Introduction

The Washington State Department of Transportation’s (WSDOT) Eastern Region, Area 3 manages 995 miles of roadside right-of-way throughout Lincoln and Adams counties. The state highway system in this area includes portions of I-90, US2, US395, SR25, and SR21, as well as a number of other secondary state routes. A map of state highways and routes in this 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.

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 3 for the 2017 growing season. It provides a general description of the area work plan, and includes treatment prescriptions for accomplishing safety and prioritized 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 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 issues, 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 3 Superintendent – Doug Bierce, or the State’s Roadside Asset Manager – Ray Willard.

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Eastern Region, Area 3 – Vicinity Map

Figure 1
The section outlines the overall approach and geographic distribution of roadside vegetation management requirements throughout the maintenance area in 2017. Information is organized in relation to three major groups defined in the WSDOT Maintenance Accountability Program (MAP) for the performance of roadside vegetation maintenance activities: Control of Vegetative Obstructions, Noxious Weed Control, and Nuisance Weed Control. Specific locations as noted in this work plan are also mapped in 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, 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 includes the application of herbicides to road shoulders where necessary throughout the area. The objective of these applications in designated locations is preserving a band of gravel shoulder adjacent to the pavement that is free of vegetation. 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 600 acres of herbicide treatment to road shoulders throughout the area.

Locations of Planned Treatments
- Planned treatments are mapped in HATS layer – Zone 1 Treatments.
- All shoulders in the area will be treated with a 4’ width banded application of soil residual and non-selective herbicides.
- Spring residual treatments will be made to all shoulders on the following routes:
  - I-90, SR395, SR231, SR28, SR23, and SR21
- Fall residual treatments will be made to all shoulders on the following routes:
- SR231, MP 31-44 is a sensitive area and will be treated with Glyphosate only @ 32 oz./acre, once or twice as needed during the growing season.

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:
  - Perspective @ 8 ozd/acre
  - Esplanade @ 5 ozl/acre
  - Roundup Pro Concentrate @ 32 oz./acre
  - In Place @ 16 oz./acre
• Climb @ .32 oz./acre

- Fall treatment mixture:
  - Esplanade @ 7 oz./acre
  - Sulfomet @ 5 oz./acre
  - In Place @ 16 ozl/acre
  - Climb @ .32 ozl/acre

- Ritzville Interchange treatment mixture:
  - Crosshair @ 4 oz./acre
  - Rangestar @ 1 qt./acre
  - Perspective @ 4 oz./acre
  - Portfolio @ 10 oz./acre
  - Bronx Max @ 4 oz./ 100gl water

**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, controlling snow drift, 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**
- Less than 8 acres in select locations throughout the area

**Locations of Planned Treatments**
- SR 90, MP 219 – 222 / Mowing in the interchange area

**Treatment Methods**
- Tractor mounted mowing 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 pruning of brush and trees or tree branches behind guardrail, encroaching on or overhanging traffic operations, and/or 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**
- Less than 10 acres will be treated throughout the area.

**Locations of Planned Treatments**
- SR 174, MP 21-26
- SR 21, MP 99-102
- SR 25, MP 17-19
- SR 2321, MP 36-39

**Treatment Methods**
- Trim with hand tools as 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 exhibiting structural or health defects and identified as a potential imminent threat are removed as soon as possible.

**Total Units of Planned Treatment**  
- Less than 25 trees per year on average  

**Locations of Planned Treatments**  
- All trees in the area will be continually evaluated for risk to the highway and adjacent property and removed as necessary.

**Treatment Methods**  
- Cut with chain saws  
- Leave debris to decompose on site when appropriate, or removed to nearby out of sight locations.

**Noxious Weed Control – 3A2**  
This group of activities is focused on control of weed species and infestation locations identified in this plan document and mapped in HATS. The focus is on species that are legally designated in 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  
**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 3 at this time.

General Noxious Weed Control

Work Operations: 1616, 1618, 1699

HATS Forms: 4 sub-forms under Noxious Weed Control/General – Noxious Weed Control/Spray, Noxious Weed Control/Mechanical, Noxious Weed Control/Manual, and Noxious Weed Control/Biological

These operations are timed and carried out throughout the season to prevent the spread of legally designated noxious weed species, and to reduce or eliminate populations wherever possible. Integrate treatment plans combine field monitoring and a mixture of seasonally timed treatment 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.

Designated Species Known to Exist on WSDOT Right of Way

- See Appendix A for a list target weed species and notes describing treatment of each species

Total Units of Planned Treatment

- Approximately 900 acres will be treated with herbicides
- Less than 5 acres will be pulled by hand

Locations of Planned Treatments

- Many designate species are present throughout long stretches of corridor and will be treated throughout the area when visible in spring and early summer, prior to seed production whenever possible.
- The area crews will be using HATS to map points where highest priority reoccurring infestations occur during the 2016 season, treatment strategies for these sites will then be developed for implementation beginning in the 2017 growing season.

Treatment Methods and Timing

- Treatment notes for all target species are included in Appendix A
- Treat throughout the area when visible in spring and early summer, prior to seed production whenever possible.
- Herbicide mix for early season treatments:
  - Opensight @ 3 oz./acre
  - SylTac @ 2 oz./acre
- Herbicide mix for mid-season treatments:
  - Weedmaster @ 32 oz./acre
  - Climb @ 1 oz./acre
  - In-Place @ 16 oz./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, 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 **10 acres** of nuisance weed species will be treated with herbicide.

**Locations of Planned Treatments**

- I-90, Ritzville and Sprague interchanges

**Treatment Methods and Timing**

- Spot spray 2 to 3 times between May and July for emergent kochia and Russian thistle.
### Appendix A

#### Target Noxious Weed Species

Noxious Weed Targets on WSDOT Right of Way in Eastern Region Area 3:

<table>
<thead>
<tr>
<th>Common Name/Botanical Name</th>
<th>Treatment Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffalobur (Solanum rostratum)</td>
<td>Occasional occurrence, usually escapes from bird feeders. Control where visible in conjunction with summer seasonal weed patrols.</td>
</tr>
<tr>
<td>Bugloss, Annual (Anchusa arvensis)</td>
<td>Mainly on SR231, sites will be mapped and treated in the spring.</td>
</tr>
<tr>
<td>Bugloss, Common (Anchusa officinalis)</td>
<td>Mainly on SR231, sites will be mapped and treated in the spring.</td>
</tr>
<tr>
<td>Johnsongrass (Sorghum halepense)</td>
<td>All known infestations have been controlled and mapped for continued monitoring of regrowth.</td>
</tr>
<tr>
<td>Meadow sp. (Centaurea jacea)</td>
<td>Control where visible in conjunction with summer seasonal weed patrols.</td>
</tr>
<tr>
<td>Knapweed, Russian (Acroptilon repens)</td>
<td>SR2, 21, 23, 25, 28, 231, 174 sites will be mapped and treated in the spring.</td>
</tr>
<tr>
<td>Knotweed, Japanese (Polygonum cucpidatum)</td>
<td>SR2 – Stormwater pond near Davenport is the only known occurrence. Site will be mapped but has been controlled in previous years and is being monitored for regrowth.</td>
</tr>
<tr>
<td>Kochia, (kochia scoparia)</td>
<td>Control where visible in spring follow up to Zone 1 treatments.</td>
</tr>
<tr>
<td>Leafy Spurge (Euphorbia esula)</td>
<td>SR2 and SR231 have infestations that will be mapped and treated in the spring, and treated again in the late summer if there is regrowth</td>
</tr>
<tr>
<td>Perennial Pepperweed (Lepidium latifolium)</td>
<td>Known infestation sites will be mapped and treated in conjunction with summer weed patrols.</td>
</tr>
<tr>
<td>Perennial Sowthistle (Sonchus arvensis ssp.)</td>
<td>Control where visible in conjunction with seasonal weed patrols.</td>
</tr>
<tr>
<td>Puncturevine (Tribulus terrestris)</td>
<td>Weed boards will help with control and mapping reoccurring infestation sites.</td>
</tr>
<tr>
<td>Rush Skeletonweed (Chondrilla juncea)</td>
<td>Control where visible in conjunction with seasonal weed patrols, map outlying infestation sites for control in spring of 2018.</td>
</tr>
<tr>
<td>Thistle, Musk (Carduus nutans)</td>
<td>Weed boards will help with control and mapping reoccurring infestation sites.</td>
</tr>
<tr>
<td>Thistle, Scotch (Onopordum acanthium)</td>
<td>Weed boards will help with control and mapping reoccurring infestation sites.</td>
</tr>
<tr>
<td>Toadflax, Dalmatian (Linaria dalmatica)</td>
<td>Bio controls are working well on this plant in most areas. Only target if plants are not being impacted by bio-control agents.</td>
</tr>
<tr>
<td>Yellow Starthistle (Centaurea solstitialis)</td>
<td>Weed boards will help with control and mapping reoccurring infestation sites.</td>
</tr>
</tbody>
</table>