Oregon Department of Transportation

TMDL Statewide Implementation Plan

Prepared For:

Oregon Department of Environmental Quality
Total Maximum Daily Load Program

Prepared By:

Oregon Department of Transportation
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Acronyms and Abbreviations

BMPs	Best Management Practices
CWA	Clean Water Act
CRPA	Culvert Repair Programmatic Agreement
DEQ	Department of Environmental Quality
DOJ	Oregon Department of Justice
DMAs	Designated Management Agency
EPA	Environmental Protection Agency
FAHP	Federal Aid Highway Programmatic
FHWA	Federal Highway Administration
IVM	Integrated Vegetation Management
LAs	Load Allocations
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NPS	Nonpoint Source
ODOT	Oregon Department of Transportation
ROW	Right-Of-Way
SWMP	Stormwater Management Plan
SMPD	Stormwater Management Program Document
SHSP	Strategic Highway Safety Plan
SIP	Statewide Implementation Plan
TMDL	Total Maximum Daily Load
TSAP	Transportation Safety Action Plan
WLAs	Waste Load Allocations
WQC	Water Quality Certification
WPCF	Water Pollution Control Facility
WQMP	Water Quality Management Plan
UIC	Underground Injection Control
USDA	United States Department of Agriculture

1.0 Introduction

The Total Maximum Daily Load (TMDL) Program is a component of the Clean Water Act (CWA). The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 U.S.C §1251(a)). TMDLs identify the maximum amount of a pollutant that can be present in a waterbody and still meet water quality standards. DEQ identifies the pollutant sources and estimates the amount of actual pollutant loading from each source. Waste load Allocations (WLA) and Load Allocations (LA) are the terms used to describe loadings assigned to point and nonpoint sources, respectively.

Oregon Department of Environmental Quality (DEQ) has identified Oregon Department of Transportation (ODOT) as a Designated Management Agency (DMA) for point sources (WLAs) and nonpoint sources (LAs) in multiple Water Quality Management Plans (WQMPs, Table 1.1). As ODOT property spans the state of Oregon, ODOT is applying a statewide approach to address specific pollutants with multiple management strategies. ODOT's Statewide Implementation Plan (SIP) provides consistency in ODOT's highway management practices, regardless of watershed, and eliminates duplicative paperwork and staff time in developing and reporting on multiple TMDL implementation plans.

ODOT's 2020 Phase I Municipal Separate Storm Sewer System (MS4) permit required submission of an updated TMDL Implementation Plan. ODOT's SIP will be updated with each TMDL issuance listing ODOT as a DMA. The nonpoint source management strategies described in ODOT's SIP apply and are intended to address all TMDL pollutants listed in table 1.1 where ODOT's MS4 permit coverage does not.

The Oregon State Highway Department has been constructing roads since 1913 (later established in 1969 as ODOT). Some of this highway construction adjacent to water bodies has resulted in hydrologic modification (increase in impervious surface, building culverts), particularly through placement of roads within riparian zones, impacting water quality (lack of shade, road related pollutant runoff, etc.) and quantity (increasing peak flow to nearby streams).

The intention of this SIP is to focus on assessment and improvement of the watershed condition and riparian areas within ODOT's operational area of control to address historic, current, and upcoming TMDLs/WQMPs requirements. These requirements generally involve pollutant prevention or reduction from the state highway transportation system not directly regulated through ODOT's MS4 individual permit. Vegetated areas between ODOT roads and water bodies provide numerous benefits to the riparian area including shade (lowers stream water temperature), pollutant capture/filtering (road related pollution adsorbed and biodegraded within soil while flowing through soil and around roots), peak flow reduction (lowering velocity of surface runoff from roads), runoff reduction (stormwater infiltration, groundwater recharge), and streambank stability (erosion reduction).

*Table 1.1 Twenty four Oregon Department of Environmental Quality (DEQ) Total Maximum Daily Load (TMDL)/ Water Quality Management Plans (WQMPs) where ODOT is a designated management agency (DMA) with 42 associated 303(d) parameters and pollutants including ammonia (NH_3), ammonia nitrogen (NH_3-N), aquatic weeds, bacteria, biological criterion (biocriterion), biochemical oxygen demand (BOD, 5-day), ultimate biochemical oxygen demand (BOD_u), carbonaceous biochemical oxygen demand (CBOD), chlorophyll-a (Chl-a), DDE 4,4', DDT 4,4', dieldrin (HEOD), dissolved inorganic nitrogen (DIN), dioxin 2,3,7,8 (TCDD), dissolved orthophosphate as phosphorus (PO_4^{3-}-P), dissolved oxygen (DO), Enterococci (E.), Escherichia coli (E. coli), excess algal growth, fecal coliform (FC), fine sediment (FS), harmful algal blooms (HABs), inorganic phosphorus (P_i), lead (Pb), methylmercury (MeHg), total mercury (THg), nitrates (NO_3^-), nitrite + nitrate (NO_x), pH, polychlorinated biphenyls (PCBs), phosphorus (P), sedimentation, sediment oxygen demand (SOD), solar radiation, total dissolved gas (TDG), total iron (TFe), total nitrogen (TN), total phosphorus (TP), total suspended solids (TSS), turbidity, volatile solids (VS), and volatile suspended solids (VSS). Waste load allocations (WLAs) for Municipal Separate Storm Sewer System (MS4) and load allocations (LAs) for nonpoint sources (NPS) are listed. *DMAs not required to submit a TMDL Implementation Plan.*

TMDL	303(d) Parameters Addressed	TMDL Pollutants	WLA (MS4)/ LA (NPS)
Columbia Slough 1998	Chl-a, DDE 4,4', DDT 4,4', HEOD, TCDD, DO, *E. coli*, excess algal growth, Pb, pH, PCBs, TP	BOD, DDE 4,4', DDT 4,4', HEOD, TCDD, E. coli, Pb, PCBs, TP	WLA for BOD LA for TMDL pollutants
***Upper Grande Ronde River Sub-basin 2000**	DO, excess algal growth, pH, sedimentation, TP	DIN, PO_4^{3-}-P, FS	LA for TMDL pollutants
***Umatilla River Basin WQMP 2001**	NH_3, *E. coli*, excess algal growth, FC, NO_3^-, pH, turbidity, sedimentation	NH_3-N, *E. coli*, NO_3^-, TSS, turbidity	LA for TMDL pollutants
Tualatin Subbasin 2001	Chl-a, DO, *E. coli*, *E.*, excess algal growth, HABs, FC, pH	NH_3-N, *E. coli*, sedimentation, OD, TP, VS	LA for TMDL pollutants
Little River 2001	pH, sedimentation	Sedimentation	LA for TMDL pollutants
Upper Klamath Lake Drainage WQMP 2002	Chl-a, DO, excess algal growth, HABs, pH, TP	TP	LA for TMDL pollutants
North Coast Subbasins 2003	Biocriterion, *E. coli*, FC	*E. coli*, FC	LA for TMDL pollutants
Applegate Subbasin 2004	Biocriterion, sedimentation	Sedimentation	LA for TMDL pollutants
Snake River - Hells Canyon 2004	Chl-a, DDD 4,4', DDE 4,4', DDT 4,4', HEOD, DO, excess algal growth, HABs, sedimentation, TDG	DDD 4,4', DDE 4,4', DDT 4,4', HEOD, DO, TDG, TP, TSS	LA for TMDL pollutants
Sandy River Basin 2005	*E. coli*, FC	*E. coli*	LA for TMDL pollutants

TMDL	303(d) Parameters Addressed	TMDL Pollutants	WLA (MS4)/ LA (NPS)
Willamette Basin 2006	NH_3, DDT 4,4', HEOD, DO, E. coli, FC, THg, MeHg, turbidity	NH_3-N, BOD, DIN, PO_4^{3-}-P, *E. coli*, THg, MeHg, NO_x, SOD, TSS, turbidity, BOD_u, VSS	WLA for bacteria & DDT/HEOD LA for TMDL pollutants
Umpqua Basin 2006	Aquatic weeds, Chl-a, DO, *E. coli*, excess algal growth, FC, pH, TP	BOD, DIN, *E. coli*, P_i, TN, TP, VS	LA for TMDL pollutants
Willow Creek Subbasin WQMP 2007	*E. coli*, FC, pH	DIN, *E. coli*, pH	LA for TMDL pollutants
Tenmile Lakes Watershed 2007	Aquatic weeds, Chl-a, excess algal growth, HABs, sedimentation	TP, TSS	LA for TMDL pollutants
Bear Creek Watershed WQMP 2007	*E. coli*, FC, sedimentation	*E. coli*, sedimentation	LA for TMDL pollutants
Molalla-Pudding Subbasin WQMP 2008	Chlordane, DDD 4,4', DDE 4,4', DDT 4,4', HEOD, *E. coli*, TFe, NO_3^-	Chlordane, DDD 4,4', DDE 4,4', DDT 4,4', HEOD, *E. coli*, TFe, NO_3^-, TSS	LA for TMDL pollutants
Rogue River Basin 2008	*E. coli*, FC	*E. coli*	LA for TMDL pollutants
Lower Grande Ronde Subbasins 2010	*E. coli*, FC	*E. coli*	LA for TMDL pollutants
John Day River Basin WQMP 2010	Biocriterion, DO, *E. coli*, FC	*E. coli*	LA for TMDL pollutants
Tualatin Subbasin WQMP 2012	Chl-a, DO, excess algal growth, HABs, pH, TP	NH_3-N, TP	LA for TMDL pollutants
Willamette Basin Mercury EPA 2019	THg, MeHg	THg	LA &WLA for total mercury
Upper Klamath & Lost River Subbasins Nutrient WQMP 2019	NH_3, Chl-a, DO, excess algal growth, HABs, pH	BOD, CBOD, DIN, DO, TN, TP	LA for TMDL pollutants
Upper Yaquina River Watershed Basin 2023	*E. coli*, P, solar radiation	Bacteria, DO	LA for TMDL pollutants
Powder River Basin 2024	*E. coli*	*E. coli*	WLA and LA for TMDL pollutants

2.0 ODOT's Authority and Jurisdiction

ODOT operates and maintains the state highway system in compliance with state and federal regulations. ODOT requires that any work completed by other entities on ODOT owned property follow all state and federal regulations. ODOT is not a municipality, land use or natural resource management agency and, as such, cannot enact ordinances or other regulatory mechanisms. ODOT has no legal authority or jurisdiction over lands, waterways, or natural resources located outside of its right-of-way. Oregon's restrictions on highway-related expenditures are currently established through article IX, section 3a of the Oregon Constitution (art. IX, sec. 3a). ODOT's jurisdiction and authority is limited to actions related to the use of its highway system for highway purposes.

2.1 Use of Highway Trust Fund Assets

ODOT is required to comply with recently issued TMDLs within its jurisdiction and authority, which are limited by the constraints on the use of Highway Trust Fund assets. ODOT mitigates for its activities that result in impacts to regulated resources, and considers impacts to impaired waters as projects are implemented and maintenance activities are conducted. ODOT's role in land management is different from the roles of other state agencies that have regulatory authority. ODOT's authority is limited to managing activities that relate to the design, construction, and operations and maintenance of the state highway system.

ODOT is a transportation agency and is required to prioritize its work based on transportation needs, not stream health. Previous legal opinions provided to ODOT by the Oregon Department of Justice (DOJ) have historically and consistently advised that no matter how desirable the use of Highway Fund money or property, the constitutionally dedicated nature of those funds creates a trust which must be preserved. Land purchased with Highway Funds must be used for highway purposes and Highway Funds are expendable for costs that arise from issues on highway land or from the use of highway land.

2.2 Municipal Separate Storm Sewer System (MS4) Phase I Permit Coverage Area

ODOT owns and operates a storm sewer system that serves its road and highway system and other facilities statewide. ODOT is required to obtain a National Pollutant Discharge Elimination System (NPDES) Permit for its MS4. ODOT, through its initial and subsequent MS4 permit applications, requested its permit to authorize discharges on a jurisdiction-wide basis from all portions of the ODOT MS4 throughout the State of Oregon.

ODOT's MS4 permit coverage area is the geographic area encompassing the drainage system associated with ODOT owned and/or operated roads, maintenance yards, rest areas, and other facilities located in ODOT highway right-of-way (ROW) that discharge stormwater to surface waters of the state. The term highway ROW is a general term used to describe all ODOT-owned property; it is not limited to the ROW near roadways.

ODOT owned and/or operated facilities drain runoff from ODOT-owned property into virtually every watershed basin in the state of Oregon. MS4 permit coverage areas are typically limited to the geographic area partially or fully located within an urbanized area as defined by a decennial census conducted by the U.S. Census Bureau. ODOT sought statewide permit coverage because ODOT applies the same management strategies throughout its system regardless of location. ODOT implements pollution prevention and mitigation BMPs as required by its MS4 permit to meet WLAs for TMDL requirements.

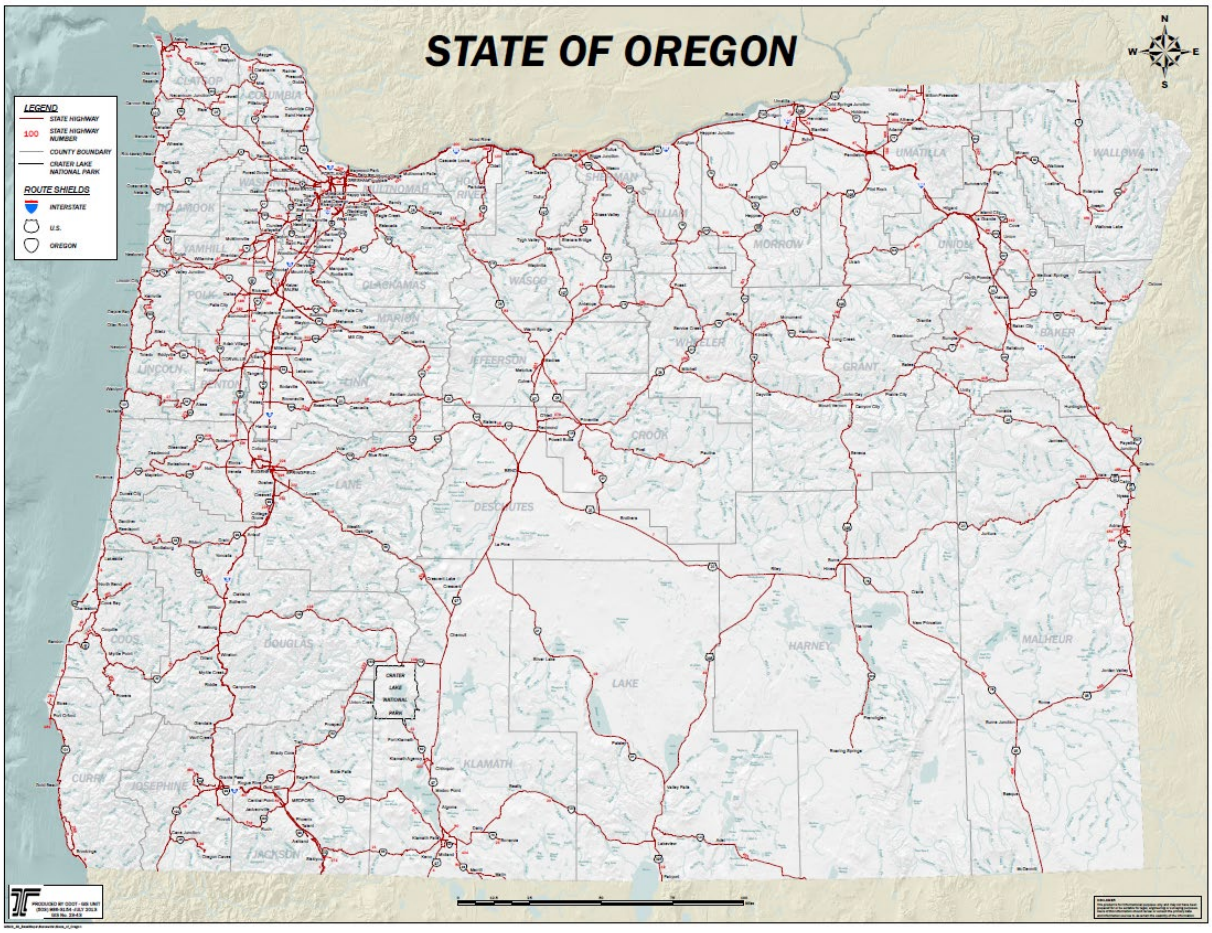
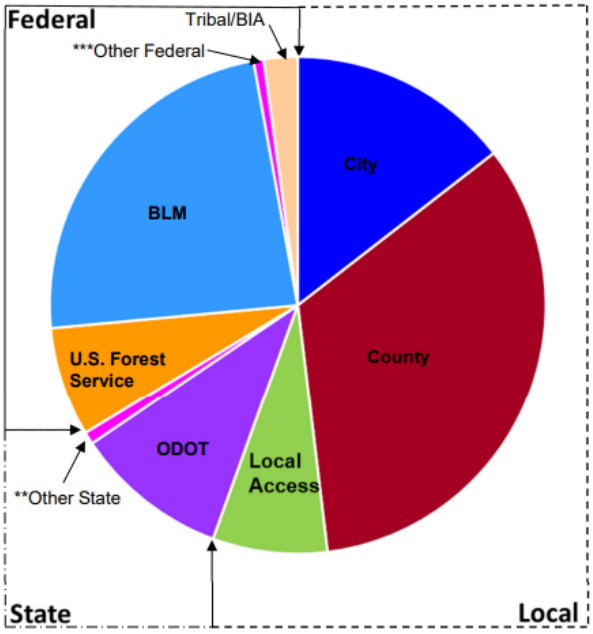


Figure 1: ODOT highway system and MS4 coverage area.

2.3 ODOT's Area of Responsibility

ODOT's portion of road miles (Oregon's State Highway System) is approximately 7,973 miles, or 10% of public roads. The remaining portion of ODOT's area of responsibility consists of maintenance yards, rest areas, and other facilities (and properties) located outside of the ROW. ODOT's TransGIS map has a Maintenance and Facilities layer which shows the locations of maintenance stations, facilities, and leased buildings. ODOT's Mileage Report is available from the Road Assets and Mileage Program. Figure 2 shows ODOT's percent of road miles from its most recent report.

2024 OREGON MILEAGE REPORT
Percent of Road Miles by Jurisdiction



Jurisdiction	Mileage	Percent
City	11,562.781	14.550%
*County	26,754.694	33.667%
Local Access	5,946.904	7.483%
ODOT	7,976.73	10.037%
**Other State	644.822	0.811%
U.S. Forest Service	5,489.898	6.908%
BLM	18,815.530	23.676%
***Other Federal	529.290	0.666%
Tribal/BIA	1,748.800	2.201%
Total	79,469.449	100.000%

*County includes Municipal Extension Miles

**Other State includes: Campus, Fish & Wildlife, State Institutions, State Forests, State Parks, Other Local Agencies

***Other Federal includes Army Corp of Engineers, U.S. Military, National Parks, and Other Federal Agency Miles

Figure 2: ODOT percent of road miles (Transportation Data Section Road Inventory & Classification Services, 2025).

2.4 ODOT Right-of-Way (ROW)

Determining ODOT's ROW is a complex process. Highways in Oregon were adopted and brought into the State Highway system by legislative act (statutes), wherein titles were transferred by resolution from Oregon Counties to the State Highway Commission or by the Oregon Transportation Commission by Resolution and by the Legislature. ROW was designated through different processes and at different widths based on the place, time, and nature of the road at the time it was brought into ODOT's system. Determining the type of ownership of ODOT ROW is also difficult. Some is owned in fee, and some is owned by easement.

ODOT's History of State Highways in Oregon document provides guidance on locating the documents necessary for determining ROW and highlights the complexity of this process. Due to the variable nature of ODOT's ROW and liability of publishing a map with incorrect or outdated ownership boundaries, ODOT does not have a public map or GIS layer of its ROW. General rules of thumb can be applied to estimate ROW boundaries for some purposes, but highway projects require assistance and evaluation by ODOT's ROW Section staff.

2.5 ODOT-Owned Property

ODOT-owned property is purchased with highway funds for current or anticipated transportation purposes. Outside of highway ROW, properties owned by ODOT were acquired for the purpose of design, construction, operations and maintenance of the state highway system. These include stockpile locations or quarries, rest areas, and administrative and maintenance offices. ODOT property that is currently excess is being held either for future use or surplus.

3.0 Related Regulatory Programs

ODOT is required to comply with federal, state, and local regulations to reduce environmental impacts associated with the operation, construction, and maintenance of its roads, highways, and bridges. This includes the CWA and all applicable state water quality regulations. ODOT is dedicated to protecting water resources from the impacts of highway operation and maintenance, and works with resource agencies to develop consistent, effective, and practical compliance strategies.

3.1 MS4 Minimum Control Measures

The MS4 permit states that by ODOT complying with the MS4 permit's terms and conditions, ODOT is presumed to be in compliance with applicable TMDL allocations issued before the effective date of ODOT's MS4 permit.

ODOT's MS4 permit coverage area includes point source discharges from ODOT-owned property. Point source discharges are categorized as stormwater that is collected or channeled into a storm sewer, drainage ditch, or other similar conveyance, and discharged from a discrete point source. Nonpoint source runoff that is not regulated by ODOT's MS4 includes stormwater that flows off of surfaces (roads, buildings, etc.) without being collected or channelized, and pollutants or pollutant surrogates that are not associated with stormwater, such as solar radiation. Nonpoint source discharges are regulated through the TMDL program.

3.2 CWA Section 401

In Oregon, DEQ is responsible for issuing most Section 401 Water Quality Certifications (WQCs), and reviewing federal permits and licenses affecting wetlands for compliance with Oregon's water-quality standards under section 401 of the CWA. To meet 401 WQC requirements, ODOT post-construction Stormwater Management Plans (SWMPs) must demonstrate that post-construction stormwater runoff receives the highest and best practicable treatment and/or control.

3.3 CWA Section 404

Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. ODOT works to ensure wetlands and water resources are accurately identified during project development and that measures are taken to avoid and minimize impacts to the environment. ODOT limits wetland losses by reducing the footprint of highway design projects to the extent feasible. Unavoidable impacts caused by ODOT construction or maintenance projects are mitigated per state and federal

regulations by USACE and/or Department of State Lands (DSL) permits. ODOT replaces lost riparian habitat by replanting trees and shrubs that have been affected by projects and removes invasive weeds from these areas.

3.4 Endangered Species Act (ESA)

Oregon's Federal Aid Highway Programmatic (FAHP) covers most federally funded transportation projects that affect aquatic species listed on the federal threatened and endangered species list by the National Marine Fisheries Service (NMFS), and terrestrial and aquatic species administered by the U.S. Fish and Wildlife Service (USFWS). The FAHP is a statewide ESA Section 7 consultation and Magnuson Stevens Act consultation with the NMFS and the USFWS.

The FAHP programmatic includes all geographic areas in Oregon where transportation projects directly or indirectly affect ESA-listed species. This includes projects with riparian impacts and in-water work, such as culvert or bridge replacements, and projects that affect the quality and amount of stormwater runoff into waterways with ESA-listed species. Site restoration is required for all temporary disturbances in regulated habitats. ODOT prepares annual reports summarizing its activities under the FAHP.

4.0 Pollution Management Best Management Practices (BMPs)

TMDL pollutants, both nonpoint and point source, are reduced through the following BMPs ODOT implements to manage the state highway system.

4.1 Integrated Vegetation Management (IVM)

ODOT's highway ROW accommodates a variety of conflicting demands, including clear zones, weed control, erosion and sediment controls (storm water detention and treatment), surface and sub-surface drainage, wetlands, fish protection, habitat mitigation, habitat protection for rare or endangered species, scenic quality, resource stewardship, bikeways and pathways, traffic devices, utilities, signing, and sound barriers. Oregon Revised Statute 634.650–665 requires ODOT to implement integrated pest management practices when performing the agency's duties related to pest control. Goals of ODOT's IVM program include encouraging self-sustaining vegetation and reducing the need for herbicides, fertilizers, and irrigation. ODOT continually explores new vegetation management practices, technologies, and partnerships to improve its IVM Program.

4.2 Tree Management

ODOT's top priority within and adjacent to ODOT ROW is safety. Tree and branch removal to increase safety is common within this area, which can be at the expense of riparian health. However, ODOT continually emphasizes only removing vegetation for safety/minimizing costly vegetation removal. The Federal Highway Administration (FHWA) requires every state to have a Strategic Highway Safety Plan (SHSP). The SHSP is a statewide safety plan that provides a comprehensive framework for reducing fatalities and serious injuries. The SHSP identifies key

safety needs and guides safety investments in infrastructure and safety behavior programs. ODOT's Transportation Safety Action Plan (TSAP) serves as the Oregon SHSP.

ODOT's TSAP lists roadway departure crashes as the largest number of fatal and serious injury crashes and the largest proportion of total fatal and serious injury crashes. FHWA defines a roadway departure crash as one that "occurs after a vehicle crosses an edge line or a center line, or otherwise leaves the traveled way." ODOT's FHWA crash data Quick Facts 2021 shows that the most common collision type for fatal crashes is fixed objects. Trees are the single most commonly struck objects in roadway departure crashes.

"Nationwide, crashes involving roadside trees are among the most prevalent fatal roadway departure crashes. Nevertheless, these particular fixed objects remain among the least treated. This is due, in part, to the fact that trees are often protected under strict environmental regulations, have cultural or historic significance, or exist on private property. There are, however, a number of successful—immediately deployable—tree countermeasures currently practiced across the United States" (Oregon Roadway Departure Implementation Plan Update 2009-2015 Final Report (2017)). The Roadway Departure Implementation Plan recommends tree management be considered in locations that meet threshold levels to minimize the severity of crashes that occur when vehicles leave the roadway.

ODOT's ROW tree management activities are required to prioritize safety and are designed to eliminate hazard trees, restore sight distance, minimize, or remove shading that may cause icy conditions, control or prevent slope failure, remove fire danger or fire impacted trees, reduce snowdrift accumulation near roadways, and to maintain a clear zone along the roadway. A clear zone is an unobstructed, traversable roadside area that allows a driver to stop safely, or regain control of a vehicle that has left the roadway (FHWA, 2021). ODOT's Highway Design Manual (Part 400 Roadside Design) follows the American Association of State Highway and Transportation Officials (AASHTO) Roadside Design Guide clear zone guidance procedures to determine the correct clear zone distance.

Tree management guidance for maintenance operations is included in the Routine Road Maintenance Water Quality and Habitat Guide, Best Management Practices (2020) ("Blue Book") and in the ODOT Maintenance Guide. If it is necessary for ODOT to remove a shade tree in a riparian area, two seedlings are planted in that same watershed for every shade tree over 12 inches (diameter and breast height) that was removed.

4.3 Culvert Repair and Fish Passage

Fish passage improvements at culvert repair locations use a combination of reducing jump heights, increasing water depths, and decreasing water velocities across the range of stream discharges where fish migrate. These improvements include installing roughened riffles or porous rock weirs in the stream channel downstream of a culvert (reduced jump heights), and baffles or fish rocks placed in the culvert barrel (hydraulic refuge, increased water depths). The Culvert Repair Programmatic Agreement (CRPA) and associated annual reports can be found on ODOT's Fish Passage webpage.

Culvert replacement projects completed through the ODOT Fish Passage or Culvert Fix-It programs prioritize a stream simulation approach. This design methodology uses a stream reference reach to set parameters for the new road stream crossing structure and channel. Channel morphology design include sinuosity, gradient, sediment sizing and transport rates, pool to riffle ratios, active channel width, bank full and flood flow exceedance modeling, hyporheic exchange, and other similar considerations. This approach uses best available science and design practices from the Fish Passage Chapter of the ODOT Hydraulics Manual (2014), the U.S. Forest Service Stream Simulation Design Manual (1996), U.S Department of Transportation Aquatic Organism Passage at Highway Crossing Implementation Guide (2024), and National Oceanic and Atmospheric Administration Fisheries Guidelines for Salmonid Crossings in WA, OR and ID (2022), among other resources.

Both culvert repair and replacement projects are monitored for up to five years following construction, ensuring the project is functioning as intended for both fish passage and stream simulation goals. Adaptive management of the project is conducted in scenarios where performance criteria are not being met, with the goal of meeting initial project objectives as approved by regulatory agencies.

4.4 Stream Bank Stabilization

One of the hazards of placing a highway near a river or other water body is the potential for erosion of the highway embankment by moving water. If erosion of the highway embankment is to be prevented, bank protection must be anticipated, and the proper type and amount of protection must be provided in the right locations. Channel and bank stabilization is essential to the design of any highway affected by the water. ODOT's Hydraulics Manual Chapter 15, provides procedures for the design of revetments to be used as channel bank protection and channel linings on larger streams and rivers (i.e. design discharges greater than 50 cubic feet per second).

ODOT incorporates large wood and vegetation into streambank stabilization projects to the extent possible. This may involve the use of riprap with root wads and willow stakes and incorporation of soil with herbaceous vegetation, along with other bioengineering approaches. Incorporation of these natural elements provides habitat for fish and aquatic/terrestrial invertebrates, as well as promoting stream temperature regulation and nutrient processing.

4.5 Climate Adaptation and Resilience

ODOT's Climate Adaptation and Resilience Roadmap provides policy guidance and actionable strategies to help ODOT institutionalize adaptation and resilience. It outlines a path forward for integrating climate change considerations into ways ODOT plans for, invests in, builds, manages, maintains, and supports the multi-modal transportation system. ODOT's Climate Office is responsible for integrating climate considerations into ODOT business and transportation systems. The office works across ODOT Divisions, with other state agencies, local jurisdictions, and the public in this work. The Climate Office also supports legislative and Governor's Office directives on climate change mitigation, adaptation, or sustainability.

5.0 Management Strategies (OAR 340-042-0080 (4)(a)(A)), Timeline and Milestones (OAR 340-042-0080 (4)(a)(B)), Monitoring (OAR 340-042-0080(4)(a)(C)), Annual Reports (OAR 340-042-0080(4)(a)(D)), and Periodic Review (OAR 340-042-0080(4)(a)(E))

For management strategy, timeline, milestones, monitoring, annual reports, and periodic review details see appendix. ODOT's TMDL SIP and annual reports will be posted for public review on ODOT's TMDL page. The TMDL annual report will summarize activities and accomplishments in each calendar year. ODOT's adaptive management approach to its TMDL SIP will include annual reviews of its ability to effectively meet the TMDL requirements. Management of a statewide linear transportation system presents different challenges than municipalities and other DMAs will encounter. ODOT will work with DEQ to determine the best use of its resources, within its Constitutional limitations, as it implements this SIP. ODOT's first annual SIP report is due June 1, 2027, with its Year Five Report due in 2031. ODOT will include a summary of TMDL pollutant management strategies by HUC8 in each annual report. The Year Five Report will include an analysis of the improvements by HUC8 to evaluate the improvements by watershed. Each time a TMDL is issued that lists ODOT as a DMA, ODOT's SIP will be reviewed and amended pursuant to the requirements timelines in each order or rule. The reporting schedule for additional TMDLs added will be incorporated into ODOT's existing 5-year schedule.

5.1 Blue Book Review

ODOT will identify/call out and clarify Blue Book BMPs which address TMDL requirements, update these requirements, determine if new BMPs can be added that address TMDL requirements, and evaluate strategies effectiveness.

5.2 Non-Operational Property (ROW and non-ROW) Identification for Enhancement

ODOT will identify ODOT-owned, non-operational property (ROW and non-ROW) within TMDL watersheds where ODOT is a DMA, and then determine if streamside enhancement could mitigate TMDL pollutants at any of these properties.

5.3 FAHP Riparian Projects Review, Coordination, Leveraging, and Tracking

ODOT will determine which FAHP project (operational ROW) actions/measures to track (culvert replacement, fish passage improvement, mitigation planting, bank stabilization, large wood installation), most effective tracking methods, how best to coordinate with local agencies/other government entities, best approach for leveraging riparian enhancements, and evaluate strategies effectiveness.

5.4 Streamside Evaluation

ODOT will conduct a pilot within the Upper Yaquina Watershed (identify stream-ODOT intersections, shade gap analysis, categorize and groundtruth surfaces, rank sites, enhancement

strategy, and evaluate strategies effectiveness) and then begin applying this methodology statewide, starting with Lower Columbia-Sandy River Subbasin and Willamette Subbasins (cold water refuges on ODOT property).

ODOT-owned property is a Highway Trust Fund asset and is subject to the same restrictions as any Highway Trust Fund expense. Land purchased with Highway Trust Funds must serve a highway purpose. Past application of the Constitutional restrictions on Highway Trust Funds has required the use provide a direct benefit to the highway system.

Tree planting activities cannot be considered in ODOT's operating ROW, including any portion of the clear zone, or in any rural areas that meet the criteria identified for countermeasure activities in the Roadway Departure Implementation Plan. Other limiting factors include, but are not limited to, archeological significance, wetlands, utilities and Endangered Species Act. Sites that are not eliminated based on those constraints will be further evaluated to determine whether a shade gap exists that can be addressed.

5.5 Streamside Enhancement Partnerships

ODOT will develop a general approach/potential means for other parties to access ODOT property and implement streamside enhancements, develop guidelines (USDA NRCS riparian Conservation Practice Standard), identify documents necessary for other parties to access and implement streamside enhancement, determine extent ODOT field staff would need to be involved, develop planting methods, and identify possible funding sources.

6.0 Land Use Compliance (OAR 340-042-0080(4)(a)(D))

DMAs are no longer required to demonstrate compliance with land use.

7.0 Fiscal Analysis (OAR 340-042-0080(4)(a)(E))

Oregon receives about $700 million in funding from the Federal Highway Administration each year for construction projects on the state's roads, including the interstate, as well as planning and engineering. Federal dollars cannot be used for day-to-day maintenance services or ODOT operations; federal funds can only be spent on capital construction projects. Some funds can also be used for transit and bicycle/pedestrian capital projects. All federal highway formula funds flow through ODOT. We distribute about 30 percent of those funds to local governments. Oregon also receives about $150 million in public transportation funding from the Federal Transit Administration each year. ODOT also applies for, and sometimes receives, grant funding from the federal government which must be spent on the specific project for which the grant was submitted.

Oregon's State Highway Fund collects resources from three main sources:

- Taxes on motor fuels, including gas tax and diesel tax.
- Taxes on heavy trucks, including the weight mile tax and truck registrations.

- Driver and vehicle fees, including licenses and vehicle title and registration.

Other State Funding
ODOT also receives revenue from other state sources, including:

- A 0.1 percent employee payroll tax ($1 for $1,000 in payroll) pays for public transportation service in both rural and urban communities.
- A 0.5 percent vehicle dealer privilege tax on new car sales funds rebates for electric vehicles and provides ongoing funding for the multimodal Connect Oregon program.
- A $15 tax on the sale of new bicycles with tires over 26 inches and that cost at least $200 goes to off-road bicycle and pedestrian paths that serve commuters.
- A small portion of cigarette tax revenues are dedicated to transit services for seniors and disabled people.
- Custom license plate fees are dedicated to operating passenger rail.

ODOT is not a general fund agency. Its funding sources are earmarked for specific projects. In July 2024, ODOT released a Transportation Funding Needs report, identifying significant funding gaps faced by the agency. ODOT's investments in stormwater, TMDL implementation and projects will vary from year to year. Implementation of this plan is dependent on available funding and allowable Trust Fund expenses. The estimated cost of implementation of the management strategies included in this plan over the 5-year period are approximately $1,500,000.

Due to ODOT budget cuts it is unlikely that new staff will be hired to complete SIP strategies. ODOT staff time, equipment, and other resources will be reallocated to complete SIP strategies over the course of five years as priorities allow.

7.1 Blue Book Review

Two Maintenance and Operations Branch (MOB) staff will conduct the initial review and update over 2-3 months. Then these two MOB staff and approximately 14 District Managers will edit the Blue Book for one week. Finally, the same staff will evaluate strategy effectiveness (changes in Blue Book/application of BMPs in the field) over one week near the end of SIP 5-year period.

7.2 Non-Operational Property (ROW, non-ROW) Identification for Enhancement

One MOB, one GIS, and one ROW (~0.25 FTE) staff will identify and determine streamside enhancement potential of ODOT-owned, non-operational property (ROW and non-ROW), create a GIS layer of these properties, write a summary, and evaluate strategy over approximately 1.5 years.

7.3 FAHP Riparian Projects Review, Coordination, Leveraging, and Tracking

One MOB, one engineer, 1-2 environmental staff (~0.25 FTE), and approximately 14 District managers will coordinate the collection of and track FAHP data, leverage support with local authorities/ governmental entities to determine feasibility of additional riparian enhancement, and evaluate strategy over 4.5 years.

7.4 Streamside Evaluation

One MOB staff, one intern (field work), one GIS staff, and approximately 3 District coordinators will develop the Upper Yaquina Watershed shade gap analysis and streamside evaluation, create GIS layers and methods, apply these methods to other TMDL watersheds, and evaluate strategy over 4.5 years.

7.5 Streamside Enhancement Partnerships

Three MOB staff and approximately 3 District managers will develop approach/potential means for other parties to access ODOT property and implement streamside enhancements over 2 years.

8.0 Appendix

Oregon Department of Transportation (ODOT) Total Maximum Daily Load (TMDL) Statewide Implementation Plan (SIP) Matrix with TMDL nonpoint source pollutants found in Table 1.1.

ODOT TMDL SIP Matrix

STRATEGY 1: BLUE BOOK BMP REVIEW, CALL OUTS, ADDITIONS, AND UPDATES

MANAGEMENT STRATEGY	POLLUTANT SOURCES	SPECIFIC ACTIONS	RESULTS/OUTCOMES	TIMELINE	MILESTONE	ADAPTIVE MANAGEMENT	FUNDING
What is being done, or what will you do, to reduce and/or control pollution from this source?	What sources of this pollutant are under your jurisdiction?	Specifically, how will this be done?	How will you quantitatively or qualitatively demonstrate successful implementation or completion of this strategy?	When do you expect it to be completed?	What intermediate goals do you expect to achieve, and by when, to know progress is being made?	Indicate how strategies have changed with annual review reports	Existing resources (most strategies need additional resources; this is addressed in the 5-year plan)
Review Blue Book BMPs through the TMDL requirements lens.	See ODOT SIP Table 1.1	Identify and call out Blue Book (ODOT Routine Road Maintenance Water Quality and Habitat Guide, Best Management Practices) Best Management Practices (BMPs) that address TMDL requirements.	Blue Book review complete.	12/1/2026	Approximately half of Blue Book reviewed by 11/1/26.		
Add BMPs if appropriate.	See ODOT SIP Table 1.1	Determine if new BMPs can be added that address TMDL requirements and add new BMPs if needed.	New BMPs added to summary table below.	2/1/2027	Approximately half of Blue Book additions complete by 1/1/27.		
Update BMPs that specifically address TMDL requirements.	See ODOT SIP Table 1.1	Update Blue Book BMPs that address TMDL requirements as appropriate and feasible based on maintenance staff input.	Updates to Blue Book TMDL BMPs will be included in summary table below.	6/1/2027	About half of Blue Book BMPs updates complete by 5/1/27.		
Update Blue Book training materials to include TMDL BMPs.	See ODOT SIP Table 1.1	Update Blue Book training materials (PowerPoint presentation) to include TMDL BMPs.	Updates Blue Book training materials with TMDL BMPs.	11/1/2027	Half of Blue Book training material updates complete by 10/1/27.		
Evaluate strategy effectiveness.	See ODOT SIP Table 1.1	Evaluate effectiveness of Blue Book additions and updates by collecting feedback from and discussing these changes with district managers.	Summary table of Blue Book additions and updates district managers found most helpful.	12/1/2030	Email district managers updated Blue book by 12/1/27.		

STRATEGY 2: ODOT NON-OPERATIONAL PROPERTY (ROW AND NON-ROW) IDENTIFICATION, CHARACTERIZATION, AND MAPPING

MANAGEMENT STRATEGY	POLLUTANT SOURCES	SPECIFIC ACTIONS	RESULTS/OUTCOMES	TIMELINE	MILESTONE	ADAPTIVE MANAGEMENT	FUNDING
Coordinate with non-operational property staff.	See ODOT SIP Table 1.1	Coordinate with non-operational property managers within ODOT to write communication plan.	Communication plan including notes, roles and responsibilities, etc.	12/1/2026	Approximately half of staff identified by 9/1/26.		
Identify ODOT non-operational property located in TMDL watersheds.	See ODOT SIP Table 1.1	Identify/locate known ODOT-owned, non-operational property (ROW and non-ROW) within 150ft of a stream that is within TMDL watersheds where ODOT is a Designated Management Agency (DMA).	GIS layer showing ODOT non-operational properties within TMDL watersheds where ODOT is a DMA.	2/1/2027	Approximately half of properties identified by 1/1/27.		
Create table of identified property characteristics.	See ODOT SIP Table 1.1	Create table which characterizes properties (e.g. unique ID, acres) for purposes of streamside enhancement using GIS and current DEQ data.	Table showing ODOT property characteristics.	6/1/2027	Approximately half of table created by 3/1/27.		
Create map of identified properties.	See ODOT SIP Table 1.1	Create GIS layer of identified properties with identified characteristics for purposes of streamside enhancement using GIS and DEQ data.	Add ODOT property characteristics to GIS layer.	8/1/2027	Approximately half of map created by 7/1/27.		
Evaluate strategy effectiveness.	See ODOT SIP Table 1.1	Evaluate potential of identified non-ROW, ODOT-owned properties to increase riparian shade.	Evaluation summary stating strategy pros, cons, and tradeoffs.	12/1/2027	Approximately half of summary will be complete by 9/1/27.		

STRATEGY 3: FAHP RIPARIAN PROJECT REVIEW, COORDINATION, LEVERAGING, AND TRACKING							
MANAGEMENT STRATEGY	**POLLUTANT SOURCES**	**SPECIFIC ACTIONS**	**RESULTS/OUTCOMES**	**TIMELINE**	**MILESTONE**	**ADAPTIVE MANAGEMENT**	**FUNDING**
A. Review ODOT riparian FAHP (Federal-Aid Highway Program) project actions and measures, select actions to track and report.							
Coordinate with ODOT staff.	See ODOT SIP Table 1.1	Coordinate with ODOT staff to form FAHP project work group and communication plan.	FAHP project work group formed and communication plan written.	12/1/2026	ODOT project work group mostly determined by 9/1/26.		
Review list of planned riparian FAHP projects.	See ODOT SIP Table 1.1	Determine which planned projects (operational ROW) include actions/measures that comply with TMDL requirements, such as channel morphology enhancement (bank stabilization) and erosion mitigation.	Table including project type, name, location, BMPs, and short description (how does each BMP address TMDL requirements).	3/1/2027	Approximately half of table will be complete by 2/1/27.		
Select ODOT riparian FAHP project actions and measures to track.	See ODOT SIP Table 1.1	Select ODOT riparian FAHP project actions and measures to track that address TMDL requirements within selected project categories above (e.g. erosion mitigation).	Actions and measures to track within selected project categories will be included in table above.	6/1/2027	Approximately half of actions and measures to be tracked will be selected by 5/1/27.		
Determine and set up most effective method for tracking.	See ODOT SIP Table 1.1	Determine and set up most effective method (location, enhancement type, timeline, communication, etc.) for tracking riparian FAHP projects (e.g. number trees planted) within project categories selected above.	Method and set up summarized/step by step details provided in table above.	9/1/2027	Approximately half of method determined by 8/1/27.		
Summarize reviewed FAHP riparian projects.	See ODOT SIP Table 1.1	Annually summarize reviewed riparian FAHP projects within project categories selected above through the TMDL requirements lens and tracked metrics (measures and actions).	Annual summary by HUC8 for each reviewed riparian FAHP project including actions and measures tracked.	Apr 1st annually 2028-2030	Approximately half of annual summary complete by Nov 1st 2027-2029.		
B. Coordinate with local agencies and other government entities to leverage support for project streamside enhancements to take advantage of access during construction.							
Coordinate with appropriate ODOT staff.	See ODOT SIP Table 1.1	Coordinate with ODOT managers to write communication plan.	Communication plan including notes, roles and responsibilities, etc.	6/1/2029	Approximately half of staff identified by 3/1/29.		
Coordinate with local agencies and other governmental entities to leverage support.	See ODOT SIP Table 1.1	Coordinate before/during project delivery with local authorities/ governmental entities to leverage support and determine if inclusion of riparian enhancement which address TMDL requirements in planned ODOT projects are implementable/practical/legal.	Summary of coordination/ leverage outcomes for each riparian project will be included in table above.	Apr 1st annually 2029-2030	Initial contact with local authorities/governmental entities complete by Feb 1st 2029-2030.		
Implement leveraged riparian enhancement(s) if appropriate.	See ODOT SIP Table 1.1	Coordinate with local agencies/government entities to implement leveraged riparian enhancement(s), if appropriate, that address TMDL requirements including bank stabilization, plant installation, etc.	Details of leveraged riparian enhancement(s) included in table above, if appropriate.	When appropriate	Most up-to-date table will be included in TMDL annual reports.		
Track leveraged riparian enhancement(s) if appropriate.	See ODOT SIP Table 1.1	Track leveraged riparian enhancement(s), if appropriate, recording location (HUC8), progress, enhancement type, plants installed, etc.	Detailed information of leveraged riparian enhancement(s) included in table above, if appropriate.	When appropriate	Most up-to-date table will be included in TMDL annual reports.		
Evaluate strategy effectiveness.	See ODOT SIP Table 1.1	Evaluate collected documentation (table above) to determine how effective project actions are at complying with TMDL requirements/improving water quality.	Evaluation summary stating pros, cons, tradeoffs, and overall effectiveness of approach.	12/1/2030	Approximately half of evaluation complete by 6/1/30.		

STRATEGY 4: STREAMSIDE EVALUATION							
MANAGEMENT STRATEGY	**POLLUTANT SOURCES**	**SPECIFIC ACTIONS**	**RESULTS/OUTCOMES**	**TIMELINE**	**MILESTONE**	**ADAPTIVE MANAGEMENT**	**FUNDING**
A. Pilot: Develop methods and map for Upper Yaquina Watershed.							
Obtain and review files, guidelines, and tools.	See ODOT SIP Table 1.1	Obtain and review files (e.g. ROW and riparian GIS layers), guidelines (DEQ documents), and tools (DEQ shade gap tool) to conduct shade gap analysis and streamside evaluation.	All necessary files (e.g. layers), guidelines (DEQ documents), and tools obtained.	7/1/2026	Majority of necessary files, guidelines, and tools obtained by 6/1/26.		
Develop overall method.	See ODOT SIP Table 1.1	Write methods showing overall approach using DEQ shade gap analysis and stream evaluation methods.	PowerPoint/table/word document showing overall approach.	9/1/2026	First draft of methods written by 8/1/26.		
Identify potential ODOT properties to increase stream effective shade.	See ODOT SIP Table 1.1	Apply DEQ's shade gap analysis and streamside evaluation tools/methods to identify ODOT properties (including ROW) within 150ft of streams within Upper Yaquina watershed.	GIS layer showing ODOT properties with potential to increase stream effective shade.	12/1/2026	Majority of GIS layer complete by 11/1/26.		
Characterize and categorize selected properties.	See ODOT SIP Table 1.1	Characterize selected sites (e.g. acres, vegetation) using ODOT (e.g. video log)/other data and indicate category type (enhancement, protection, physical or jurisdictional constraint).	GIS layer(s)/table showing characteristics and categories for potential ODOT sites.	5/1/2027	Majority of GIS layer/table showing site characteristics and categories complete by 4/1/27.		
Conduct field visits.	See ODOT SIP Table 1.1	Conduct field visits at potential ODOT properties (ground truth) with greatest potential for increasing effective shade to confirm ODOT property, category type, take photos, estimate sight distance, and document additional information not gleaned from GIS analysis (e.g. overhead utilities). Involve public/student volunteers in field visits.	Site visit information added to ODOT GIS layer above improving ability to rank sites for increasing stream effective shade.	Apr-Sept 2027 and Apr-Sept 2028	Majority of field visits complete by 10/1/27.		
Complete shade gap analysis if needed.	See ODOT SIP Table 1.1	Use DEQ shade gap analysis (possibly conduct shade gap analysis if no DEQ data exists) to determine shade gap (target effective shade minus current effective shade) at identified sites above.	Shade gap analysis GIS layer.	9/1/2027	Approximately half of shade gap analysis complete by 8/1/27.		
Rank/prioritize all potential sites.	See ODOT SIP Table 1.1	Rank top 5 locations and discuss best approach to increase effective shade at these sites, and describe methods including prioritization rationale.	Rank number and important related information (unique ID, area, etc.) added to table above.	12/1/2027	Majority of potential sites ranked by 11/1/27.		
Determine vegetation strategy and opportunities to address constraints.	See ODOT SIP Table 1.1	Determine the streamside vegetation strategy (plant, protect, thin/manage) and opportunities to address constraints (install topsoil over sandy native soil) for each potential site.	Table of streamside vegetation strategies and opportunities to address constraints for each potential site.	3/1/2028	Majority of table complete by 2/1/28.		
Evaluate strategy effectiveness/ streamside evaluation.	See ODOT SIP Table 1.1	Determine effectiveness of approach by comparing shade gap analysis with field survey (GIS estimate vs ground truth), current ODOT data (e.g. video log), applicability of GIS method to other watersheds, and use adaptive management (e.g. other approaches).	Evaluation summary stating method pros, cons, tradeoffs, applicability to other watersheds, and adaptive management.	6/1/2028	Approximately half of evaluation complete by 5/1/28.		
B. Apply Upper Yaquina Watershed methods statewide (pending DEQ approval).							
Start applying Upper Yaquina Watershed methods to upcoming TMDL watersheds.	See ODOT SIP Table 1.1	Start applying Upper Yaquina Watershed methods (possibly pending DEQ approval of methods) to upcoming TMDL watersheds where ODOT has been/will likely be listed as a DMA (Lower Columbia-Sandy River Subbasin, Willamette Subbasins) to increase stream effective shade.	Shade gap analysis, GIS layer, groundtruth data, site ranking table, summary, and strategy evaluation.	12/1/2030	For Lower Columbia-Sandy River Subbasin and Willamette Subbasins, complete shade gap methods including effective shade targets by 11/1/26 and complete streamside evaluation by 5/1/28.		

STRATEGY 5: STREAMSIDE ENHANCEMENT PARTNERSHIPS							
MANAGEMENT STRATEGY	**SOURCES**	**SPECIFIC ACTIONS**	**RESULTS/OUTCOMES**	**TIMELINE**	**MILESTONE**	**MANAGEMENT**	**FUNDING**
A. Develop approach for partners to access ODOT property to conduct stream enhancement on non-property.							
Develop overall approach.	See ODOT SIP Table 1.1	Develop overall approach for other parties to access ODOT property to implement streamside enhancement on non-ODOT property.	Overall approach document.	6/1/2029	First draft of overall approach complete by 5/1/29.		
Write partner enhancement approach/BMPs if possible.	See ODOT SIP Table 1.1	Use information gleaned from strategies 3 (ODOT Non-ROW property) and 4 (streamside evaluation) to inform partner enhancement approaches/BMPs.	Table of partner enhancement approaches/BMPs.	12/1/2029	First draft of table complete by 11/1/29.		
B. Develop approach for partners to conduct stream enhancement on ODOT property.							
Develop overall approach.	See ODOT SIP Table 1.1	Develop overall approach/potential means for other parties to access and implement streamside enhancement on ODOT property (e.g. volunteer tree planting) including review of regulations, laws, ordinances, local code, steps, etc.	Overall approach document.	2/1/2030	First draft of overall approach complete by 1/1/30.		
Identify documents necessary for other parties to access and implement streamside enhancement.	See ODOT SIP Table 1.1	Identify documents (inter-agency agreement (IGAs), liability waivers, permit, etc.) necessary for other parties to access and implement streamside enhancement on ODOT ROW/property, extent ODOT (local) field staff would need to be involved (safety), planting methods (species, spacing, etc.), and other considerations (adjacent property management strategies).	List of documents required for successful partnership/streamside enhancement implementation.	4/1/2030	First draft of document list complete by 3/1/30.		
Identify funding sources.	See ODOT SIP Table 1.1	Identify possible funding sources (grants) to enable volunteer groups to implement streamside enhancement on ODOT ROW/property.	Table of possible funding sources	6/1/2030	Approximately half of table complete by 5/1/30.		
Review USDA NRCS riparian Conservation Practice Standards (CPSs).	See ODOT SIP Table 1.1	Review USDA NRCS riparian CPSs (Code 327 Conservation Cover, Code 391 Riparian Forest Buffer, Code 393 Filter Strip, and Code 580 Streambank and Shoreline Protection).	USDA NRCS riparian CPSs reviewed.	8/1/2030	Approximately half of standards reviewed by 7/1/30.		
Write partner enhancement guidelines/BMPs.	See ODOT SIP Table 1.1	Write partner enhancement guidelines/BMPs considering information gleaned from USDA NRCS riparian CPSs, strategy 3 (FAHP), and strategy 4 (streamside evaluation) to inform partner riparian enhancement approach.	Table of partner enhancement guidelines/BMPs.	10/1/2030	Approximately half of table complete by 9/1/30.		
Evaluate strategy effectiveness.	See ODOT SIP Table 1.1	Evaluate if partnership approach is effective at implementing riparian projects.	Evaluation stating pros, cons, tradeoffs, and overall effectiveness of partnership approach.	12/1/2030	First draft of evaluation complete by 11/1/30.		