotweed sp. *(Polygonum sp.)*	Infestations are mapped and treated after the flowering stage in late summer
Musk thistle *(Carduus nutans)*	Isolated patches are mapped in HATS and controlled at bud stage in summer
Poison hemlock (*Conium maculatum*)	SR 904 MP 6 vicinity of Graham Rd.
Phragmites (*Phragmites australis*)	Drainage ditches throughout the area
Rush skeletonweed *(Chondrilla juncea)*	Priority treatment sites will focus on working back from the area edges to reduce spread into adjacent counties. Also controlled where visible in conjunction with summer season weed patrols.
Russian Knapweed *(Acroptilon repens)*	Isolated patches are mapped in HATS and controlled at bud stage in summer
Scotch thistle *(Onopordum acanthium)*	Main infestations are on the NSC, SR290. Control where visible in conjunction with spring and summer weed patrol
Tree of Heaven (Ailanthis altisima)	Stump treat after cutting, watch for resprout after control
Tansy ragwort *(Senecio jacobaea)*	Mainly on SR20, US2, SR211, Control where visible in conjunction with seasonal patrols
Thistle, musk (*Carduus nutans*)	Isolated patches are mapped in HATS and controlled at bud stage in summer
Ventenata grass *(Ventenata dubia)*	Work with the county weed boards to develop a treatment strategy starting in 2024
Wild carrot *(Daucus carota)*	Isolated patches in Pend Oreille County being controlled by weed board, county will help with mapping.

Total Units of Planned Treatment

- Approximately **1,000 acres** will be treated with herbicides
- Hand pull at Cheney-Spokane/195 interchanges near river, less than **15 acres**

Locations of Planned Treatments

- As described under **Treatment Notes** in the table above.
- Treatment locations include Real Estate Services sites where funding is through RES.
- Treatment locations also include a variety of off-right of way sites such as park and ride lots, stormwater ponds, bike/pedestrian trails, and pit sites
- A test site will be identified and treated with the spray drone in the late summer to demonstrate control of bugloss and skeletonweed.

Treatment Methods and Timing

- As described under **Treatment Notes** in the table above.
- Herbicide mixes used include:
- Broadleaf application for most species throughout the growing season:
- Pit site areas without trees may be treated with: Zone 1 mix
- Broad spectrum weed control:
    - E2 @ 48 oz/acre

- Telar @ 1 oz/acre
- In Place @ 8 oz/acre
- Syltac @ 4 oz/acre

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 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 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 **50 acres** will be treated with herbicides for nuisance weed control in priority areas.
- Up to **10 acres** of manual and mechanical targeted nuisance vegetation control

Locations of Planned Treatments

- Area prioritized for restoration maintenance will be mapped on the HATS layer – **Zone 3 Nuisance Vegetation Control** and all actions in these areas will be recorded within the mapped polygon features.
- Over the next five years a series of older Landscapes within the I-90 corridor in Spokane will be updated to a more sustainable, lower maintenance condition. Sites and plans for updates in the coming year include:
    - US2/I-90 Interchange – Conversion of lawn to pollinator meadow, ramp meter installation project will utilize pollinator seed mix for restoring areas disturbed by construction.

Treatment Methods and Timing

- Herbicide applications will be made on an as needed basis during and after noxious weeds are being treated.
- Mowing may also be used clean up areas around the edges.

Landscape Maintenance – 3A5

Landscape maintenance work includes all vegetation management activities that take place on roadsides within areas designated as formal urban planting areas where the intention is to enhance the appearance of freeways through urban centers. For these 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: 1516, 1518, 1525, 1541, 1552, 1561, 1599

HATS Forms: Pesticide Application (for all spray applications), 7 sub-forms under Landscape – Weed Control – Manual, Weed Control – Mechanical, Pruning/Hedging/Edging, Seed/Mulch/Plant/Fertilize, Mowing Lawns, Irrigation System Operations & Maintenance, and Other Maintenance as Approved

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 plans are based on monitoring and evaluation of maintenance actions and resulting landscape condition. 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.

Total Units of Planned Treatment

- There are approximately **20 acres** of formally landscaped roadside remaining in the area.

Locations of Planned Treatments

- Reference polygons in HATS layer – **Landscape Maintenance**.
- There are 9 sites still currently being maintained with irrigation throughout the Spokane area.
- City of Spokane and downtown businesses are in negotiation to develop roadside landscape enhancements through the Adopt-a-Highway program.

Treatment Methods and Timing

- Annual startup/shut down of irrigation systems
- Mechanical trimming around edges of shrub and ground cover beds as needed.
- Spot spraying and hand pulling broadleaf weed infestations when visible in spring and summer
- Areas with thistle infestations in shrub beds will be treated with ornamental pre-emergents
- Pulling weeds in areas that are inaccessible to power tools.

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: 1369, 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

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.
- 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:
    - 195 pond is used for irrigation, cattail treatment required in ponds, if possible treated with herbicide, requires regulating pond level during treatment, coordinate treatment with RMEC
    - Pond near Spaldings on I-90 – access path mowed once a year

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.