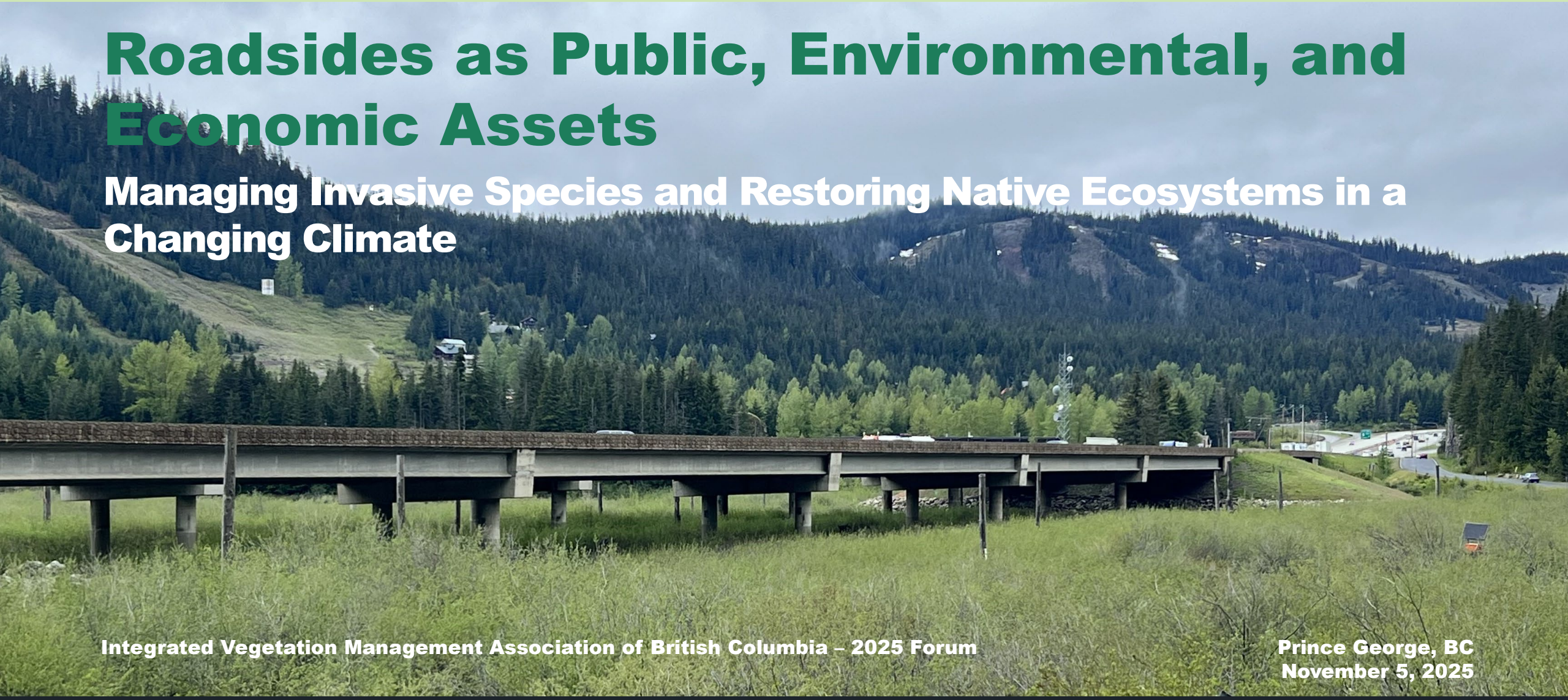
# Roadsides as Public, Environmental, and Economic Assets

## Managing Invasive Species and Restoring Native Ecosystems in a Changing Climate



Integrated Vegetation Management Association of British Columbia – 2025 Forum

Prince George, BC
November 5, 2025

Ray Willard, PLA – Washington State Department of Transportation, State Roadside Asset Manager ray.willard@wsdot.wa.gov

# Taking a Strategic and Collaborative Approach to Ecosystem Preservation

# VISUALIZING ROADSIDES AS TRANSPORTATION ASSETS

WSDOT owns and maintains approximately 100,000 acres of unpaved land.
As part of the agency's overall Transportation Asset Management Plan, WSDOT has classified and mapped roadside land use areas as shown on this poster.
This geographic inventory of six specific roadside land use types provides the basis for budgeting, planning, tracking, monitoring, and evaluating maintenance actions, and for measuring agency performance.


## FORMAL LANDSCAPE

Only maintained along some urban freeway corridors and around Safety Rest Area facilities. Plantings are designed as public amenities, and constructed to be routinely maintained in a set condition which provides for both safe highway operation and safety for controlled public access.

AVERAGE COST/ACRE/YEAR $5,300

TOTAL ACRES 1,100

## ZONE 1

Vegetation-free edge, maintained as required where shoulders are designed for stormwater sheet flow.

AVERAGE COST/ACRE/YEAR $233

TOTAL ACRES 8,000

## ZONE 2

Low-growing vegetation, maintained throughout the system, width is determined by highway design and local site constraints.

AVERAGE COST/ACRE/YEAR $166

TOTAL ACRES 33,500

## ZONE 3

Present where there is extra right of way beyond the outside edge of Zone 2, between divided highway alignments, and at freeway interchanges.

AVERAGE COST/ACRE/YEAR $109

TOTAL ACRES 55,000

## RESOURCE CONSERVATION AREAS

Relatively undisturbed natural areas adjacent to the right of way, purchased for preservation during construction of the interstate system. These areas require little to no maintenance.

AVERAGE COST/ACRE/YEAR $0

TOTAL ACRES 820

## ENVIRONMENTAL MITIGATION

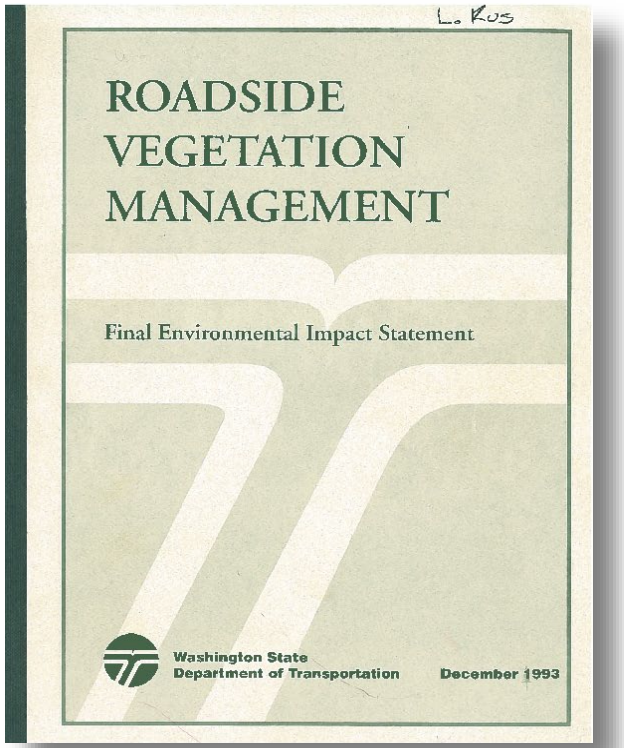
Sites maintained for 10+ years, in response to highway construction environmental permit requirements (Once permit requirements are fully met, sites are classified and maintained as part of Zone 3).

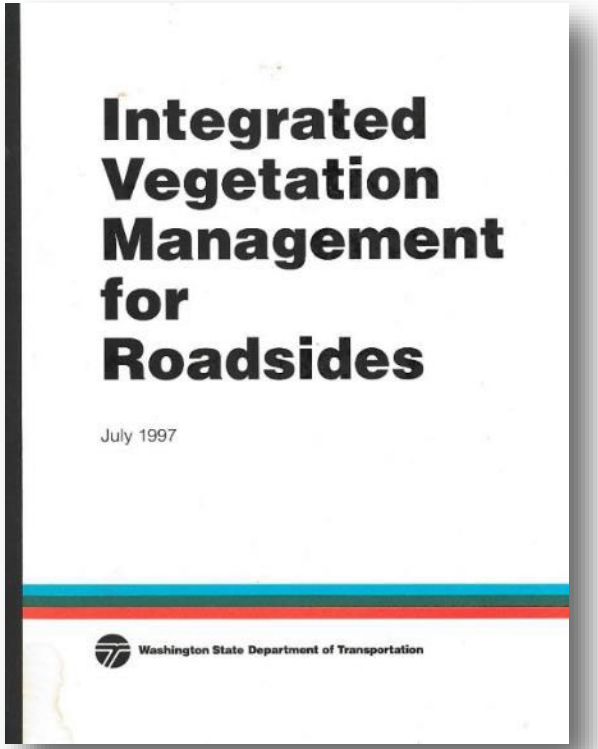
AVERAGE COST/ACRE/YEAR $4,900

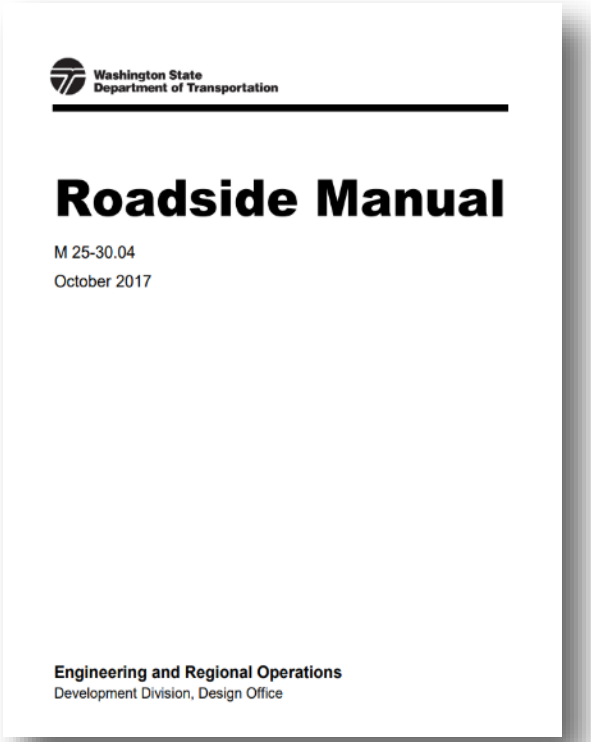
TOTAL ACRES 2,000

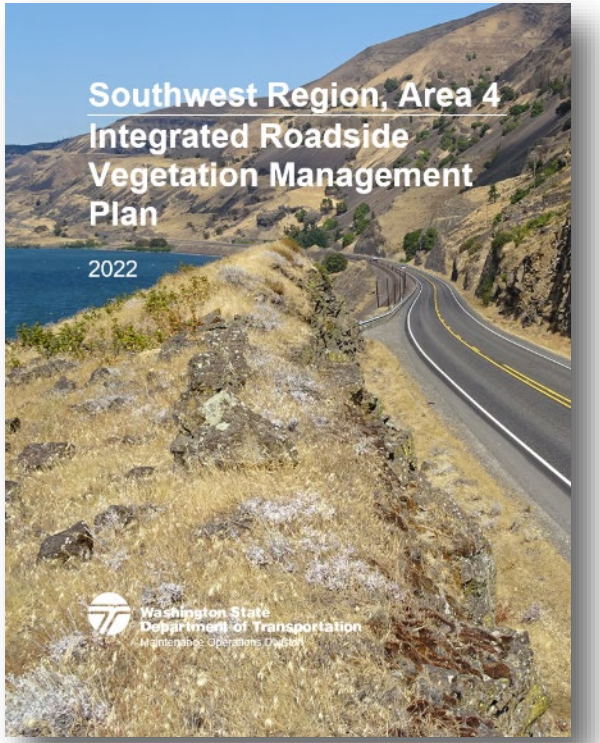
***Data Sources: WSDOT HATS and FIRS – Calendar Year 2022**

# Evolution of WSDOT Roadside Landscape Asset Management 1993 – 2024



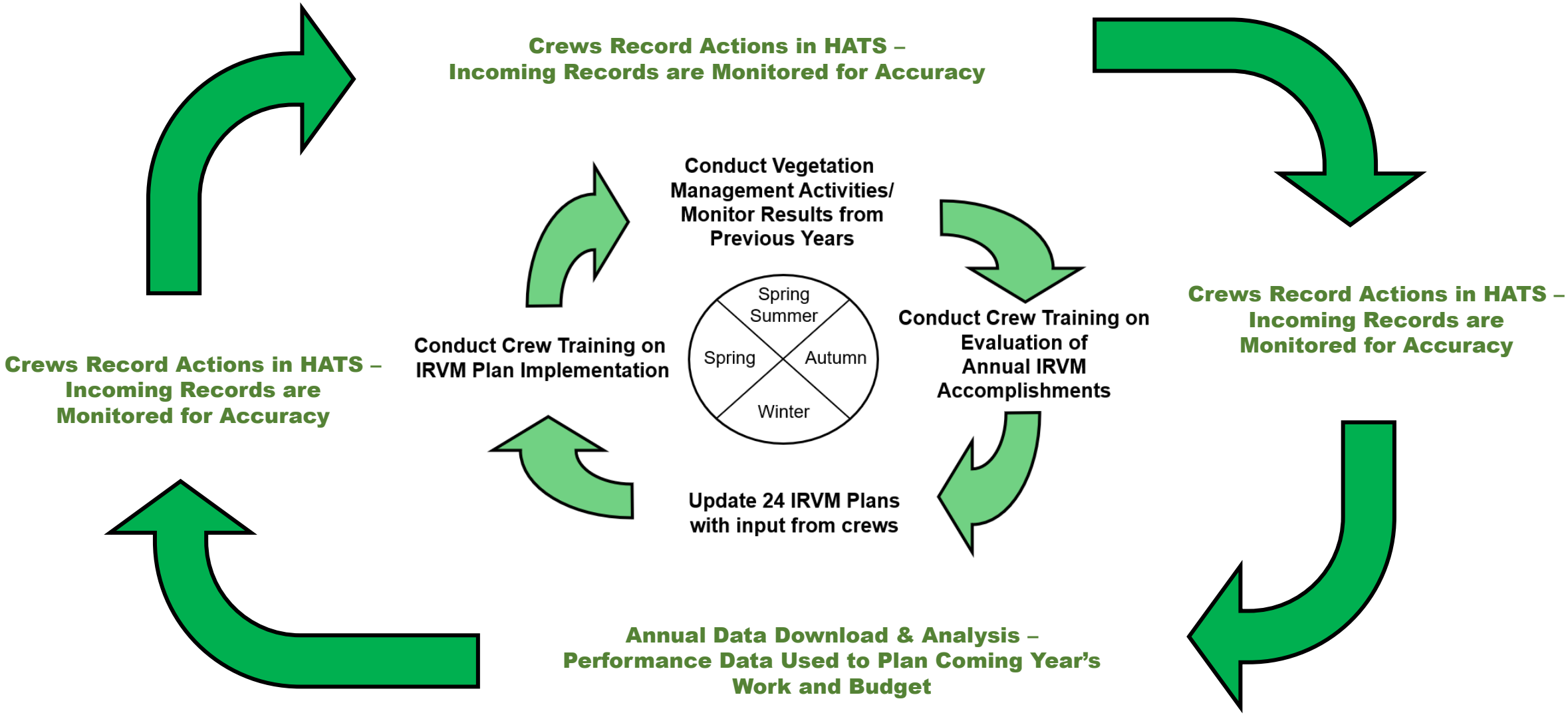



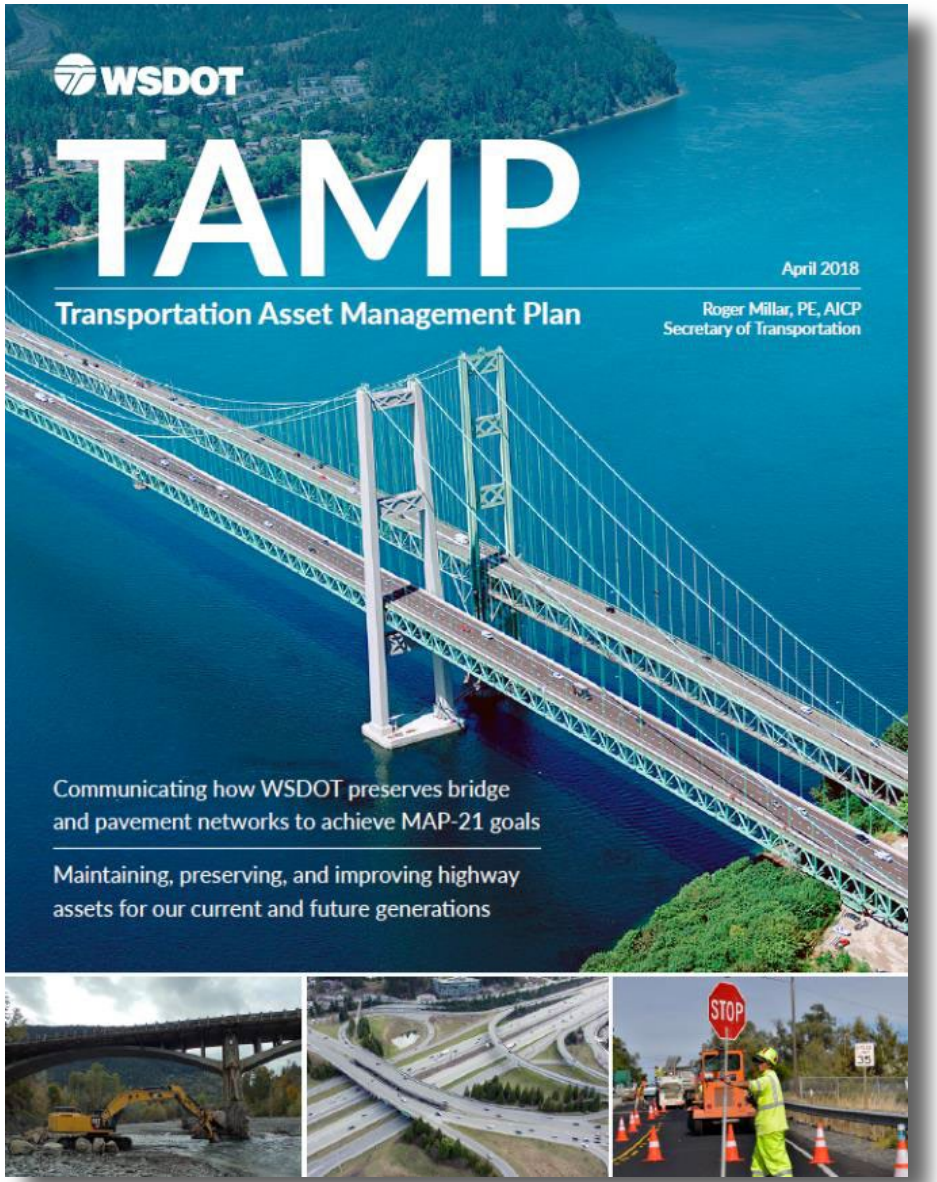

www.wsdot.wa.gov/maintenance/roadside

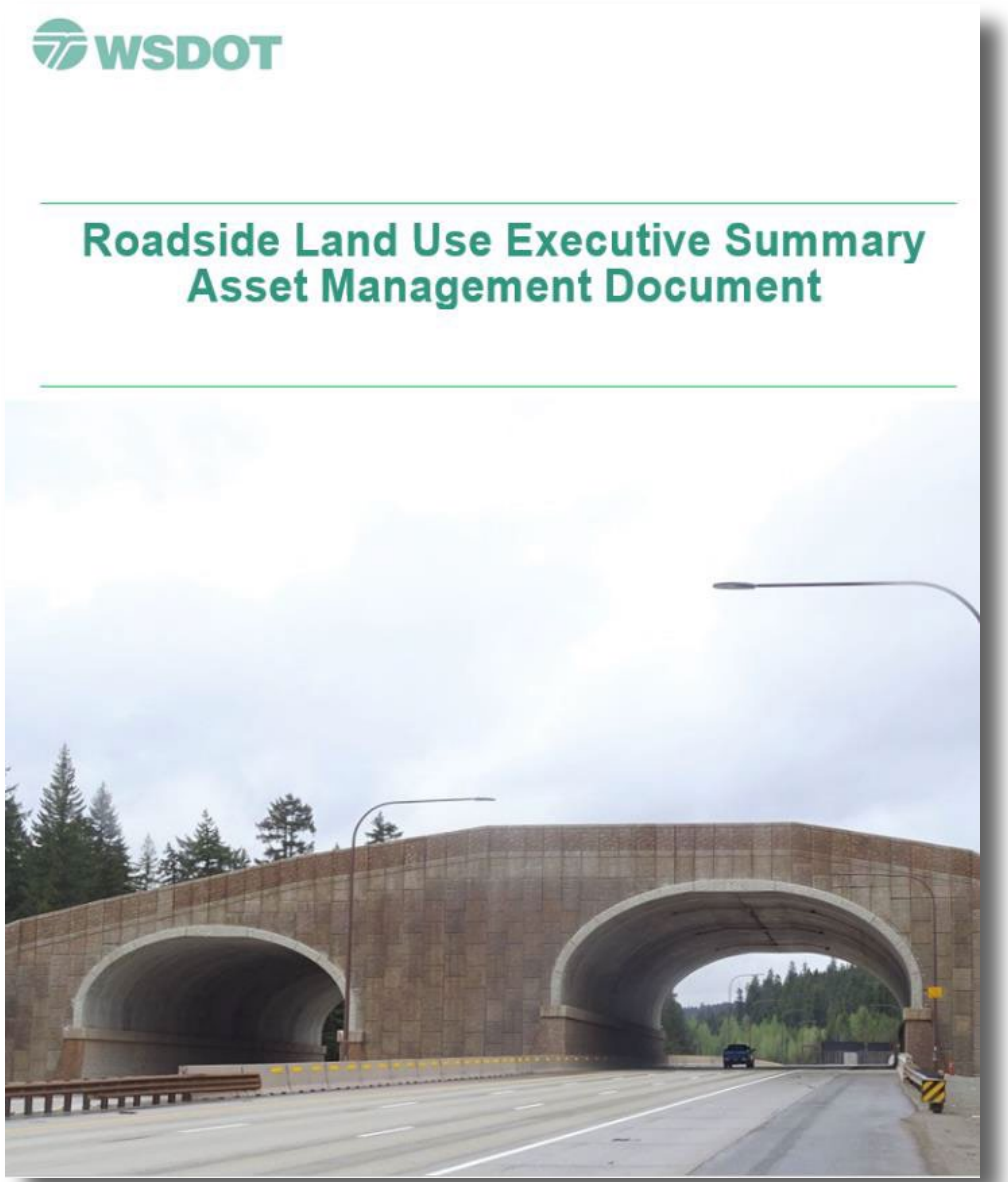
# Planning for Maintenance of Washington's Highway Roadside Assets

# WSDOT's Annual Roadside Landscape Asset Management Cycle

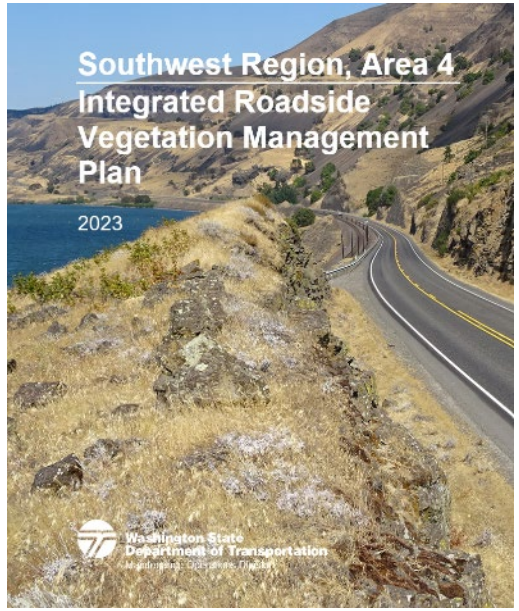


# WSDOT's Roadside Landscape Asset Management Plan

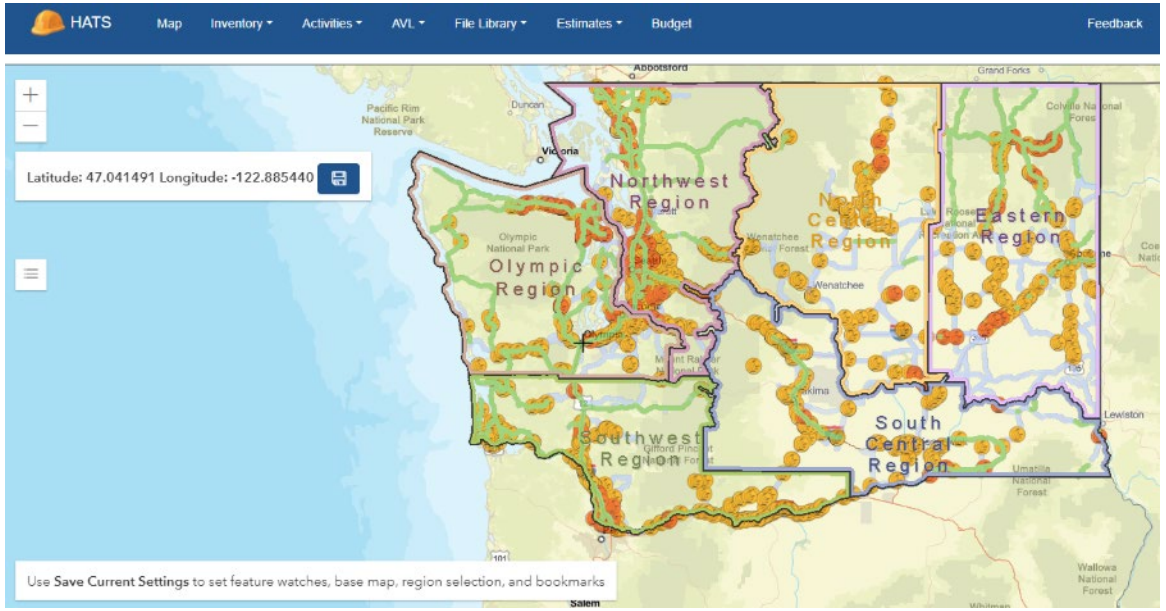


# WSDOT's Roadside Landscape Asset Management System Components




**Annual Workplan and Crew Training**




**Annual Record of Accomplished Units of Work and LEMO Costs**

**FIRS**

Go To Budget Queries

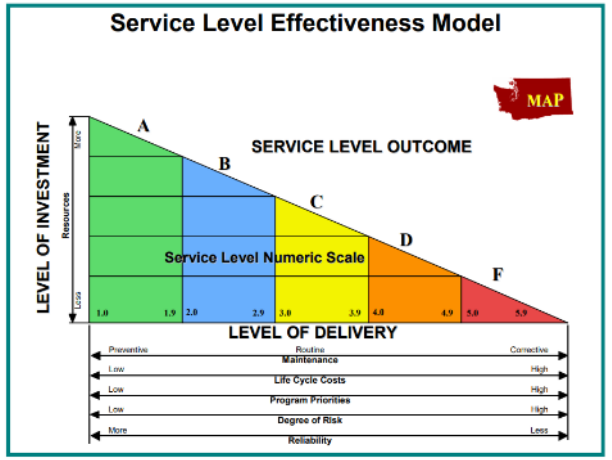
Go To Expenditures Queries

Username: WILLARR Name: Ray Willard Role: User

Please send comments to: FIRS Support

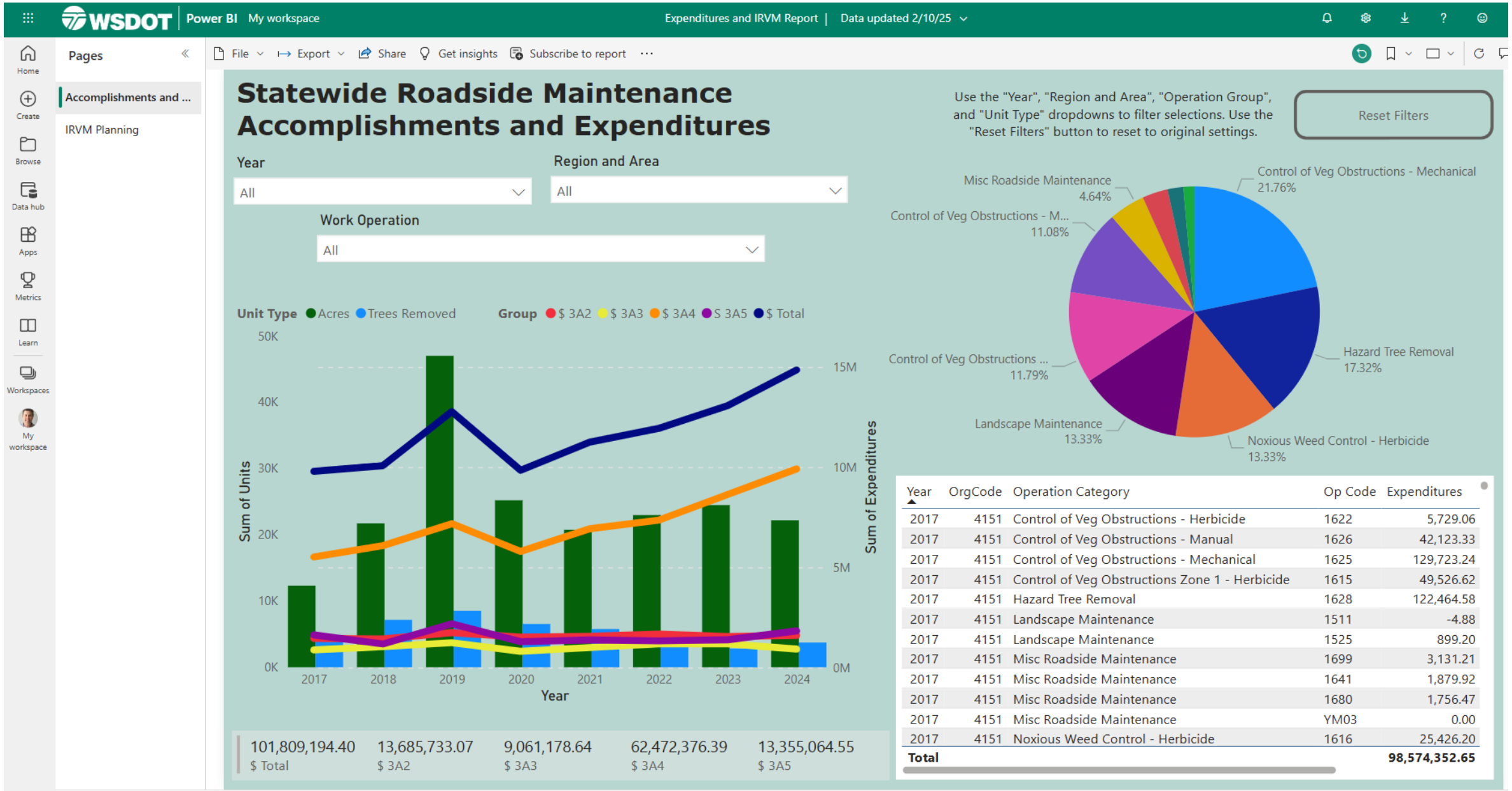


**Annual Measurement of System Condition**




**Demonstrated Performance of RLAM and Resulting System Condition**

# WSDOT Vegetation Maintenance Expenditures and Accomplishments




| Year | OrgCode | Operation Category | Op Code | Expenditures |
|---|---|---|---|---|
| 2017 | 4151 | Control of Veg Obstructions - Herbicide | 1622 | 5,729.06 |
| 2017 | 4151 | Control of Veg Obstructions - Manual | 1626 | 42,123.33 |
| 2017 | 4151 | Control of Veg Obstructions - Mechanical | 1625 | 129,723.24 |
| 2017 | 4151 | Control of Veg Obstructions Zone 1 - Herbicide | 1615 | 49,526.62 |
| 2017 | 4151 | Hazard Tree Removal | 1628 | 122,464.58 |
| 2017 | 4151 | Landscape Maintenance | 1511 | -4.88 |
| 2017 | 4151 | Landscape Maintenance | 1525 | 899.20 |
| 2017 | 4151 | Misc Roadside Maintenance | 1699 | 3,131.21 |
| 2017 | 4151 | Misc Roadside Maintenance | 1641 | 1,879.92 |
| 2017 | 4151 | Misc Roadside Maintenance | 1680 | 1,756.47 |
| 2017 | 4151 | Misc Roadside Maintenance | YM03 | 0.00 |
| 2017 | 4151 | Noxious Weed Control - Herbicide | 1616 | 25,426.20 |
| **Total** | | | | **98,574,352.65** |

# WSDOT Vegetation Maintenance Expenditures and Accomplishments

WSDOT | Power BI | My workspace — Expenditures and IRVM Report | Data updated 2/10/25

Pages: Accomplishments and E... | IRVM Planning

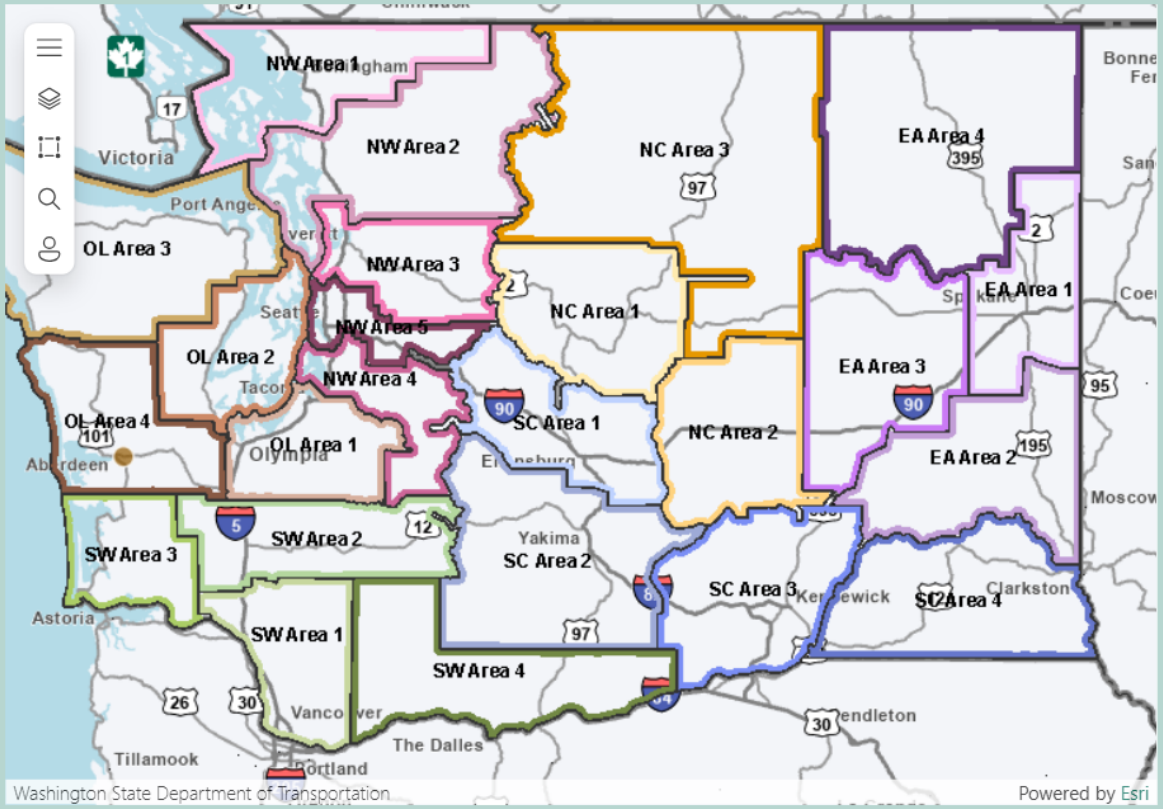
File | Export | Share | Get insights | Subscribe to report

## Integrated Roadside Vegetation Management Plans Summary

Aberdeen | Clear Filter

Olympic Region Area 4 manages approximately 245 miles of roadside right-of-way throughout Grays Harbor, southwest Jefferson, and western edges of Mason and Thurston counties. The major corridor in the area is SR-8/US-12, which is a major connection between the Puget Sound metro areas and the Washington coast. Other corridors include US-101, SR-105, SR-107, SR-108, SR-109, and SR-115.

| | | |
|---|---|---|
| 1.74K | 244.18 | 682.75 |
| Acres of Roadside | Miles of Road Corridor | Total Vegetated Edge Miles |
| 200 | | 55 |
| Acres of Zone 1 Planned Treatment | | Acres of Noxious Weed Control Planned Treatment |
| 0.00 | 425 | 30 |
| Acres of Formal Landscape Maintained | Acres of Zone 2 Planned Treatment | Acres of Zone 3 Planned Treatment |



# Innovation in Roadside Landscape Management

## *Use of Aerial Drones for Noxious Weed Control*

# Innovation in Roadside Landscape Management

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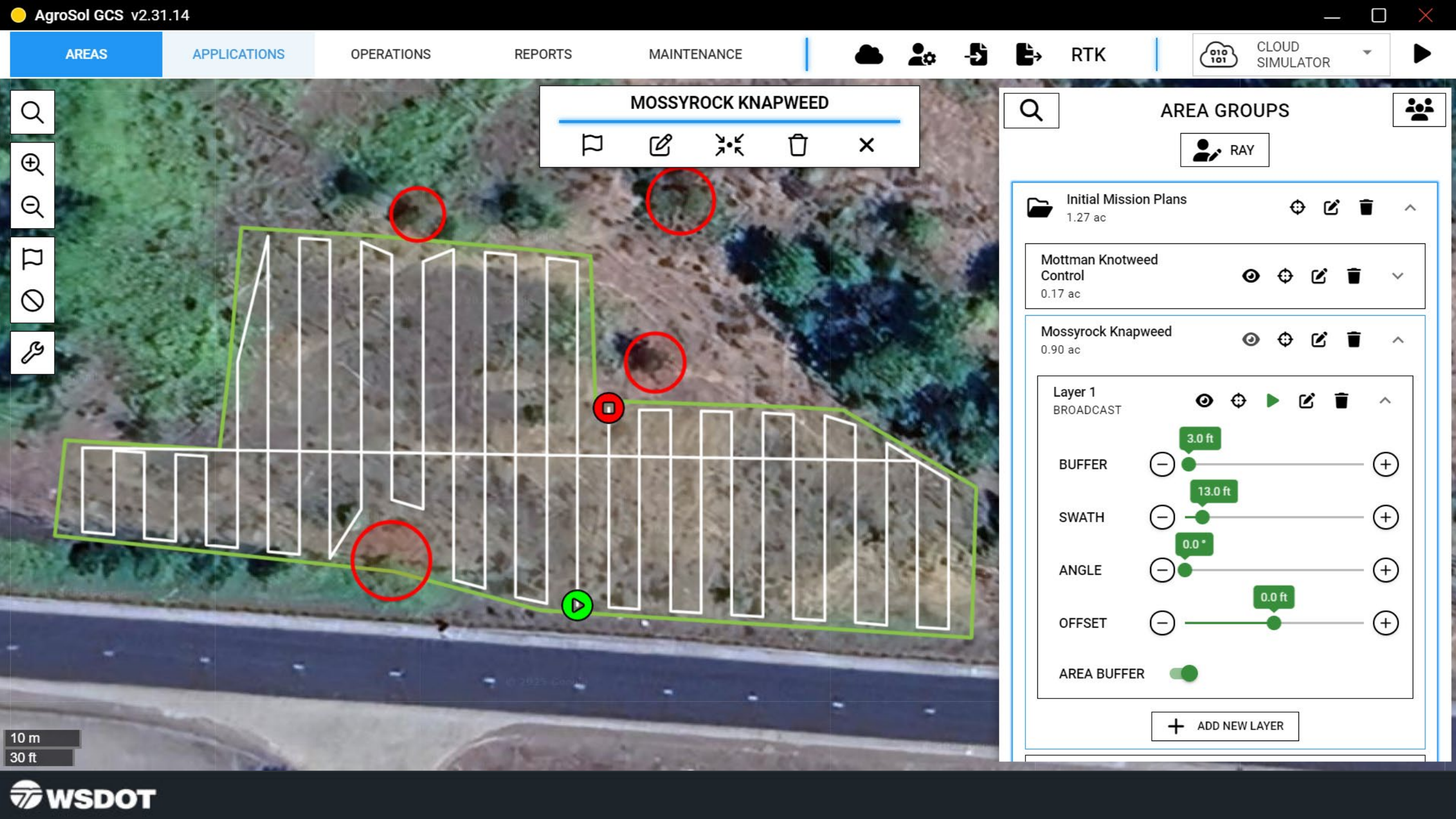
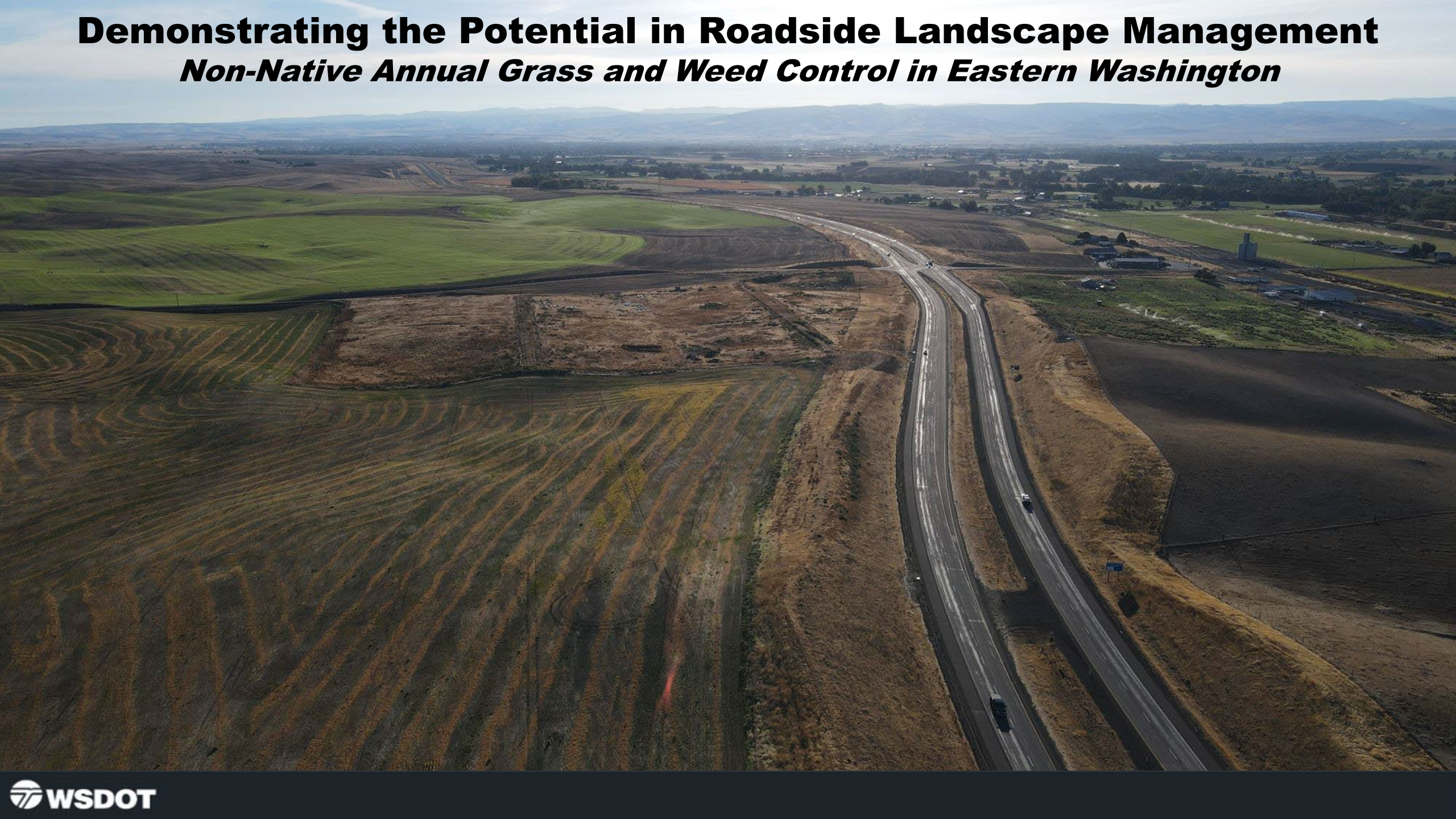
WSDOT


AgroSol GCS v2.31.14
AREAS
APPLICATIONS
OPERATIONS
REPORTS
MAINTENANCE
RTK
CLOUD SIMULATOR
MOSSYROCK KNAPWEED
AREA GROUPS
RAY
Initial Mission Plans
1.27 ac
Mottman Knotweed Control
0.17 ac
Mossyrock Knapweed
0.90 ac
Layer 1
BROADCAST
3.0 ft
BUFFER
13.0 ft
SWATH
0.0 °
ANGLE
0.0 ft
OFFSET
AREA BUFFER
ADD NEW LAYER
10 m
30 ft
WSDOT

# Demonstrating the Potential in Roadside Landscape Management

## *Non-Native Annual Grass and Weed Control in Eastern Washington*



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# Demonstrating the Potential in Roadside Landscape Management

## *Restoring and Sustaining Fish Passage and Stream Channels*

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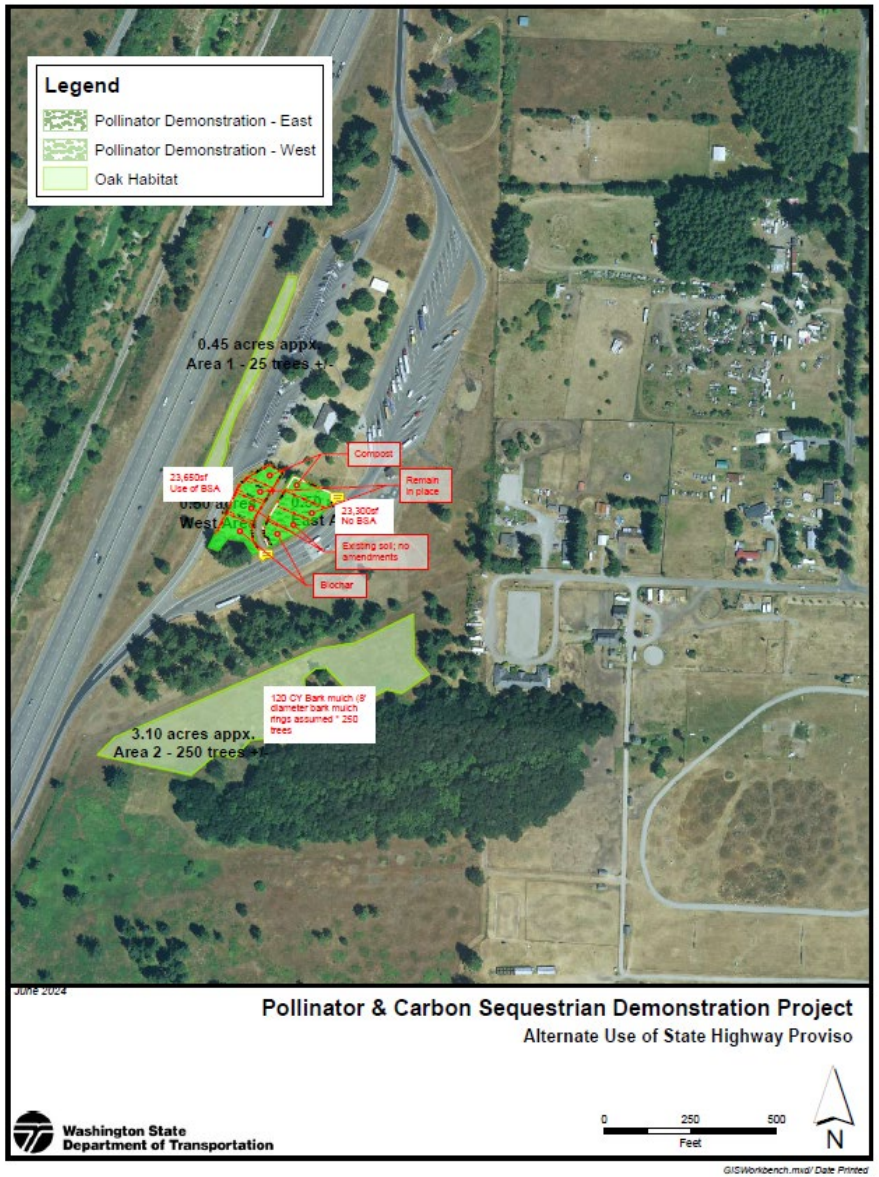
# Demonstrating the Potential in Roadside Landscape Management

## *Pollinators and Carbon Sequestration in Western Washington*




# Welcome to the Scatter Creek Roadside Research Lab

In 2024, Washington state legislation funded a research project to demonstrate best restoration practices that:

- Maximize carbon sequestration
- Develop habitat and forage for native pollinators, Monarch butterflies and honeybees
- Use native, non-invasive flowering plants and grasses along state highway rights-of-way and at safety rest areas

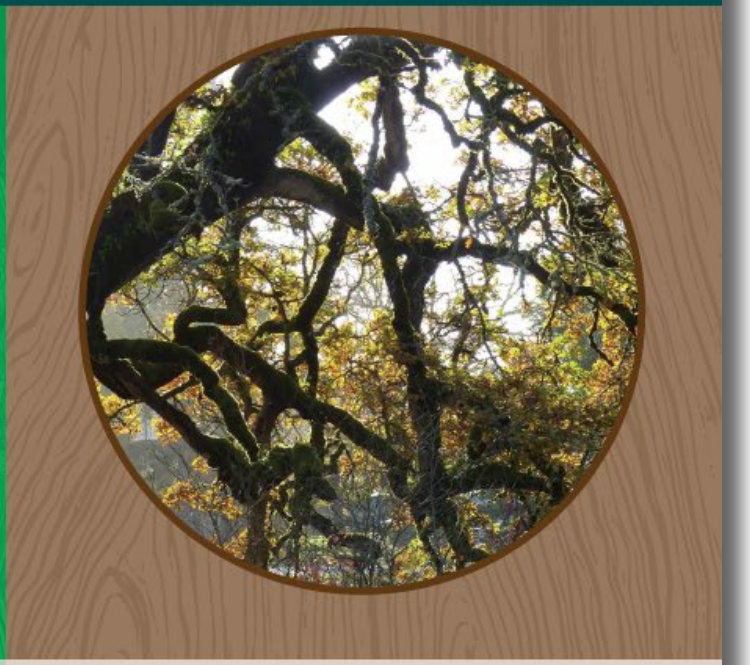
For the past 50 years, the Scatter Creek Rest Area and surrounding prairie along I-5 have been demonstrating the state legislature's intent. Over 50 acres of the highway right-of-way in this area have been managed to control invasive species like Scotch broom to promote a sustainable roadside of native species like Camas and Oregon White Oak. This research project intends to expand the early foundation of this past work by fostering a stable ecosystem for decades to come.

Monitoring is continuously downloading data to a cloud based interface for further analysis.


## Pollinator meadow

A nearly one-acre habitat area was created to study the success of typical roadside restoration methods. The site consists of eight fenced plots, each prepared uniquely to compare outcomes. The plots use native soil amended with biochar and compost while others remained unaltered or unamended. The southern most plots did not get amended to determine the level of growth establishment compared to the amended plots. The northern most plots were not changed serving as a control for comparison and pollinator recruitment potential. All plots were seeded with the same pollinator species, but only the west plots received biotic soil amendment.

Data is continuously collected using environmental sensors to monitor weather, soil chemistry, plant growth and pollinator presence, including Monarch butterflies and honeybees, to assess differences in establishment and ecosystem benefits.



## Carbon Sequestration

Washington State Department of Transportation planted over 500 native Oregon White Oak trees in the South Puget Sound Scatter Creek Prairie to restore an endangered ecosystem and enhance carbon sequestration throughout a 4 mile area of the rest area. Additionally, WSDOT is testing assisted species migration by planting Coastal Redwood and Giant Sequoia trees, known for their resilience and high carbon storage capacity in response to changing climate conditions.

Washington State Department of Transportation

Scan the QR code for more information.

# Creating beautiful and beneficial roadside landscapes

## Pollinator meadows

You are looking at a series of pollinator meadow test plots planted by the Washington State Department of Transportation.

These meadows aren't just visually stunning, they also provide incredible environmental benefits that go beyond aesthetics.

Pollinator meadows are planted with native, non-invasive flowering plants and grasses that attract vital pollinators, such as bees, butterflies, and birds. Meadows like these are crucial for our ecosystems as they support the pollinators responsible for approximately one-third of the food we eat. From fresh fruits to vegetables, our family farms rely on healthy pollinator populations to produce the food that sustains us.

In addition to adding beauty to our highways, these meadows are part of a broader effort to restore native plant species, like Camas and Oregon White Oak and combat invasive plants such as Scotch Broom. This project will help create long-term, stable ecosystems that will thrive for decades to come.

Pollinator meadows require far less mowing and upkeep compared to traditional turf grass, which helps conserve resources, reduce emissions and lower maintenance costs.

While the meadow takes a break from blooms in the winter, it remains a valuable habitat. Overwintering insects find refuge in the meadow, using it as a home to survive through the colder months. To ensure the ongoing health of this ecosystem, these meadow plots will be kept in a natural condition as much as possible without mowing. If mowing does occur it will be for weed control and promotion of the planted native vegetation.

By providing food and shelter for pollinators year-round, our meadow plays a critical role in supporting the biodiversity of Washington State and demonstrating the beauty and practicality of native plant landscapes.

## A year-round blooming habitat: Pollinator meadow

**Our pollinator meadow is alive with color and activity throughout much of the year, providing a rich and varied habitat for pollinators and other wildlife.**

### Early spring to summer blooms
(March – July)

**MINIATURE LUPINE**
*(Lupinus bicolor)*
This perennial wildflower graces the meadow with vibrant blue blooms from early spring to early summer.

**BLUE-EYED GRASS**
*(Sisyrinchium bellum)*
A delicate, grass-like flower with brilliant purple hues.

**WESTERN YARROW**
*(Achillea millefolium)*
Known for its feathery leaves and clusters of yellowish-white (rarely pink) flowers.

**FAREWELL TO SPRING**
*(Clarkia amoena)*
A lovely wildflower that flourishes as the season shifts.

### Summer blooms
(May – August)

**RED AND CALIFORNIA POPPY**
*(Papaver rhoes and Eschscholzia californica)*:
Bright, bold blooms that attracts bees, birds and butterflies.

**OREGON SUNSHINE**
*(Eriophyllum lanatum)*
A golden-yellow flower that thrives in summer.

**BLUE GILIA**
*(Gilia capitata)*
Known for its lavender-blue, round clusters that serve as a beacon for pollinators.

### Late season blooms
(June – October)

**SHOWY MILKWEED**
*(Asclepias speciosa)*
A favorite for Monarch butterflies and other pollinators, its pinkish flowers provide essential nectar.

**SLENDER CINQUEFOIL**
*(Potentilla gracilis)*
A late-blooming plant with bright yellow flowers that provide food for pollinators heading into fall.

**ASPEN FLEABANE**
*(Erigeron speciosus)*
Another late bloomer that continues to attract pollinators until the cooler weather sets in.

**Washington State Department of Transportation**

Scan the QR code for more information.

# Demonstrating the Potential in Roadside Landscape Management

## *Pollinators and Carbon in Western Washington*

WSDOT

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# Demonstrating the Potential in Roadside Landscape Management

***Using Integrated Vegetation Management to establish native ecosystems***

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***Using Integrated Vegetation Management to establish native ecosystems***

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WSDOT

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