Introduction

The Washington State Department of Transportation (WSDOT) Eastern Region, Area 2 manages approximately 895 miles of roadside right-of-way throughout Adams, Whitman, Spokane and Lincoln counties. This right-of-way is part of the state highway system including portions of US 195, SR 270, SR 27, SR 26, and SR 23, as well as several other state routes in the area. A map of the area is shown 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.

In order to best manage roadsides 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 roadsides 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 Eastern Region Area 2 for the 2017 growing season. It provides detailed treatment prescriptions and location data for accomplishing safety and weed control objectives through the use of a combination of control measures. Each year’s actions are designed as part of a coordinated multi-year strategy to efficiently maintain traffic safety and comply with weed control laws on all state roadsides, and working within budget, to invest in restoring a set of selected priority locations to a stable self-sustaining native condition. This plan also accounts for specific locations where maintenance tactics are adjusted due to environmental sensitivity, neighboring properties, local partnerships, or restoration work done through WSDOT design and construction.

The information contained in this plan document is referenced and utilized by crews in the field using iPads and the Highway Activity Tracking System (HATS). Accomplishments and results also tracked and referenced through this system, as part of the budget planning and maintenance accountability process. Carrying iPads in the field also gives maintenance crews the ability to reference a wide range of technical information and alerts for locations with environmental sensitivity or special agreements with neighbors.

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 Eastern Region Area 2 Superintendent – Russ Johnson, or the State’s Roadside Asset Manager – Ray Willard.

Russ Johnson
johnsra@wsdot.wa.gov
Maintenance Superintendent
(509)589-6581
43101 Highway 195
Colfax, WA 99111

Ray Willard, PLA
willarr@wsdot.wa.gov
Roadside Asset Manager
(360)705-7865
PO Box 47358
Olympia, WA 98504
Vicinity Map
Figure 1
This is an outline of the overall approach and geographic distribution of planned roadside vegetation management actions throughout the maintenance area in 2017. Information is organized in relation to the three major groups of activities defined in the WSDOT Maintenance Accountability Program (MAP) for the performance of roadside vegetation maintenance: Control of Vegetative Obstructions, Noxious Weed Control, and Nuisance Weed 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 overall roadside vegetation maintenance needs. Vegetation management objectives and work activities in this category fall into four subgroups: 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: Spray 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 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 500 acres of herbicide treatment to designated road shoulders throughout the area.

Locations of Planned Treatments
- Planned treatment sites are mapped as HATS line feature – Zone 1 Treatments
- All shoulders in the area will be treated annually with a 4’ width banded application of soil residual and non-selective herbicides, with designated treatment
- Locations where no bare ground treatment will be applied include:
  - Any shoulders within 60 ft. of surface water.
- Spring residual treatments will be made to all shoulders on the following routes:
  - US 195 MP 0-80
  - SR 270 MP 0-9
  - SR 26 MP 61-79; MP 106-133.5
  - SR 27 MP 0-64
  - SR 127 MP 10-27
  - SR 272 MP 0-19.23
  - SR 274 MP 0-2
  - SR 271 MP 0-9
  - SR 21 MP 0-24
  - SR 261 MP 43-63
  - SR 194 MP 0-21
Fall residual treatments will be made to all shoulders on the following routes:
- SR 26 MP 79-106
- SR 263 MP 0-9
- SR 261 MP 15.2-43
- SR 260 MP 25-38.5

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.
- Spring treatment mixture:
  - Payload @ 10 ozd/acre
  - Frequency @ 8 ozl/acre
  - Sulfomet @ 4 ozd/acre
  - Roundup Pro Concentrate @ 32 ozl/acre
  - In Place @ 8 ozl/acre
  - Bronc Max @ 1 gallon/100 gallons water
  - Climb @ 2 ozl/gallon of slurry
  - Syl-Tac EA @ 4ozl/acre

- Fall treatment mixture:
  - Payload @ 10 ozd/acre
  - Frequency @ 8 ozl/acre
  - Sulfomet @ 4 ozd/acre
  - Roundup Pro Concentrate @ 32 ozl/acre
  - In Place @ 8 ozl/acre
  - Bronc Max @ 1 gallon/100 gallons water
  - Climb @ 2 ozl/gallon of slurry
  - Syl-Tac EA @ 4ozl/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
- Approximately 150 acres will be mowed along the edge of the road throughout the area.

Locations of Planned Treatments
- SR 195 MP 29.0-35.0 Target is Canary Grass to prevent drifting of snow
- SR 271 MP 2.0-8.0 Target is Canary Grass for snow drift prevention
- SR 27 MP 25.0-28.0 Target is Canary Grass for snow drift prevention
- SR 195 MP 51-53 Target is Canary grass for visibility and drift prevention
- SR 26 MP 98-118 Target is canary grass for visibility and snow drift prevention

Treatment Methods
- Mowing will be accomplished using a tractor with a side mount drop down deck
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. There is a minimal amount of this type of work required in Eastern Region Area 2.

Total Units of Planned Treatment
- Approximately 10 acres will be treated throughout the area.

Locations of Planned Treatments
- Occasional random needs throughout the area

Treatment Methods
- Manual cutting with limited herbicides when necessary

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 using best arboricultural judgment and removed as soon as possible where needed.

Total Units Planned
- Less than 10 trees/year

Locations of Planned Treatments
- Where monitoring identifies potential risk to highway or neighbors
- SR 194 MP 21, Intersection of SR195 and SR194, State Parks Crew will be helping remove trees near the road.

Treatment Methods
- Manual cutting, leave wood to decompose on site wherever possible

Noxious Weed Control – 3A2
This group of activities is focused on control of weed species and infestation locations identified in this plan document. The focus is on species that are legally designated by state and county regulations for required control by all property owners, along with any other identified and agreed upon species/locations that pose a unique threat to the roadside or surrounding environment if not controlled. Work under this group is considered second priority after safety related objectives have been addressed.

In some counties noxious weed laws may be enforced with fines and/or control work by the counties and billing of property owners – if adequate control is not accomplished. WSDOT communicates annually and throughout the season with each County Noxious Weed Board, to identify and prioritize treatment sites on state highways.
WSDOT employs three distinct strategies in planning and executing noxious weed control efforts. Any and all Class A species that occur on the right of way are treated as **Priority Noxious Weed Control**, and all maintenance actions are planned and tracked as individual, multi-year treatment sites. **General Noxious Weed Control** is planned and executed in one of two ways: 1.) Area-wide patrol and control operations are made in the early summer with a goal of spraying or pulling all visible target species prior to seed-set, and 2.) Early and late season treatments are planned for a set of prioritized and mapped infestation points where the goal is early detection/rapid response/eradication.

**Priority Noxious Weed Control**

*Work Operations: 1616, 1618, 1641, 1699*

*HATS Point Feature-based Forms: Priority Infestation*

*HATS Map Layer: Feature points – Roadside Features/Noxious Weed Control Priority*

These operations are directed at locations where Class A noxious weed species are present on the right of way and state law requires complete eradication. Site specific integrated treatment plans are developed for each identified location/species, and all control activities are recorded as point feature data in HATS. Ongoing operations will combine field monitoring and a mixture of seasonally timed treatment methods over a series of years. Sites must also be monitored for 3 to 5 years after control to check for grow back.

**Species and Locations**

- No Class A noxious weed species are known to exist on state right of way in Eastern Region Area 1 at this time or in the recent past.

**Locations of Planned Treatments**

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

**General Noxious Weed Control**

*Work Operations: 1616, 1618, 1699, 1641*

*HATS Form: Noxious Weed Control General – Noxious Weed Control-Spray, Noxious Weed Control-Mechanical, Noxious Weed Control-Manual, and Noxious Weed Control-Biological*

*HATS Map Layer: Reference points – Roadside Features/Noxious Weed Control General (Under Development)*

These operations are timed and carried out throughout the season to prevent the spread of designated noxious weed species, and to reduce or eliminate populations wherever possible. Integrated treatments as described in the table below, are planned to address infestations through 1.) seasonally timed treatments of identified priority sites, or 2.) during late spring/early summer section patrols to treat all visible target weed species. Successful plans are consistently implemented over a series of years and annually adjusted as necessary based on field observations. Care is taken in all cases to avoid damage to surrounding desirable/native vegetation.

**Designated Species Known to Exist on WSDOT Right of Way**

- See list in Appendix A

**Total Units of Planned Treatment**

- Approximately **500 acres** will be treated with herbicides.

**Locations of Planned Treatments**

- As identified in County Weed Board notices.
- Planned treatment sites/weed locations will be mapped with iPads throughout the year as described in **Appendix A**.

**Treatment Methods and Timing**
• Various combinations of broadleaf herbicides and adjuvant mixtures per Wilbur Ellis recommendations will be documented and tracked throughout the year in HATS for reference in the coming years.

• Herbicides mixtures planned for use in 2017:

   Early Season Targets
   Mix 1:
   - Weedmaster @ 32ozl/acre
   - Tordon 22K @ 32ozl/acre
   - In-Place @ 8ozl/acre
   - Syl-Tac EA @ 5ozl/acre
   Mix 2:
   - Milestone @ 7ozl/acre
   - Weedmaster @ 32ozl/acre
   - In-Place @ 8ozl/acre
   - Syl-Tac EA @ 5ozl/acre

   Mid-Season Targets
   - E-2 @ 32ozl/acre
   - Opensight @ 30zd/acre
   - Tordon 22K @ 32ozl/acre
   - In-Place @ 8ozl/acre
   - Syl-Tac @ 5 ozl/acre

   Late Season Targets
   - Curtail @ 32 ozl/acre
   - Tordon 22K @ 32 ozl/acre
   - In-Place @ 8 ozl/acre
   - Syl-Tac @ 5 ozl/acre

Nuisance Vegetation Control – 3A3

Nuisance vegetation control takes place only in a select set of carefully prioritized locations throughout the area. These locations are delineated on maps in HATS as polygon outlines in Zone 3. Locations are prioritized to take place where there is heightened local interest in the visual appearance and condition of the roadside vegetation. Typical locations include: wider areas along limited access freeways in urban and suburban areas, freeway interchanges for local urban centers, environmentally sensitive areas, and areas where neighbors are willing to partner with WSDOT on management efforts. Because nuisance weed control activities are not related to safety or legal requirements, and are primarily undertaken to improve the visual appearance of the roadside, they are considered the last priority vegetation management needs.

For all areas designated to receive Nuisance Vegetation Control, multi-year treatment plans have been developed. The actions contained in these plans will be executed and tracked in relation to specific Zone 3 polygons for Nuisance Vegetation Control Zone 3, referenced on HATS maps and described below.

Nuisance Vegetation Control
Work Operations: 1611, 1612, 1641, 1699
HATS Feature-based Forms: Herbicide Application, Manual/Mechanical, Biological, and Seed/Fertilize/Mulch
HATS Map Layer: Feature polygons – Roadside Features/Nuisance Vegetation Control Zone 3

Maintenance activities in each identified location are planned and tracked as multi-year treatment strategies, utilizing monitoring and the most effective combination of control methods – with a goal of establishing desirable vegetation that requires only minimal maintenance. 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 150 acres will be treated with herbicides for nuisance weed control.

**Locations of Planned Treatments**
- SR 261 MP 15.5-16.0 Mowing Rye grass with establishment of Native grasses

**Treatment Methods and Timing**
- Mowing on 261 will occur just prior to seed set on the rye grass
- Herbicide treatments generally occur in the early part of the summer, or when weeds are starting to flower.
Appendix A

Noxious Weed Targets

Noxious Weed Targets on WSDOT Right of Way
Noxious weed control is defined by state law in RCW 17.10. Species present on WSDOT right of way in Eastern Region Area 2 are listed below, and infestation locations will be mapped in HATS over the coming year.

There are no Class A weeds known to exist on WSDOT right of way in the area. The following table lists the Class B and C weed targets found on the right of way in Adams, Spokane, Whitman and Franklin Counties, and explains the treatment strategy for each species.

<table>
<thead>
<tr>
<th>Common Name/Botanical Name</th>
<th>Treatment Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bugloss, Annual (Anchusa arvensis)</td>
<td>Isolated patches are mapped in HATS and controlled at bud stage in summer</td>
</tr>
<tr>
<td>Bugloss, Common (Anchusa officinalis)</td>
<td>Isolated patches are mapped in HATS and controlled at bud stage in summer</td>
</tr>
<tr>
<td>Cereal rye (Secale cereale)</td>
<td>Where would we control this?</td>
</tr>
<tr>
<td>Common catsear (Hypochaeris radicata)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Common reed (Phragmites australis)</td>
<td>Isolated patches are mapped in HATS and treated with specified herbicide mix in summer</td>
</tr>
<tr>
<td>Dalmatian Toadflax, (Linaria dalmatica spp dalmatica)</td>
<td>Target sites mapped and treated in the spring and fall</td>
</tr>
<tr>
<td>Hawkweed sp. (Hieracium sp.)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Hawkweed, Orange (Hieracium aurantiacum)</td>
<td>Get input from weed boards</td>
</tr>
<tr>
<td>Hoary alyssum (Berteroa incana)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Hoary cress (Cardaria draba)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Jointed goatgrass (Aegilops cylindrica)</td>
<td>Get input from weed boards</td>
</tr>
<tr>
<td>Knapweed sp. (Centaurea sp.)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Knapweed, Russian (Acroptilon repens)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Kochia (Kocha scoparia)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Leafy Spurge (Euphorbia esula)</td>
<td>Isolated patches are mapped in HATS and controlled at bud stage in summer</td>
</tr>
<tr>
<td>Longspine sandbur (Cenchrus longispinus)</td>
<td>Get input from weed boards</td>
</tr>
<tr>
<td>Meadow clary (Salvia pratensis)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Perennial Sowthistle (Sonchus arvensis)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Puncturevine (Tribulus terrestris)</td>
<td>Infestation areas are mapped in HATS and controlled at bud stage in summer</td>
</tr>
<tr>
<td>Purple Loosestrife, (Lythrum salicaria)</td>
<td>Isolated patches are mapped in HATS and controlled at bud stage in summer</td>
</tr>
<tr>
<td>Rush Skeletonweed (Chondrilla juncea)</td>
<td>Infestation areas are mapped in HATS and controlled in spring at rosette stage</td>
</tr>
<tr>
<td>Silverleaf Nightshade (Solanum elaegnifolium)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Plant</td>
<td>Action Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>Spikeweed (Hemizonia pungens)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Spiny cocklebur (Xanthium spinosum)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Tansy Ragwort (Senecio jacobaea)</td>
<td>Get input from weed boards</td>
</tr>
<tr>
<td>Thistle, Canada (Cirisum arvense)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Thistle, bull (Cirisum vulgare)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Thistle, scotch (Onopordum acanthium)</td>
<td>Infestation areas are mapped in HATS and controlled in spring at rosette stage</td>
</tr>
<tr>
<td>Toadflax, yellow (Linaria vulgaris)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>White Bryony (Bryonia alba)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
<tr>
<td>Yellow starthistle (Centaurea solstitialis)</td>
<td>Control where visible in conjunction with seasonal patrols</td>
</tr>
</tbody>
</table>