Eastern Region, Area 1
Integrated Roadside
Vegetation Management Plan
2017
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. This right-of-way is part of the state highway system including I-90, US-2, US-395, US-195, SR-20, SR-290 as well as a number of 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 the 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 roadsidess 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 1 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 are 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 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 – Ernie Sims, Assistant Superintendent – Kurt Kaufman, or the State’s Roadside Asset Manager – Ray Willard.

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Eastern Region, Area 1 – Vicinity Map

Figure 1
Eastern Region Area 1 IVM Work Plan – 2017

This is an outline of the overall approach and geographic distribution of roadside vegetation management requirements and planned actions throughout the maintenance area in 2017. 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.

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: 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 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 180 acres of herbicide treatment is applied to road shoulders throughout the area each year.

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.
  - Typical width of application is 2 feet, or to the back side of roadside hardware.
  - SR290 and SR27 within city limits of Spokane Valley will be maintained vegetation-free for an eight-foot band.
- Locations where no bare ground treatment will be applied include:
  - Depending on seasonal weather and timing, locations with standing water or where the highway is immediately adjacent to water bodies will not be treated.

Treatment Methods
- Herbicides are applied using a truck mounted power spray system set up to deliver a 2-foot band of spray mixture adjacent to the paved shoulder and a portion of the width deposited on the paved shoulder. The resulting width of treated shoulder is typically between 2 and 3 feet in width. Some resulting areas may be wider than due to steeper shoulder slopes.
- Other areas may be widened out as needed as described above and on HATS maps.
• All noted locations will be treated in mid to late spring with the following mixture of herbicides and adjuvants:
  o Perspective @ 9 ozd/acre
  o Sulfomet (Oust) @ 3 ozd/acre
  o Glyphosate (for post emergent treatment areas) @ 90 ozl/acre
  o Syltac @ 6 ozl/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 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**

**Locations of Planned Treatments**
• I-90 MP 285 – 288
• SR195 MP 95 – 80 as needed
• SR206 MP 1 – 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**
• Approximately **30 acres** will be controlled by mechanical cutting

**Locations of Planned Treatments**
• **Supervisors will provide short lists of general area route and milepost**

**Treatment Methods**
• Brush hog/chain saws/hand held tools/Element 3A herbicide applied to cut stumps.

**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 of Planned Treatment**
- As many as **400 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.
- If trees growing outside WSDOT right of way are hazards, crews work with the neighboring property owner to negotiate removal.
- Forested corridors that require constant attention include:
  - SR 2
  - SR 206
  - SR 211

**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 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*
*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.

General Noxious Weed Control
Work Operations: 1616, 1618, 1699
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.

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

<table>
<thead>
<tr>
<th>Common Name (Botanical Name)</th>
<th>Treatment Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Bugloss (<em>Anchusa arvensis</em>)</td>
<td>Main infestations are on the NSC US2 SR395 are mapped in HATS and treated at least once per year at flowering stage.</td>
</tr>
<tr>
<td>Baby’s breath (<em>Gypsophila paniculata</em>)</td>
<td>Control small patches where visible in conjunction with seasonal patrols.</td>
</tr>
<tr>
<td>Canada thistle (<em>Cirsium arvense</em>)</td>
<td>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.</td>
</tr>
<tr>
<td>Common bugloss (<em>Anchusa officianalis</em>)</td>
<td>Main infestations are on the NSC US2 SR395 are mapped in HATS and treated at least once per year at flowering stage.</td>
</tr>
<tr>
<td>Dalmatian toadflax (<em>Linaria dalmatica</em>)</td>
<td>Bio controls are working well on this species in the area.</td>
</tr>
<tr>
<td>Hawkweed, orange (<em>Hieracium aurantiacum</em>)</td>
<td>Isolated patches in Pend Oreille County being controlled by weed board.</td>
</tr>
<tr>
<td>Hoary cress (<em>Cardaria draba</em>)</td>
<td>Isolated patches on SR195 and SR904 are mapped in HATS and treated in spring.</td>
</tr>
<tr>
<td>Kochia (<em>Kochia scoparia</em>)</td>
<td>Isolated patches on I-90, NSC, SR395, SR290 are mapped in HATS and controlled later in the summer.</td>
</tr>
<tr>
<td>Knapweed sp. (<em>Centaurea sp.</em>)</td>
<td>Control where visible in conjunction with seasonal patrols.</td>
</tr>
<tr>
<td>Musk thistle (<em>Carduus nutans</em>)</td>
<td>Isolated patches are mapped in HATS and controlled at bud stage in summer.</td>
</tr>
<tr>
<td>Rush skeletonweed (<em>Chondrilla juncea</em>)</td>
<td>Priority treatment sites will be mapped for spring treatment at rosette stage. Also controlled where visible in conjunction with summer season weed patrols.</td>
</tr>
</tbody>
</table>
### 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.

### 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.

### 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 **300 acres** will be treated with herbicides.

**Locations of Planned Treatments**
- As described under **Treatment Notes** in the table above.

**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:
    - Perspective @ 6oz. per acre
    - Syltac @ 6 ozl/acre (early season) – 10 ozl/acre (late season)
  - Pit site may be treated with:
    - Tordon 22K @ 16 ozl/acre
    - Telar @ 2 ozl/acre
    - Syltac @ 6 ozl/acre (early season) – 10 ozl/acre (late season)
- **Kochia**
  - Maestro 2EC @ 16 ozl/acre
  - Vista XRT @ 16 ozl/acre
  - MSO Superspread @ 32 ozl/acre
- **Skeletonweed**
  - Milestone @ 7 ozl/acre
  - Syltac @ 6 ozl/acre (early season) – 10 ozl/acre (late season)

### 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 **50 acres** will be treated with herbicides for nuisance weed control in priority areas.
- No mowing for nuisance vegetation will be done in this maintenance area.

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.

Treatment Methods and Timing
- Applications will be made on an as needed basis during and after noxious weeds are being treated.
- Perspective @ 6oz. per acre/Milestone for Skeleton weed/ Tordon 22K-Telar (pit sites) Knapweeds.

Landscape Maintenance – MAP Activity 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: 7 sub-forms under Landscape – Weed Control – Spray, Weed Control – Manual/Mechanical, Cutting/Pruning/Selective Thin, Seed/Mulch/Plant/Fertilize & Lime, Mowing Ornamental 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 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 **45 acres** of formally landscaped roadside.

Locations of Planned Treatments
- Reference polygons in HATS layer – **Landscape Maintenance**.
- Locations of designate formal landscape include:
  - Interstate 90 through Downtown Spokane
  - Interstate 90/US 2 Interchange

Treatment Methods and Timing
- Annual start up/shut down of irrigation systems
• Mechanical: mowing irrigated turf areas regularly throughout the growing season with a *turf type mower*.
• 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
• Applying pre-emergent herbicides to shrub and ground cover beds – Casoron in the fall @ 150 lbs/acre.
• Pulling weeds in areas that are inaccessible to power tools.