

# North Central Region, Area 1

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# Integrated Roadside Vegetation Management Plan

2019



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



## **Summary**

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The Washington State Department of Transportation (WSDOT) North Central Region, Area 1 manages approximately 560 miles of roadside right-of-way in the heart of Washington State throughout Chelan County, and touching on part of Douglas, King and Kittitas Counties. The state highway system in this area includes the major arterial routes in and around the Wenatchee metropolitan area, portions of US2, US97, US97A, SR285, SR971, SR207, SR150, and SR28, as well as several other secondary state routes.

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.

In order to best manage these roadsides with these priority objectives in mind WSDOT practices an annually cycling process called Integrated Vegetation Management (IVM). Plans like this are developed 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 tracking the previous years' accomplishments and monitoring for results. Integrated treatment plans are developed and prioritized based on available budgets and working around other highway maintenance needs.

This plan serves as a reference and guidance document for roadside vegetation maintenance in North Central Region Area 1 for the 2019 growing season. It identifies priority locations and prescribes treatments for accomplishing safety and weed control objectives through the use of a combination of seasonally-timed control measures. Each year's actions are designed as part of a coordinated multi-year strategy to minimize roadside maintenance requirements wherever possible. This plan also accounts for specific locations where maintenance tactics are adjusted due to environmental issues, neighboring properties, local partnerships, or restoration work done through WSDOT design and construction.

As of the 2019 season, the information contained in this plan document can be geographically referenced by crews in the field using iPads and the Highway Activity Tracking System (HATS). Accomplishments and results will also be tracked geographically through this new system. 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 and its weed control and other vegetation management activities. Wherever appropriate the agency is looking for opportunities to plan and cooperate with others in management of the roadside. Please direct any questions to North Central Region Area 1 Superintendent – Terry Van Hoven, Area Supervisor – Rob Sweigard, or State Roadside Asset Manager – Ray Willard

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## ***North Central Region, Area 1 IVM Work Plan – 2019***

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The section outlines the overall approach and geographic distribution of roadside vegetation management requirements throughout the maintenance area in 2019. Information is organized in relation to 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 Vegetation Control**. 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.

### **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**, **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 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 **325 acres** of herbicide treatment is applied to road shoulders throughout the area each year.

#### **Locations of Planned Treatments**

- Planned treatment locations are mapped in HATS
- Locations where bare ground treatments will be applied to all gravel shoulder sections include:
  - SR28 – Throughout the maintenance area, (between MP15 and 19 the application band width is 20' to efficiently manage vegetation and weeds adjacent to orchard plantings.)
- Locations where no bare ground treatments will be applied include:
  - SR150 – Entire route
- For all other corridors and road shoulders in the area, Zone 1 herbicide treatments occur only under guardrails and around other types of roadside hardware as needed.

#### **Treatment Methods**

- Shoulders in designated areas will be treated annually with pre-emergent herbicides in the fall.
- Herbicides are applied using a truck mounted power spray system set up 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 (measured along the surface of the slope) in areas with steeper shoulder slope. In some locations as noted, application width may be increased to accommodate roadside hardware.
- Treatments will be made using blended products in returnable/reusable containers.
- **Blend #7** on the state pesticide contract will be applied throughout the area at the following rates:

- Milestone @ 7 oz/acre
- Esplanade @ 5 oz/acre
- Escort XP@ 1.5 oz/acre
  
- Drift control agent at labelled rate

**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 **50 acres** of shoulder will be mowed annually to provide improved visibility for traffic operations.

Locations of Planned Treatments

- Safety edge mowing is planned as described for the following road sections:
  - SR150 – except within City of Chelan
  - SR971 – As needed
  - SR28 – MP 9 – 10
  - US 2 – MP 118.5 – 119.5 and North End Interchange

Treatment Methods

- Mowing will occur as needed once per year, after seed set and selective control of noxious weeds.
- Mowing typically consists of a single 4 to 6-foot-wide pass with a tractor mounted sickle-bar, locations with additional sight distance needs may be mowed beyond one pass as necessary.

**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.

Total Units of Planned Treatment

- Approximately **100 acres** of mechanical trimming and pruning will be conducted along corridors through areas where trees and brush encroach on the road.
- Another **15 acres** will be treated with herbicides in the fall to control emerging seedlings and brush in Zone 2.
- Less than

Locations of Planned Treatments

- US2 MP70-80 – This area is overdue for trimming and mature shrubs and trees encroaching into the back side of Zone 2 will be removed using a heavy duty mowing/mulching attachment to a mowing arm on a tractor.
- Selective trimming is necessary in isolated instances throughout the area where trees and brush are present.

Treatment Methods

- This work is typically done in late winter or early spring so that new spring growth will hide the visual impact of these operations.
- Tractor mounted brush cutters and hand tools as needed for mechanical operations.
- Herbicides are applied throughout forested areas in late summer/early fall or early spring to control undesirable seedling tree species:

Alder:

- Krenite S @ 320ozl/acre

Seedling Conifer Species:

- Escort XP @ 2ozd/acre
- Sylgard @ 16ozl/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

- The area has experienced a high number of hazard trees in recent years due to fire and insect damage.
- Between **800 and 1,000 hazard trees** will be remove throughout the area this year.

Locations of Planned Treatments

- Pine forest areas are the most effected
- SR 971 MP 5.5 – 6.5

Treatment Methods

- WSDOT crews will conduct falling and leave the debris to decompose on site.
- In cases with difficult removals or corrective pruning, Washington State Parks arborist crew will conduct falling with WSDOT traffic control.

**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.

### **Target Noxious Weed Species Known to Exist on WSDOT Right of Way in North Central Region Area 2**

- **Appendix A** contains a list of primary target species present on WSDOT right of way in the area at this time, along with notes for each species explaining how management will be accomplished.

### **Total Units of Planned Treatment**

- Approximately **900 acres** of noxious weed infestations will be treated with herbicides.
- Another **25 acres** will be controlled by mowing and/or hand pulling.

### **Locations of Planned Treatments**

- Reoccurring infestation sites will be mapped in HATS over the course of the 2017 season, including county weed board identified “hot spots” and priority sites identified by the spray crews.
- Planned treatment sites will be mapped for the following infestations:
  - SR150 MP3 – Whitetop
  - SR28 Restoration planting areas and Bike Path in E. Wenatchee – Puncture vine,
  - US2 MP90.5 – Restoration planting area at the Wenatchee River Bridge.
  - US2 – Isolated knotweed infestations
  - US 97 & SR 97A Hugo Jct. Rush Skeleton Weed
  - Any additional infestations identified by the County Weed Board

### **Treatment Methods and Timing**

- Seasonal timing is critical to successful reduction in weed populations. However, in some cases the only possible treatments are made when weeds are visible in flower, simply to control seed production, rather than to reduce populations.
- The area will be developing a map of priority treatment sites and seasonal timing goals in HATS for implementation in 2017.
- Herbicide mixtures:
  - Broad-spectrum applications –**
    - E2 @ 96ozl/acre
    - MSM @ .5ozd/acre
    - Crosshair @ 4ozl/acre
    - Syl-Tac @ 8ozl/acre

Specialized applications for late season control of knotweed and spot treatment of weeds emerging in Zone 1 –

- Roundup Pro Concentrate @ 96ozl/acre
- Crosshair @ 4ozl/acre
- Syl-Tac @ 8ozl/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 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: 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. 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**

- Because Chelan County requires control of all state listed weed species, there is technically no targeted nuisance weed control in the area. However, the area has prioritized two locations for control of all weeds and establishment of native vegetation, where recent projects have installed new planting.
- Less than **10 acres** will be treated with herbicides
- Less than **10 acres** will be trimmed mechanically or by hand

#### **Locations of Priority Treatments**

- Interchanges throughout the City of Wenatchee and East Wenatchee will be selectively treated for control of all weeds.
- SR28 in E. Wenatchee – Selective weed control throughout the recently reconstructed interchange and new bike path.
- US2/US97 Interchange (Don Senn Memorial Interchange) – Additional plant establishment and selective weed control for recent plantings in and around this interchange.

#### **Treatment Methods and Timing**

- Pre and post-emergent treatments with herbicides as needed



Most North Central Area 1 roads are in Chelan County where the entire state weed list is designated for control and the area applies this same level of control throughout the area, including parts surrounding counties. Therefore, any weed on the right of way is technically a target for treatment as a noxious weed.

The following table includes all species known to exist or commonly found on WSDOT right of way in the area at this time along with notes on how treatments will be administered:

<b>Common Name (Botanical Name)</b>	<b>Treatment Notes</b>
Bull Thistle ( <i>Cirsium vulgare</i> )	Handspray
Canada Thistle ( <i>Cirsium arvense</i> )	Broadcast, Handspray
Dalmatian toadflax ( <i>Linaria dalmatica</i> ssp. <i>dalmatica</i> )	Broadcast, Handspray, Hand pull, Bugs
Hawkweed, mouseear ( <i>Hieracium pilosella</i> )	Broadcast
Hawkweed, orange ( <i>Hieracium aurantiacum</i> )	Broadcast, Handspray
Hawkweed, yellow ( <i>Hieracium caespitosum</i> )	Broadcast, Handspray
Hoary Cress / Whitetop ( <i>Cardaria draba</i> )	Broadcast, Handspray
Hoary alyssum ( <i>Berteroa incana</i> )	Broadcast
Houndstongue ( <i>Cynoglossum officinale</i> )	Handspray
Knapweed, diffuse ( <i>Centaurea diffusa</i> )	Broadcast, Handspray
Knapweed, Meadow ( <i>Centaurea jacea x nigra</i> )	Handspray
Knapweed, Russian ( <i>Acroptilon repens</i> )	Broadcast, Handspray
Knapweed, spotted ( <i>Centaurea stoebe</i> )	Broadcast, Handspray
Knotweed, Japanese ( <i>Polygonum cuspidatum</i> )	Handspray, Cut / Treat
Kochia ( <i>Kochia scoparia</i> )	Broadcast
Loosestrife, purple ( <i>Lythrum salicaria</i> )	Handspray ( Aquatic )
Oxeye Daisy ( <i>Chrysanthemum leucanthemum</i> )	Broadcast
Puncturevine ( <i>Tribulus terrestris</i> )	Broadcast, Handspray
Rush skeletonweed ( <i>Chondrilla juncea</i> )	Handspray
Russian Olive	
Scotch broom ( <i>Cytisus scoparius</i> )	Cut, Bag, Treat
Spurge, leafy ( <i>Euphorbia esula</i> )	Broadcast
St. Johns Wart ( <i>Hypericum perforatum</i> )	Broadcast, Handspray, Bugs
Tansy ragwort ( <i>Senecio jacobaea</i> )	Broadcast, Handspray
Thistle, musk ( <i>Carduus nutans</i> )	Broadcast
Thistle, plumeless ( <i>Carduus acanthoides</i> )	Handspray
Thistle, Scotch ( <i>Onopordum acanthium</i> )	Broadcast, Handspray
Tree of Heaven	
Yellow nutsedge ( <i>Cyperus esculentus</i> )	Broadcast, Handspray
Yellow starthistle ( <i>Centaurea solstitialis</i> )	Broadcast, Handspray